Get Smart

#08

INTERVIEW

Eva Tischlerová

TOPIC

Smart Mobility

INTERVIEW

Jakub Hussar

RESEARCH, DEVELOPMENT, AND INNOVATION IN THE PILSEN REGION
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The colour-edited photo shows a detail of the traffic situation on Rokycanská Street in Pilsen. *Author of the photo: Petr Špánek*



Dear readers,
The Pilsen region has always had a rich industrial tradition, but it was also a place where new ideas and progressive solutions were born. I am using the past tense here because we have been resting on our laurels a bit. For example, according to data from 2023, total R&D expenditure in the Czech Republic reached CZK 139.7 billion, with the Pilsen Region accounting for only 4.4% of this volume, which ranks it sixth among the regions. Of course, this figure is not fully indicative of our research, development, and innovation, but it does suggest that there is room for improvement, whether in greater investment in R&D or, for example, in supporting employment in key technology sectors. For in these times when technological progress sets the pace of development, it is crucial that we not only applaud innovation, but also actively support it.

And what can we politicians, representatives of the Pilsen Region, do about this? In this case, the good old rule that "less is sometimes more" applies. Above all, political representation must guarantee a stable and predictable business environment, which means not changing the rules of the game every year, and interfering with people's business as little as possible. Of course, I would like us to continue to actively support, with subsidy programmes those projects that make sense and bring real value. I want to initiate organizing Business Forums, which will serve as platforms for meeting and exchanging experience between companies across all partner regions. Our companies and institutions should establish much-needed contacts and collaborations in their respective sectors there. And it is there that the needs of business should be communicated to us politicians and officials – as we are not the ones to tell people how to do their business from behind our desks. It is you – the people with ideas, the innovators, the entrepreneurs who bring your unique know-how. And we want to help you and make your journey easier.



Mgr. Martin Rybár
Deputy Governor of the Pilsen Region
for IT and European Affairs

News from the Region

Pilsen Has Tested an Electric Bus with a Body from Holýšov



Last November and early December, the Pilsen Public Transport Company (PMDP) tested a technological innovation. The Mercedes-Benz eCitaro G, an electric bus with a length of 18.1 metres, a passenger capacity of 145 people, and a range of at least 220 km on a single charge. As the public could take a ride on it too, it attracted great interest. "*We already tested a MAN electric bus in October, but it was a test run without passengers,*" said the PMDP spokesman René Vávro, adding that the routes of lines 24 and 30 were chosen because of their demanding profile, which was ideal for the test. The results of such tests should provide the PMDP with a clue as to what to do next. The company has also already started to look at other manufacturers' electric buses to try out. Although there is no such vehicle in the Pilsen city fleet at the moment, the outcomes of such tests could decide on their potential acquisition. In the future, Pilsen's public transport could be provided by a convenient mix of electric buses and "*partial trolleybuses*" which are powered by rechargeable batteries, as well as the overhead wires, ensuring a range of several dozen kilometres. Until last year, electric buses were last tested in Pilsen in 2015. It is worth noting that the most visible part of the eCitaro was built in the Pilsen region. Its bodywork was produced at the Daimler Buses Holýšov plant.

Automated Cyclist Counters Will Help with Infrastructure Development



No, those aren't repaired cracks. The shapes barely visible at first glance, which zigzag across the cycle paths in Karlovarská Street and U Prazdroje Street in Pilsen, hide special induction loops, and signify that the city has started tracking the number of cyclists passing through these areas. The data is not only available to the Municipality of the City of Pilsen, but anyone can see it on displays on nearby lamp poles. The city needs to know the numbers. "*Whenever we make decisions about construction or modification of transport infrastructure, the figures on the existing traffic are important, if not crucial. Up until now, cyclist counts have only been carried out manually, and at selected locations. Now we will have continuous data, from which we can also tell the trends in transport and leisure cycling,*" said Aleš Tolar, Deputy Mayor for Transport and Environment. The built-in induction loop will recognize and count bicycles and big wheel scooters. It records the electromagnetic impulse of every bike passing, and analyses it according to thirteen differentiation criteria, and in every situation, thanks to a unique algorithm with high precision. The device was installed by the Brno-based non-profit company, Partnerství, whose technology has already been used e.g. in Prague, Jihlava, and Pardubice. The installation cost CZK 987,360.

The First University Electric Formula Brought Home a Bronze Medal from Portugal



The students of the University of West Bohemia (UWB) in Pilsen who, besides the lecture halls, also meet as members of the UWB eRacing Team Pilsen, can be proud of themselves. Until the previous academic year, they had always participated in the university formula races with a car with an internal combustion engine, which they had gradually improved over the years, but the most recent edition of the competition presented them with the challenge of building an all-electric open-wheel car. Building the UWB E01 formula car took them 18,000 hours. The first time they saw what the car could do was at a race in Most, and a month later they competed in an international race in Castelo Branco, Portugal. The team from the Faculties of Electrical Engineering, Mechanical Engineering, Economics, and Applied Sciences returned with fantastic results. The sum of points from all of the disciplines earned the UWB students bronze medals, and a great achievement was the 1st place in the Efficiency sub-discipline, which focuses on efficiency, and which evaluates the lowest possible consumption of electricity during the main race. Besides the races, the judges also assess the work of the design teams in the static disciplines of Design, Business Plan Presentation, and Cost Analysis. The Pilsen team also celebrated winning a special prize for the best designed and constructed component – a traction inverter that powers the electric motor. Formula Student is the world's most widespread university educational competition, with over 800 universities participating regularly.

Smart Tram Can Respond to What the Drivers Themselves Don't Expect



Transport in Pilsen is to be safer, more efficient, and more environmentally friendly in the future. This may include a smart tram, whose predecessor was built thanks to the DIDYMOS research project. Under the supervision of experts, it circled a testing track near the UWB last year, examining in practice, e.g. special units that allow it to communicate with the transport infrastructure and navigate in space, thanks to cameras and LiDARs. Thanks to up-to-date and highly accurate maps, the tram can respond to unpredictable events, such as obstacles on the track, or pedestrians crossing the street. It was these features that were tested in pilot runs on the tram loop near the Bory campus. The tests involved deploying newly installed technologies, such as LiDARs, cameras, and V2X communication units, in combination with the tram's anti-collision system. The tram detected obstacles in the passage profile, detected a car approaching from a blind spot, and warned of an approaching Integrated Rescue System vehicle. The DIDYMOS project also enriched the existing 3D model of the City of Pilsen with the pilot area including the tram loop. The project consortium includes INTENS Corporation, Škoda Group, CEDA Maps, UWB in Pilsen, and the Czech Technical University in Prague.

Research and Development in the Pilsen Region: Hard Data

Basic information about the region:

614,640

Population as of 31 December 2024

30%

of the region's population is concentrated in Pilsen

42.8

Average age of the population

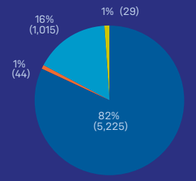
14.5%

Residents with university education

10.6%

of university students in the region are foreigners

Expenditure on research and development



- Business
- Higher education
- Government
- Private non-profit

R&D expenditure in 2023: **CZK 6.3 billion** (CZK 6.2 billion in 2022).

R&D expenditures in the region have slowed down slightly compared to the previous year (particularly in the business sector).

Up to **83%** of total R&D expenditure is concentrated in the business sector, and **16%** in the higher education sector.

In 2023, business sector R&D expenditure amounted to **1.7%** of GDP (4th highest share among Czech regions).

Employees in R&D

3,800. The number of persons employed in R&D has slightly decreased between 2020 and 2023 (by 148 persons).

6.2 R&D employees per 1,000 residents — The region has the 3rd highest share of R&D employees per 1,000 residents in inter-regional comparison.



* R&D employees per 1000 residents

Women in R&D

After a significant increase in the number of researchers in the region in 2020 to 328 (252 in 2016), there was a slight decrease to 310 in 2023. (In 2022, there were 363 researchers).

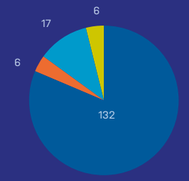


Share of female researchers in the total number of researchers — **13.8%**

2nd lowest proportion of female researchers in interregional comparison

Czech average — 24%

R&D Workplaces



- Business
- Higher education
- Government
- Private non-profit

2013	**107 workplaces**
2022	**156 workplaces**
2023	**161 workplaces**

The number of departments with Research as their main economic activity has increased slightly in recent years, to 13 in 2023.

University students

Between 2019 and 2024, the number of students at the University of West Bohemia in Pilsen increased by

9.1%

Year 2024 — **11,700** students currently study at the University of West Bohemia in Pilsen and **2,344** at the Faculty of Medicine at Charles University in Pilsen.

14,300

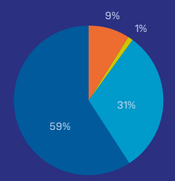
students in the Pilsen Region.

Students in STEM fields

14% of university students living in the Pilsen Region study STEM disciplines.



Research and development results



- Businesses
- Public universities
- Individuals
- Other
- Public research institutions

In 2023, **25** patents were granted to applicants from the Pilsen Region, which was the highest number in the monitored period (2010—2020).

In 2023, a total of **160** valid patents granted to applicants from Czechia were registered in the Pilsen Region, Most applicants were from the corporate sphere (59%), 31% were from public universities, and 9% were individuals, 1 % others.



Research and Development Observatory in the Pilsen Region, 2024.

Significant trends and data from the Pilsen Region are monitored and processed by the analytical department of the Regional Development Agency of the Pilsen Region. Data collected and provided by Czech Statistical Office and the Czech Ministry of Education and Science.

Every Child Will Need to Be Educated in Multiple Disciplines to Withstand Changes in Technology and Digitalization



The RADOVÁNEK Leisure Centre has been involved in leisure education in the Pilsen Region for 45 years, and has long been one of its leaders. It's located in Pallova Street, in Pilsen, where leisure education began 75 years ago. It has sixteen outlets in the region, nine of which are in Pilsen, and others in Kaznějov, Manětín, Nečtiny, Kozolupy, Dolní Bělá, and Štěnovice. Eva Tischlerová, RADOVÁNEK's long-time director, revealed in an interview what RADOVÁNEK offers, and what it does, as well as how it works with young talents.

There are probably not many parents in the Pilsen Region who aren't familiar with the RADOVÁNEK Leisure Centre. But for those who may not know it, could you introduce it to them and tell us what you do?
Everyone can find something here. Leisure education takes several forms. We organize regular leisure, educational, and recreational activities and camps. We are involved in awareness raising among children, pupils, and students, we provide them with the necessary information, and we also undertake activities aimed at the prevention of risky behaviour, along with education for volunteering. We carry out educational programmes for schools and educational institutions, building on the Framework Educational Programmes of schools.

You're celebrating the 45th anniversary of the foundation this year, aren't you?
Yes, we are, and we will be trying to network our activities across the Pilsen Region. I'm delighted to be able to work with a range of stakeholders in education, schools, and educational establishments, because I think that networking, participation, and co-operation across the region, in the field of formal and informal education, is very important for the support and comprehensive development of children and young people. We have 16 buildings in the region, and rent 21 more classrooms and gyms in primary and secondary schools. Without them, RADOVÁNEK could not exist at all, as we have 420 clubs, and currently 4,625 registered participants. I'm very proud that children and young people keep coming back to us, and that parents are making the most of the opportunity to join a variety of clubs in different areas and disciplines across the region. It's not an exception that a child attends, say, three of our venues. The capacity of our after-school clubs is 5,500 participants.

Such interest, that's amazing!
We are all very happy to see such interest. It's great that parents are aware that they can bring their children to a safe and stimulating environment. I think that children these days don't do enough sport, and don't develop sufficiently physically. There are a lot of children who are obese, have back and mental problems. We also have, as I put it, nervous children, who lose their attention and concentration easily, which is very bad. These children have trouble at school, and have poor results. It's good that they participate in activities in various organizations. Whether it is non-profits, sports clubs, children's and youth centres and leisure centres, or any after-school club run by a primary school. I'm glad that children are developing, realizing their personal potential, and working on their self-esteem and self-image. By taking part in extra-curricular activities, they work actively towards their own well-being. It's certain that in the twenty-first century, when there is so much technology around us, aggression and inner tension in society is on the rise. That's not easy at all. It's all the more important to communicate with the children, to explain everything more thoroughly, to teach and support them. I'm convinced that parents understand and support children, that teachers and educators try to be their friends and guides in education and the use of active leisure time. I'm also pleased that secondary school pupils who attend our various technical and science clubs can do something extra while studying. They engage, e.g., in chemistry, astronomy, mathematics, physics, electrical engineering, or robotics, which is great. Their individual projects and enthusiasm act as a catalyst for other children, for whom these gifted pupils are great role models and authorities. Let me mention, e.g., Jakub Štěpánek, who started working with us as a boy, when he attended the grammar school in Mikulášské náměstí in Pilsen. Today, he's an engineer, a graduate of the University of Chemistry and Technology in Prague, and he's still studying. He doesn't keep his education and the knowledge he has acquired to himself, but he tries to get involved in various projects across the Pilsen Region, collaborating not only with us, but also with the Regional Development Agency of the Pilsen Region, and promoting the GoHigher project, in which he took part, and with which we also co-operate. It's great that he's working with us and the Unipetrol Foundation on the Wonderful Days with Chemistry, projects that make children realise that chemistry is not just science, but that it's useful and fun, so that primary school pupils come to love maths, physics, and chemistry, and study these fields for use in their future professions. There are very few teachers who want to teach chemistry in primary and secondary schools, and there are declining numbers of chemists, physicists, and mathematicians who can teach children in a way that makes these subjects popular. We need these teachers not just to be teachers, but to be the pupils' guides in education, so that they can enthuse and motivate them. So that they pass on their knowledge and experience in such a way that the children love these subjects, and continue to pursue them in their careers.

You mentioned the GoHigher project, which focuses on working with young talents. Can you describe the work with the gifted and talented in more detail?
I believe in linking formal and non-formal education. If, for example, a child is highly gifted or phenomenal at school from a very young age, and has excellent grades, we want RADOVÁNEK to open doors for them, and to further develop them in areas and fields that they find exciting at school, and motivate them to grow further. We give them a kind of, as I say, icing on the cake, by preparing afternoon activities for them, so that they can work on their personal projects with us, for example. We take a very individual approach to them, and provide additional, above-standard tuition, with the participation of experts. That's why we co-operate with many different schools here in Pilsen. Pupils develop further opportunities with us, they can carry out research in the fields of technology and natural sciences. They take what they learn in school in maths, physics, or chemistry further, by creating their own projects and works of art and science. By supporting them, we help them to reach a prestigious level in various competitions held not only by the Pilsen Region, be it the "*A Trade in Hand Finds Gold in Every Land*" competition, or the Technical Olympiad. I really appreciate the fact that we live in the Pilsen Region, which I think is very supportive of the development of education across generations. The Department of Education is making sure that nursery schools, primary schools, art schools, secondary schools, and

also university-educated people are given the green light to create and develop. This is what non-formal and extra-curricular education helps to do. Three years ago, the JETOTU project was launched. We've already held three editions of this major event at Republic Square in Pilsen, where a small town always grows, and where we invite our collaborators in education, such as the National Institute for Further Education, the Regional Centre for Education, Europe Direct Klatovy, and the Regional Development Agency of the Pilsen Region. We also co-operate with secondary schools across the Pilsen Region.

In your opinion, is help from an educational-psychological counselling centre necessary to identify gifted children?

I think that it definitely does if the child has special educational needs, and if any support measures are needed or recommended. When a child requires support measures of the first level, there is no need for the involvement of the counselling centre. Here, we can tell that they are gifted as well. Then it's good to give them attention and develop them from an early age. I feel it this way because I sit on a lot of different committees, including at the Ministry of Education, where I also try to have a say in strategies and policies, both for extra-curricular education and youth programmes, and so on. We're unique in the Pilsen Region. We try to work a lot with children in a targeted way, and I don't think there are many leisure centres and children's and youth centres across the country that do this individual work with the gifted. In our region, it's not only us, but also the larger children's and youth centres, such as Rokycany, Klatovy, Domažlice, but also Tachov, whose situation isn't at all easy in the area of the former Sudetenland. Yet they still try to find talents and gifted kids there, and work with them. The Pilsen Region is a cradle of talent, and I would like the whole of the Czech Republic to do more about this, because I think that children really deserve it, and that gifted and talented children who have the right direction and the right self-reflection are our future. I always say that in order to be able to be creative and well educated, you have to create your personal portfolio, and have a personal development plan. To love one's community, one must first of all love oneself and believe in oneself. I always tell children that it is not important to win, but that even if I do something stupid, it's good to correct the mistake and move on, and to avoid those mistakes in the future. Every mistake gets us into different dimensions, and actually sets us up to learn new things and new attitudes.

You say that educational-psychological counselling is not always completely necessary, unless the child has special needs. So how do you know if a child is gifted, if there's a simple answer to that?

My colleagues and I always say that a gifted child "*shouts out*" to us. They're different, usually introverted. It's quite common that such a child is unhappy being in a group, and gives us impulses. A lot of our colleagues do recognize that this is a gifted child, because even their parents say, we don't know what to give him / her anymore, we're not good enough for what he / she wants. A colleague had a boy in a technical club who would just like to help or invent things. He draws attention to himself, it is necessary to keep him busy all the time, and prepare an individual programme for him. And we give them such opportunities. Not only in science, it might be in dance, or any other thing. Gifted children show ability to improvise, a fast development, faster than other children. They don't need to study so much, it's just there, and it shows. We take these kids further, because we give them the opportunity to participate in both the regular and individual activities. It's not that they are the "*teacher's pet*" exactly, but we give them the possibility to help us with others, to use their talents to help others develop much faster, too. The gifted and talented often act as natural role models and motivators, and natural authorities for their peers. For example, our support is also in giving them their own space, and telling them that they can come and work on their own project or creative work, or even their own training. Whenever they need it. We know how to work with the gifted and talented, and we appreciate that. I think that we're unique on the countrywide level, as evidenced by the national meeting of directors, where the Pilsen Region reported the highest number of gifted and talented, thanks to us and other colleagues who know about them, and support them. We develop them individually, and give them opportunities, above all, by treating them as equal partners, and trying to make sure that they pass on their experience, talents, and gifts to other children. We realise that parents are also of great help in this.

I sometimes hear opinions that interest in science and technology is declining among children. Is that true? Are today's children really different? Are they interested in other things, do they enjoy doing other things than the previous generation?

It might be true to some extent. Fewer and fewer pupils pursue technical subjects. I think it's a nationwide mistake that today's teachers aren't able to get kids excited, can't guide them and make science fun at school. I think interactivity is lacking a lot in education in general, that it's not just about getting kids from page 2 to page 4. It's not about getting them to learn the formulas by rote, it's about showing them more experiments and more exciting things in school. Show them in class what a crank mechanism or inclined plane looks like, so that the kids can make it themselves, assess the parameters, and figure out for themselves where they made mistakes, and where they got things wrong. In maths, more independent projects and things like mechanics, what is compression, tension, and shear stress, teach them some mechanics in maths, introduce electrical engineering and more robotics. Explain that everything in life is actually mathematics, chemistry, and physics, that these are simply sciences we encounter every day. The teacher should have something interesting prepared for each lesson, something that will get them up from their chairs in the classroom, and that they will want to try at home, or in a club. I think it's also the Ministry's fault for not seeing that children can learn far more in a fun, interactive way than from textbooks according to a fancy curriculum. There are schools in the Pilsen Region where this opportunity exists, for example in Zbiroh and Holoubkov, where they focus on metacognitive education. There are many teachers who can do this, but there are too few such schools. I think a lot has changed at the University of West Bohemia in Pilsen, and those who teach there are well aware of this. I know that students are now learning a lot on the job, and realise that interactivity is important. But if the mindset of us educators and teachers doesn't change, we will have trouble finding students who will want to study science subjects with enthusiasm and commitment. Sometimes, I meet students from the Faculty of Education who say that they really want to teach, and that their motivation is also to be able to influence children and to instil some values in them. They're already beginning to think interactively, they do their internships with us, and I know that's a good thing, they're going to be good teachers. But then there are students who come and ask if they can do an internship with us, but they don't want to teach. They admit that they are only studying to get a university degree. I think that those interested in studying at the Faculties of Education should pass some interviews or tests to prove their motivation, to show that this is a teacher who wants to develop children further. It would probably be a good idea to think about how to boost the social prestige of the profession. I don't know how to do it, but I think something will have to change so that we can spot the talents at a young age, and have enough physics, chemistry, and maths teachers, because it's not the case now.

I'm wondering if it's getting more and more challenging to be an educator. Kids can find any information online, tutorials for anything on YouTube, they often speak English better than the teachers themselves, and they are often better with technology than adults. Isn't that frustrating for both sides sometimes?

No, it's not frustrating for me or for my colleagues, but on the contrary, it's a challenge. Sometimes it's also great fun and thought-provoking. I have great admiration for my colleagues, they're wonderful partners in education, great personalities, friendly, and very experienced. They have enormous potential, and engage in continuous professional development. About five years ago, a journalist asked me what my view of today's generation was, and whether I, having worked in education for so many years, perceived that today's children were different from the ones I knew in the 1980s. And I said no. The kids are still the same, but they have different opportunities and different values, that's true. Even a young child can operate a mobile phone or tablet with absolutely no hesitation, and at tremendous speed. They can look up anything. I remember a colleague and friend from Nový Jičín, Věrka Janíková, who said a remarkable thing. Children and parents are the same, but the world is changing so fast that neither the parent nor the child is aware of it. Imagine a dad walking down the street with his child. They're walking side by side, and the dad says, "*Look, there's a beautiful car in the shop window, and there's a big Lego set. What are you going to choose? Do you want a big remote-control car, or do you want the Lego that you can build a perfect robot from?*" The little boy raises his head, looks at his daddy and says, "*Daddy, I don't want this expensive car or this big Lego. I want you to take my hand and we'll talk.*" And that's the generational difference. Parents used to spend more time with their children and give them simple presents, but more of their time and love. Today, they don't talk to them, and give them expensive gifts. So, it's a completely different time, and as a grandmother who has seven grandchildren, I always think about what I am going to buy them, what what I am going to give them, these kids today have absolutely everything. I think it's up to us to pass on experience to them, to talk to them, to be nice to them. These kids are really no different. I would say that because they have so many more opportunities than we do, we adults should take them more as partners, and listen to them more. Sometimes, when I talk to students or pupils they surprise me, whether they are girls or boys, with their thinking, flexibility, and eagerness to be seen, and to be understood and acknowledged. We have to admit to ourselves that we can also learn from them, that they, by virtue of where they live and the possibilities they have, think differently, and are far more perceptive than we were as children. It's just that whether we want to or not, they find an awful lot of information, and we must not allow them to think that they are smarter than we are, but we must feel that any information from us to them and information from them to us must be complementary and interrelated, in order for us to understand them, to understand each other. If we approach the younger generation in a way that we trust them and we know how to listen to them, I think the education system will do well. Sometimes, what happens is that a teacher says, "*Look, I'm a teacher, I have a degree, you're a student, so if I say it's green, it's green!*", but it's not always the case. We must give them a choice, we must allow them to accept that we are educators who are guiding them. I think we still have something to give them, and I think we do it gladly and enthusiastically.

RADOVÁNEK Leisure Centre is a publicly funded organization of the Pilsen Region for extra-curricular education for children, pupils, students, educators, and others. RADOVÁNEK is located in the former House of Pioneers and Youth, which was opened for leisure education seventy-five years ago, and there are activities for everyone. Extra-curricular education takes a number of forms.

"We are a cultural, social, and educational organization that teaches extra-curricular education participants of all ages to use their free time actively, to cultivate their life and interest in their favourite activities, using their talents. Acquiring new knowledge, experience, skills, and habits is exemplary for life. We give everyone an opportunity to realise their potential in a group of other participants, or to be able to adapt in different types of groups and environments. We also work with groups of children and pupils who are gifted, exceptionally gifted, children and pupils with special educational needs, minorities, and participants from disadvantaged socio-cultural backgrounds,"
said Eva Tischlerová, director of the LTC RADOVÁNEK.

I think it's important to keep convincing people that that common sense really does have its place in this world



Matyáš Matta. A young inquisitive student of Masaryk Grammar School in Pilsen, this year's graduate. One of the organizers of a very successful event *Consider Science!*, which aims to spark enthusiasm for science in young people. A member of the GoHigher community of gifted and enthusiastic talents, he gained his experience during internships at the European Youth Parliament in the Czech Republic and the NTC – New Technologies Research Centre at the University of West Bohemia (UWB) in Pilsen, as well as in his part-time job in one of Pilsen's fast food restaurants. The latter work has equipped him perhaps the most for his life. He enjoys experimental physics, biochemistry, and medicine, and at the age of nineteen he has an account on the professional network LinkedIn, and his posts are *"liked"* even by the former Chancellor of the UWB, Miroslav Holeček. It is to the UWB, namely to the Faculty of Applied Sciences, that his steps will probably lead after graduation, *"because the courses in Prague are prestigious, but not very practical"*.

Matyáš, together with Jan Herzig, you are the main organizers of the event *Consider science!*, right?
Yes, that's right, I started organizing the event with Jan in 2023. We had never organized anything big before, so I certainly don't think we were predisposed to it, but I would say we got the hang of it pretty quickly. People who had already done something similar were willing to help us. The event takes place at the Faculty of Applied Sciences at the UWB in Pilsen, where they also gave us some advice on the organization. The more time we put into it, the more thorough we were. We actually had to prepare everything ourselves, we had to prepare the website, negotiate contracts, find out how things work, even the legal stuff. But I wouldn't say that we're excellent organizers per se, we just had the time, and experience came later.

Are there many of your peers who organize such big events?
No, probably not, but then they have other things to do, they do their sports and pursue their interests. We didn't have so many things to do and so many interests, so we just threw ourselves into organizing this event, but I think if our peers really wanted to, they could do it too, it just isn't necessarily their thing. It's stressful, not everyone has the will to bear the stress and, of course, if there's something you get out of it, it's rather a good feeling. It's not for everyone, and we had the ideal conditions for it.

So, was it that you had the time, and you wanted to do something, or did you feel that there was a lack of such particular events, and that it was necessary to start organizing them?
With the AstroX project, we had a small lecture at the Faculty of Applied Sciences. It was a great success, it got pretty good publicity, and it was nice, because we could show others what we were doing. And we thought that was great. So, when I was wondering when we could organize something again that would be a little bit commendable, public, I just thought of something like *Consider Science!*, because there hadn't been such a thing, and secondly, we had that autumn at our hands to do it. There was a gap in the market, so it was worth at least trying. It turned out that it could be quite successful, and that nobody was doing anything similar in the whole country, so it was unique in that respect. So, the idea came first, then we started piecing it together.

Would you say, then, that you feel that science or technology is not that popular among your peers?
I would like to say that they are, or that they are increasing in popularity, but generally that's not the case. I don't think technical, science, or overall science disciplines are very popular in general. The level of students, as much as we hear about it, isn't the best either, so we thought it was a good idea to present it to the wider public. We live in a time when people often don't believe in science, they think it's useless. It's called popularization, but in short, it's about making people understand that science is important, and it's an opportunity for them to develop. I would say that's the main reason why we did it. Natural sciences, science in general, are not particularly popular, compared to the past. I think it's important to convince people that common sense does have a place in this world, and that there are methods for us to better understand that.

I guess there's no science in Instagram trends...
Well, we could argue that there is, but there isn't, and never has been. And I don't think it ever will be either, but we can do our bit here on the planet to improve the situation just a little, because we see what happens when people who don't believe in science, and deny reason, get into high profile positions. I think it's important to convince people that there is such a thing as truth, and that there are people who are dedicated to it.

You're 19 years old. It's not that I wasn't thinking about the world at your age, but I didn't realise so much then, whether the line of work I wanted to pursue was something a lot of people or not so many wanted to do, whether I was going to land a good job, I just enjoyed it. And you think about it a lot (and) in depth!
To some extent, thinking about it doesn't change the outcome. I don't think about it very much, and I don't come up with much. I guess if you ended up where you wanted to, it was better for you than spending all your adolescence thinking about it. I believe it's important to show people that science is an option for them to consider. But we don't want to tell anyone that that's their path. We know that for a lot of people it's not going to be it, not everybody likes equations, not everybody is interested in science, but everybody should know about it, and that they can grow in it, and that when they're choosing their college and their direction, science is one of the possibilities. It's an option that's quite lightly populated with students, quite promising, and in the future, I think few things have as much potential as engineering and natural sciences. I would say it's good to inform people, and especially our peers, that the option is there, and get them to consider it. But how they decide is their business, after all.

Eva Tischlerová, the Director of the Radovánek Leisure Centre, told me about a very interesting thing in our conversation, that mathematics, physics, and chemistry are part of our everyday life, and that we encounter them on a daily basis, which probably few of us realise. A fair number of us are probably used to the idea that we just push a button and something works. We have apps on our phone for everything, a lot of things are automatic, and we don't even try to look into them, to control them properly.
For a lot of people, it's just enough to know the input, the output, and not what happens in between. That's certainly more true now than ever before, because, for example, how a phone works, nobody... including me, if I had to explain it, I wouldn't know how. Science today is highly specialised, and understanding something, especially when technology has advanced so much, you can't really understand it anymore, and a lot of people just need to know what to push to get that output. It's just like neural networks. We don't know what's going on between them anymore either, we just need to know the inputs and outputs, and that it works. When one understands how the things in

between work, it's a kind of joy, but it's definitely a really rocky road, and it doesn't fundamentally change that output... If someone uses Instagram, they probably don't need to know how the networks work, what waves Wi-Fi runs on. But as a scientist, I believe it's nice to understand it. And then maybe when the thing stops working, it's good to know what needs to be fixed. In general, knowledge is useful, but in a world where everything operates by itself, you don't need to know anything. That's unfortunately true. That's why it's important to convince people that even if they don't get any financial gain from it, or don't get anything out of it, it's still good to understand why the earth is round, and that they can verify it for themselves. It's good to understand that with a scientific method, everyone can check for themselves that the things they believe are true. I think that's important.

> *"I think that we young people want to work, but we also want decent conditions at work, and enough space away from it."*

Nowadays, on the one hand, it's extremely easy to find information about everything, which makes studying easier in some ways, but at the same time, it's much harder to concentrate. Moreover, some people relativize a lot of things, and when you say *"check the truth"*, the truth for them is that the earth is not round.

I read in an article that it used to be believed by a doctor that people were stupid because they were uninformed. Nowadays, we know that it's definitely not the case. People are superbly informed. But the important factor is what information reaches them. We are no longer able to take in all of the information the world has to offer. We must be able to filter, and that's simply not possible when there's such a vast amount of information. We have to try to understand it, and try to look for reality in the context, but it's just hard. It's harder than it's ever been before, when there's just so much information. When you believe in something, it's easy to look up the facts that support it, and turn a blind eye to the facts that contradict it. You see where the world is going. It's important to understand it, but sometimes I don't know if it actually has a point.

Let me go back to *Consider Science!* I was wondering, if you hold an event like that professionally, brilliantly, and successfully, if you've actually maybe considered not considering science, and having a career in organizing?

I still see myself in science, and probably more so than in organizing things. I would say that Honza Herzig, who was particularly engaged in the event last autumn, and it was mainly him working on it, because I had other things to worry about, he put a lot of effort into it, and he's a very capable organizer. I'm capable in many ways myself, I can learn things, I've had to program websites, edit videos... I can learn practical things, but I don't have the mental capacity to manage things. I can't concentrate on one project for 3 months, and have irregular working hours, so I personally will take the science route, but it's definitely nice to spice it up with some popularization activities. But I think Honza has really put a lot of energy into it, he can do absolutely amazing things, and time will tell if he'll consider science, or if he'll keep it as a side thing. We've discussed it recently, but we haven't come to any definite conclusion.

I know quite a few people who attended popular technical secondary schools, but are now not involved in technology at all. I believe everyone should study what they're interested in, and then maybe life will take them somewhere else, or they'll simply find out for themselves whether it was a good choice, whether they enjoy it.

In today's society, you don't have to do what you studied for the rest of your life. That's changed a lot in the last 20, 30 years. It's kind of a western trend. Actually, what you learn at school, what we learn at university, the facts and the practical knowledge, what you do on a daily basis later on, also differs a lot. The science that one studies and the science that one actually does are very different things. So, I don't think it's such a problem to move on to popularization or some other activity altogether, because after all, the practical experience is still quite different from what you learn in school. Anyway, you have to start gaining this practical experience from 0, so whether it's in managing things or in science... I think that knowledge in technical fields also leads a lot to having a different approach to things, to being able to think analytically about things. That can definitely be used in any field, in any job. I think it can be of great importance in one's life, but then the question is whether it makes sense to do a PhD in physics if I want to do science promotion. I think we're all going to go into engineering or science. How many of us will stick with them is a question then, because it's a long journey, and everyone needs something different. For those of us who organize these events, the question is what we will enjoy more. Personally, I'm quite comfortable with research, I'm well suited to it, but I also need contact with people.

If, let's say, a naysayer argued in a discussion on social media that young people today don't want to work, don't want to study anything demanding, and therefore don't choose careers in technical fields, and just want to be influencers. What would you say to them?

That this is a generalization, and such generalizations can never capture the whole reality. Of course, I can't argue that I don't know any such people. I guess we all do, but to say that all young people today are like that, and that this is the whole generation... You always have to accept that the truth is complex. It must be broken down into individual elements. We can talk about some trends where the will to study these fields is actually not what it used to be, people really might be a bit more comfortable than they used to be. We do have these outcomes, but I don't think you can generalize it to an entire generation, and there are certainly elements of our generation that are better than in the previous generations. I think we all want to work, but we also want decent conditions, and some work-life balance. We want to have a sort of balance in our lives, and do what we enjoy, not just to make a living. Our priorities are certainly different, but I think it's not true to say that young people don't want to work. That's my conclusion. I'm sure there are some, but there have probably been in every generation, so I don't see that as a true statement.

I'm a millennial. I don't have much interaction with your generation, Gen Z. I read some discussions, and that's how I form an opinion, but it's quite different from how I experienced the GoHigher community, or you, Jan Herzig, or Anna Krebsová in personal conversations. You seem very mature, like young adults who have their priorities straight.

We're also a specific group that doesn't represent our generation as a whole, and I think there have probably been some in every generation who just think a little more maturely than others. Even in our generation, you can find those who want to work, want to make the world a little bit better. A lot of people don't get that. I think it's important to show that we're capable of doing something too. In time, everyone will find out, we'll see. You see a lot of extreme tendencies in the media, don't you? I've recently seen a documentary on Czech Television about our generation called *"Snowflakes on the Verge of Melting"*. Of course, there are some trends, and I certainly can't deny it, I'm sure it's true, but it also implies something. It's not simply that we're weaker, lazier, and more comfortable than everyone before us, it's just that we come from the environment we grew up in. I'm sure the environment we will work and live in later will affect us again. And it certainly won't be as comfortable as what we've experienced so far, so I think in the end we'll be just as hardworking as the generations before us. Hopefully, a little more self-aware, and being able to think about things a little bit, hopefully we won't go back to moments in history when people didn't think. Let's hope so. Thinking critically about the world, I think, is more inherent in today's generation than it used to be. But when you're too aware of things, you're not entirely happy about what's going on. I believe that critical thinking, being critical of the world, will help us to run the world a little more straightforwardly, and not as radically as those before us. I hope so.



The Pilsen Region is the Leader in Smart Mobility and Sustainable Transport Development in the Czech Republic



Smart mobility specialization through the eyes of Filip Tikal, strategic project developer of the Regional Innovation Strategy of the Pilsen Region (RIS3)

When you say *"smart mobility"* in the Pilsen Region, what aspects are we most focused on? What does the local development tackle?
One of them is sustainable transport development, where R&D focuses on increasing the efficiency and smooth flow of traffic, including environmentally friendly solutions, such as low- and zero-emission vehicles. Another important objective is improving road safety, which includes the development of new technologies and systems that can reduce the number of traffic accidents, and increase the protection of road users. The Pilsen Region also supports innovations in urban mobility, focused on smart solutions for city transport, such as intelligent transport systems that optimize traffic, and improve the accessibility of public transport. The region emphasizes co-operation between research institutions, universities, and industry, including international co-operation and the implementation of research and innovation projects. Supporting young innovative companies and start-ups that bring new technologies and solutions in the field of smart mobility is also an important part of this. Together, these aspects contribute to making the Pilsen Region a leader in smart mobility and sustainable transport development in the Czech Republic.

Smart mobility is one of the five specializations of the Pilsen Region, why this domain? Does this mean that local companies, developers, and research in general specialize in it?
Smart mobility is one of the five specializations of the Pilsen Region for several reasons. The region has long been committed to innovation and sustainable development, which includes the modernization of transport systems. The Pilsen Region has a strong industrial tradition, and is home to major companies and research institutions specializing in smart mobility technologies. Local companies, such as Škoda Transportation, and research institutions, such as the University of West Bohemia (UWB), play a key role in the development and implementation of smart transport solutions. These organizations collaborate on projects that include autonomous vehicles, intelligent transport systems, and the use of 5G networks to improve traffic flow and safety.

Can you name any other companies or research organizations that focus on smart mobility in the region?
One of the most important players is the already mentioned Škoda Transportation, which focuses on manufacturing of rolling stock, including trams, underground trains, and electric locomotives, and also concentrates on innovations and modern technologies that increase the efficiency and safety of rail transport. Another important institution is the UWB, which is involved in R&D in the field of smart mobility through its faculties and research centres, such as the New Technologies Research Centre (NTC). The university co-operates with industry on projects in the field of autonomous driving systems and intelligent transport systems. The COMTES FHT research organization specializes in materials analysis and development of new materials that can be used in transport vehicles, as well as innovations in metallurgy and the mechanical properties of materials. Another company is Virtual Lab, which specializes in the development and application of virtual reality in various fields, including smart mobility. It collaborates with other entities on projects that use virtual reality to simulate and optimize transport systems. The Research and Testing Institute Pilsen deals with testing and the development of new technologies for vehicles, including rolling stock. The Institute works with industry to improve the safety and efficiency of transport systems.

How does our region compare to others, in terms of the use and the development of aspects of smart mobility?
As I said, we are one of the leading regions in our country. Overall, the Pilsen Region is very advanced in the field of smart mobility and its focus on rolling stock, and co-operation between different entities makes it one of the leaders in this sector in the Czech Republic. Compared to other regions, such as Prague or South Moravia, which are also active in smart mobility, the Pilsen Region has the advantage of a high concentration of industrial and research capacities, focused on transport technologies. Prague's focus, for example, is more on the integration of smart transport systems into urban infrastructure, while the South Moravian Region is more active in the development of autonomous vehicles and intelligent transport systems.

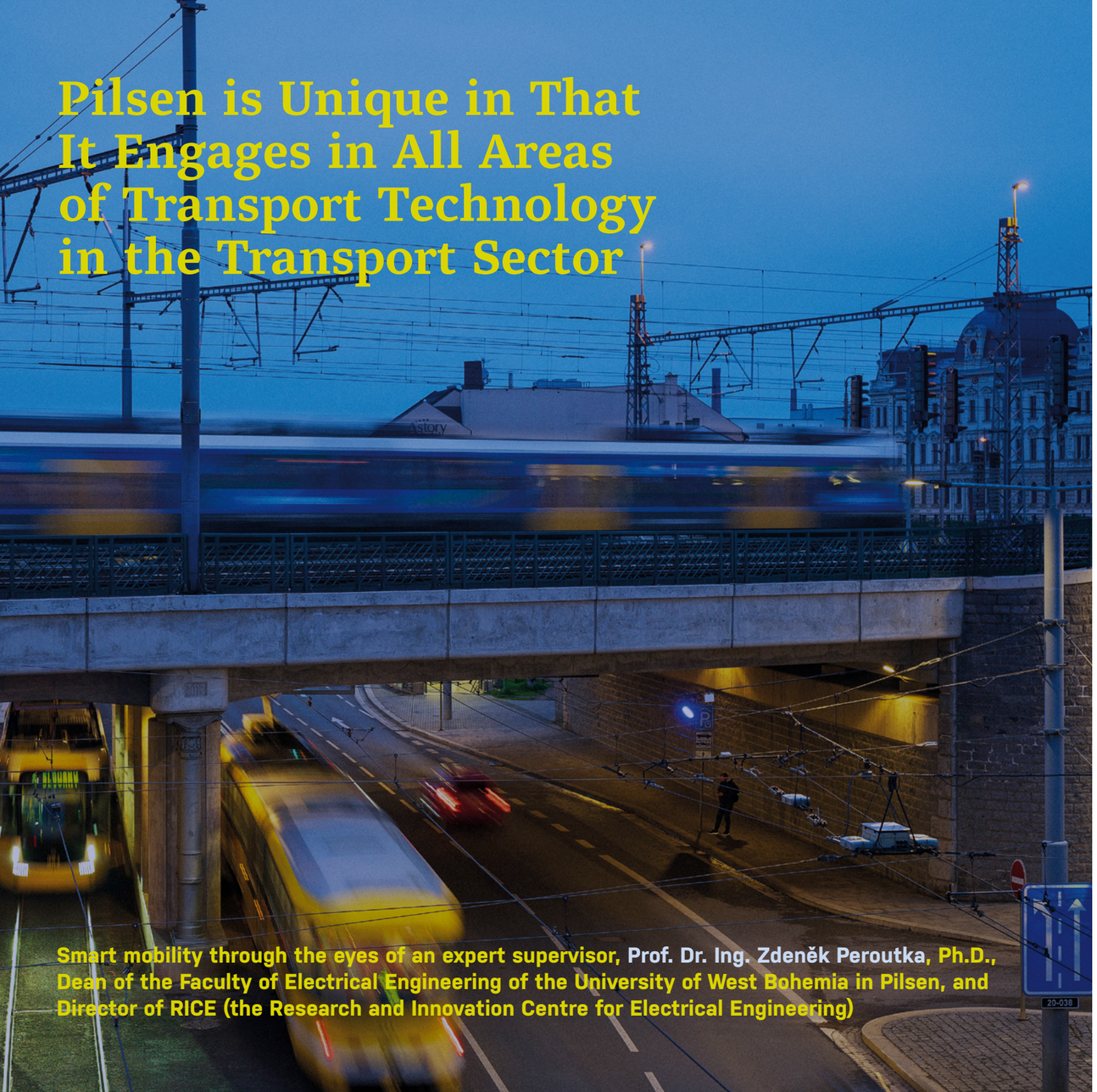
Smart mobility has the potential to improve quality of life, reduce traffic congestion and pollution, and contribute to the sustainability of cities. Have I left out any other benefits?
Indeed, smart mobility offers many benefits that can significantly improve the quality of life in cities. Besides reducing congestion, pollution, and contributing to the sustainability of cities. Smart transport systems can reduce accidents through better traffic management, and the use of autonomous vehicles minimizes human error. Smart transport systems allow better use of existing transport infrastructure, which can lead to cost savings in the construction of new roads and bridges. Smart mobility can improve the accessibility of public transport, making travel easier for all citizens, including those with limited mobility. Investing in smart mobility can create new jobs and boost the local economy. Businesses and research institutions can become leaders in innovation and technology. More efficient transport systems can lead to lower fuel and vehicle maintenance costs, benefiting both individuals and businesses alike. Cutting transport emissions using clean vehicles and better traffic management contributes to cleaner air and a healthier environment. Smart mobility also includes the promotion of active forms of transport, such as walking and cycling, which contribute to better health of the population. Together, these benefits contribute to making smart mobility a key element for the future development of cities, and improving the quality of life of their inhabitants.

Does it actually have any downsides? For example, should we be concerned about safety in autonomous vehicles? Or might it be a problem that everything is automated? Doesn't the increased use of smart mobility elements mean fewer human resources, and possibly job losses?
Of course, in addition to its many benefits, smart mobility also brings some negatives and challenges. One of the main concerns is the safety of autonomous vehicles. While autonomous vehicles can reduce the number of accidents caused by human error, there are still risks associated with their reliability and cyber security. For example, in emergency situations, it may be necessary for the driver to take control over the vehicle, which can be problematic if they are not fast and ready enough. Another concern is that higher levels of automation may lead to job losses, especially in areas where routine and manual jobs are easily replaced by machines or robots. This may include, for example, production lines, warehousing, and customer service. On the other hand, automation also creates new job opportunities in areas such as the development and maintenance of new technologies, which require new skills and training. Automation and smart mobility can also lead to privacy issues, as the collection and analysis of large amounts of data on people's locations and behaviour can be misused. So, it's important to ensure that these technologies are implemented with respect to data protection and transparency. Overall, it's essential that the implementation of smart mobility takes into account not only its benefits, but also its potential risks and challenges, and that measures are taken to minimize these.

What achievements in this specialization can we really be proud of in the region?
The Pilsen Region has become a hub for testing autonomous rolling stock and intelligent transport systems. Projects have been implemented to develop and implement ITS that improve the flow and safety of traffic in cities. In addition, infrastructure for environmentally friendly vehicles has been expanded, supporting sustainable transport development in the region.

What is coming up in the near future?
The new hydrogen intervention in the Pilsen Region will also focus on smart mobility, which will bring several significant projects and initiatives. Another key element of this strategy is international co-operation. The Pilsen Region will be involved in international projects and initiatives that support the development of hydrogen technologies and infrastructure. This co-operation allows the region to benefit from the experience and technologies of other countries, and to contribute to the development of the European hydrogen ecosystem.

Pilsen is Unique in That It Engages in All Areas of Transport Technology in the Transport Sector



Smart mobility through the eyes of an expert supervisor, Prof. Dr. Ing. Zdeněk Peroutka, Ph.D., Dean of the Faculty of Electrical Engineering of the University of West Bohemia in Pilsen, and Director of RICE (the Research and Innovation Centre for Electrical Engineering)

Smart mobility is one of the five specializations of the Pilsen Region, which has been historically involved in technologies related to this field, is that right? However, cars have never been manufactured here, even though the company Laurin a Klement was part of Škoda. *(The Škoda engineering company bought it in 1925, giving rise to today's Škoda Auto manufacturer, but it was never based in Pilsen, always in Mladá Boleslav. Author's note).*

Pilsen has a unique infrastructure and tradition, resting both in the local transport industry and in the university, with its experience in research and development of technologies for transport equipment. Pilsen's domain is mainly traction vehicles, whether wheeled or rail-based. We encounter and use trolleybuses, trams, underground trains, suburban units, locomotives, etc. made in Pilsen every day. You mentioned the automotive industry, and Pilsen's involvement in it during the First Republic. This question relates directly to my family history, because before World War II, Škoda, together with my great-grandfather, Mr Dezort, developed co-operation with Laurin and Klement. My great-grandfather made coachwork for Laurin and Klement in Pilsen. To this day, a part of the Škoda factory is called '*At the Dezorts*' after my great-grandfather. Although it's not well known, the Pilsen Škoda factory in Ejpovice developed and manufactured electric cars – and not bad ones at all. However, transport technology in Pilsen is not just traction vehicles and cars or trucks. Our teams are also intensely working on technologies for the shipping industry. Electrification is also a major trend in the aerospace industry today. Therefore, a large part of our work concerns technologies for electrified (i.e. hybrid and fully electric) aircraft and aerial vehicles. We supply technologies from our university laboratories to partners around the world. Pilsen is also unique in another respect. In 1965, my predecessors, in particular, Professor Kule, were at the birth of a joint workplace of the University of West Bohemia (UWB) in Pilsen – at that time, the University of Mechanical and Electrical Engineering, specifically the Faculty of Electrical Engineering – and Škoda Works, focused on electric drives and power electronics. This year marks exactly 60 years since the establishment of this department, which was responsible for the development and industrial use of power semiconductor technologies, barely twenty years after Shockley and his team discovered the transistor in Bell's laboratories. We have an enormous base for transport equipment and technologies in the field of power electronics and electric drives in Pilsen, which the whole world could be jealous of.

The first autonomous tram in Pilsen, fitted with advanced cameras and sensors, started its test operation just outside the UWB campus in Bory last July, right? It was designed by students of Jan Korabečný, at the Ladislav Sutnar Faculty of Design and Art, which is part of the UWB, am I right?

Your question mixes several things together. There are at least two independent projects in Pilsen dealing with autonomous trams. One of the projects involved an ambitious autonomous slow drive in the turn loop in Kaplířova Street. It's not in operation yet. The other one, which we are collaborating on with the Faculty of Electrical Engineering of the Czech Technical University, and the Pilsen City Transport Company, concerns autonomous taxiing at the terminals or at the depot. This is for the manipulation of vehicles, in this case trams. These autonomous runs spare the driver's attention and reduce fatigue. This technology is already in operation, and we've had successful initial tests in the Pilsen tram depot.

> *"We have well-developed infrastructure for transport equipment and technologies in the field of power electronics and electric drives in Pilsen, which the whole world could rightly be jealous of."*

The topics of electromobility and autonomous mobility resonate strongly in our society, and they're certainly challenging and significant. New technologies also require experts who can work with them adequately. That is why the UWB *(under the auspices of the Faculty of Electrical Engineering, in co-operation with the Faculty of Mechanical Engineering, the Faculty of Applied Sciences, and the Ladislav Sutnar Faculty of Art and Design)* has opened a new Master's degree programme called "*Electromobility and Intelligent Transport Systems*". Students started to enrol in September, and we believe that this will be an interesting offer for students who want to get involved in modern and planet-friendly transport technologies. The programme has three specializations: (i) system engineer and designer, (ii) construction engineer and designer, (iii) specialist in modelling, planning, and transport management. The study programme also focuses strongly on autonomous mobility. For example, in co-operation with the Škoda plant in Mladá Boleslav, along with our partners from the Technical University of Ostrava and Autinno, we've prepared two unique platforms, based on the Škoda Superb car, on which our students can try out, develop, and test their original solutions for autonomous driving.

Moreover, students can join our successful student electric formula team. One of the disciplines of the formula championship is, among other things, autonomous driving along a marked-out racetrack.

We now come to the topic of autonomous vehicles, which raises a number of fundamental ethical and philosophical questions. How does an autonomous vehicle make a decision in a situation where, one way or another, someone loses their life? Who will be held responsible for any accidents and deaths? What's your opinion? And is it actually realistic for an autonomous tram with passengers to run through Pilsen in ten years' time?
Again, I'd break this down into several issues. You ask me about the safety aspects and, let's say, the philosophical and legal aspects of autonomous mobility. Asimov's laws of robotics define how autonomous machines are to behave. It's very difficult to find an optimal solution to the accident problem, where the question arises of what the optimal solution actually is. Any decision about the life of a living entity – and now we're not just talking about a human being – always has a strong ethical dimension, and a machine will find it very difficult to decide this problem "*objectively*". We'll have to establish the rules and priorities by which the machine will behave. We must clearly answer the question of who will be responsible for any incident, or for any damage to health or property that may occur. There's a debate about whether a machine can be a driver of a vehicle, and whether the machine is then responsible for any incident, or whether the person who programmed the machine is responsible for the incident, and so on, and so forth. This is a very complex issue, which is not only being addressed by engineers, but it is also a legal issue and, essentially, a philosophical one. The technical part of your question will be easier for me to answer. Autonomous vehicles need to be distinguished by type. Autonomous cars – and it depends on what level of autonomy – are a very challenging task. Conventional vehicles on wheels, such as public transport vehicles, i.e. electric buses and trolleybuses that move in an unprotected corridor, fall into the same class. This means that they enter an intersection where anyone can enter. There are no barriers in the space in which these vehicles move, and the trajectory of their movement can be free. With this class of autonomous vehicles, I'm sceptical that they will be in use in the next few years. We're talking at least a decade to get these types of vehicles in service for the general user. As far as means of transport that move in a dedicated corridor, or a restricted access corridor, as we are used to, for example, in an airplane that travels in places where a pedestrian or a child can rarely get in its way. It's similar with ships or rolling stock, where you have a known trajectory, and in many cases, you may have a protected corridor – typically, with the underground or commuter trains. For rolling stock, the autonomous driving system is called automatic train operation (ATO), and it's a relatively common component that we see in everyday operation today.

So, can you imagine that in ten years, for example, tram number four would go through Pilsen from Borský Park, and go all the way to the terminal?
It will depend on whether we create a protected corridor, i.e. whether we will be able to prevent any road user from getting into the vehicle's lane. I intentionally say "*road user*" because it could be a cyclist, a pedestrian, a car driver, a child, but it could also be an animal or an object. I believe that autonomous systems in places where we can protect the corridor will be in common use within ten years.

I can think of glass corridors that are likely to be installed on a new underground line.
There's no reason not to go autonomous there. That is a task that has already been accomplished.

**Listening to you, it makes me think that we people are afraid of autonomous vehicles because we don't want the vehicle to think on its own, how to resolve a situation. At the same time, you say, and it makes sense to me, that we need to protect the corridor so that a pedestrian doesn't jump in the way… Ironically, the machine may be *"less dangerous"*. The vast majority of accidents are caused by humans, it's not so much about technical glitches or other circumstances. Your question is directed at whether traffic will be safer when vehicles are autonomously controlled, and their behaviour more predictable than when a human is behind the wheel. Yes, it will be 100% more legible and safer with a machine behind the wheel. Of course, we will have to ensure adequate safety measures – critical systems must be safe *(redundant, etc.)*, software must meet strict safety standards (SIL), everything must be thoroughly tested, etc. Under these conditions, the vehicle is likely to behave more predictably and safely than with a driver behind the wheel. The driver may be distracted, may have a health condition, etc. Autonomous driving can therefore prevent many tragedies.

Let me ask about the Green Deal, or the current situation in Europe and around the world. Where do you think we're heading? What's your prediction, your opinion on future developments?
One thing is the long-term goal and the intention, that's where I understand what Europe is trying to do. It wants to set an example, and show how we should behave as humanity, as a continent. The problem is whether we are technically ready, and have the resources to fulfil such a vision. Europe should make meaningful decisions! The sustainability of our environment is an important aspect that should always be considered. On the other hand, we need to take into account the economic capacity of the population, the level of technology, and we should find a reasonable compromise within which, on the one hand, society does not harm itself in terms of its health and the environment, and, on the other, is able to operate and live freely. By society, I mean not only the population, but also the industry and economy of individual countries. I think that the Green Deal is pushing society in Europe somewhere where we are going to pay very dearly for this.

Electric cars – very often confused with electromobility – are a beautiful example. Electromobility certainly doesn't only stand for electric cars. Electromobility, in my understanding, is the electrification of basically any means of transport – it can be a ship, a plane, a locomotive, a high-speed train, underground, and so on. Electric cars will become interesting as the primary family car the moment we can drive from Pilsen to Brno and back without having to recharge along the way. That is, when it can drive 600 km, or 300 km there and 300 km back in one day, without having to look for a charger somewhere. And that's something an electric car can't normally do today. A reasonable compromise and the ideal choice now is a hybrid. If I were to buy a new car this year, I would very likely go for a hybrid technology. An electric car is great for shorter distances – such as taking the kids to their clubs, going shopping, to work, simply getting around the town. Shorter trips that a family does on a normal day – that's where an electric car makes sense. However, there is a need for a charging infrastructure and an electrification grid that has to take the energy for charging from somewhere, and transfer it to the charger.

And we don't have that now?
The infrastructure hasn't been completed yet. I think we're a bit behind the times on this, and that's a pity. But I believe we can catch up.

Do you think that if we had this infrastructure in place at the moment, the sales of electric cars would be higher in the Czech Republic, or in Europe?
The problem is the price of electric vehicles. The critical element that makes these vehicles expensive is the cost of the battery. So, if we can bring the battery down in price and, ideally, increase its energy density at the same time, then we have won. Then battery cars are the way to go. At the moment, when batteries are expensive, mass development of battery cars is not possible without significant subsidies. The question to consider is whether the currently widespread individual transport, where the majority of the population has its own car, is what we want to have and support. We are working on possible alternative or complementary solutions – transport sharing, better quality and more comfortable public transport, suburban public transport, high-speed train connections over larger distances nationwide, combined with the possibility of renting a car *(typically battery-powered)* at the destination when you need more mobility and freedom. Wouldn't this be a more interesting, more convenient, and cheaper option? I'm convinced it would. At the same time, that model would in no way limit our freedom of movement, which I consider important! We shouldn't be discussing whether or not the Green Deal is evil, and thinking of it along those lines. We should be debating how society needs to evolve. The Green Deal should be a reaction and a support tool for implementing a consensus on how we want to run our society, how we want to live.

I feel that, especially in Pilsen – and maybe it's because I live here – people won't let anyone touch their car or parking space, that they take it as a basic human right, just like food or sleep. They want a car in front of their house, ideally two cars. We're simply used to having everything, to having it immediately, but our lives are becoming more and more energy-intensive. Are we able to lower our standards?
There are two dimensions to this problem – the intellectual and the emotional. Reason tells us to address the issue of needs, flexibility, cost, and environmental friendliness – do I really need my own car, is it worth the cost, can I afford it, do I have somewhere to park it, is it quicker? The emotional dimension addresses the issue of personal freedom, the feeling of independence. Car ownership is often associated with the feeling that I can do whatever I want – go where I want, when I want. Naturally, we're afraid that these important values *(personal freedom and independence)* might be restricted. I believe that the right and sustainable way to go is to provide the bulk of personal mobility services with electrified, flexible, comfortable, and sufficient public or, if you prefer, shared transport, which should be complemented by a reasonable degree of individualized transport. When shared transport works well and is appropriately complemented by, for example, last mile individualized transport, our travel is not only cheaper, less energy and environmentally burdensome, but also more comfortable, faster, more fun, and can be healthier too. Ideally, we want to have an app on our phone to intuitively plan our journey, a public transport stop within



walking distance of our homes, with reasonable service frequencies and connectivity. You get comfortably onto a means of transport, which will very likely be autonomously controlled in the future, open your tablet or phone, take care of your work matters, or just rest, and arrive at your destination safely, on time, and without any hassle. You don't have to worry about parking, you don't have to worry about whether your car will be stolen, when and where you need to refuel or recharge…

The Future of the Automotive Industry Affects the Environment too



Automotive and ESG were the two most frequently heard terms during the regional innovation platform *"Smart Mobility"*, hosted by ZF Engineering's headquarters in Pilsen last autumn. The event, part of the Pilsen Region Smart Accelerator III project, brought together representatives from research, manufacturing, educational, and public institutions. It was an opportunity for their presentation and mutual inspiration.

The automotive industry is currently undergoing major changes, and more are to come. The Drive2Transform project, which was presented by the consultant and project manager Filip Tikal from the Regional Development Agency of the Pilsen Region, is intended to support the transformation of this sector. "*The project is now at the beginning. It has been developed on the basis of trends, such as the Green Deal, new technologies, and also global competition, and there are nine entities from eight countries, from Germany to the Czech Republic and Slovakia, working on it. The aim is not to map the situation in the countries as a whole, but only in certain regions, in the case of the Czech Republic, just in the Pilsen Region,*" he said.

The target group of Drive2Transform are automotive companies, while focusing on the four key sectors of Electrification, Connectivity, Automation, and Economy. "*Thanks to the companies that have decided to participate in the project, we can analyse their problems and concerns, and then set up a platform all across Central Europe. Of course, mapping the problems is not enough, we also count on an active component and the involvement of experts from the fields of education, research, and human resources. Ten companies from the automotive industry, and three entities from the business support sector from the Pilsen Region, have joined and responded to a 25-question questionnaire assessing the current state and the outlook, strengths, weaknesses, opportunities, and threats,*" continued Filip Tikal, adding that the host, ZF Engineering, is also among those involved.

The threat to automotive firms in the Pilsen Region is specific, as they often produce parts and accessories that are not part of, for example, the engine or fuel system. Therefore, they are not, for example, threatened with a downturn due to electrification. "*It has turned out that the companies are most concerned about the enormous increase in inputs, i.e. energy, material, and HR costs, coupled with the lack of qualified employees,*" Filip Tikal added, noting that the firms also lack a transformation strategy.

Despite all that, the automotive industry remains a pillar of the domestic economy and, according to the data of the Automotive Industry Association, AutoSAP, it accounts for over 9% of the Czech GDP. In the Pilsen Region, there are 38 entities, with more than 50 employees, whose products are used in the automotive industry, most of whom also employ more than 100 people, which makes them relevant for the region, in terms of the labour market too.

A major challenge and a question to be answered for the automotive sector is the ESG (Environmental, Social, Governance) legislation. It assesses companies' impact on the natural, social, and corporate environment, and currently applies only to large enterprises, which are subject to the Non-financial Reporting Directive (NFRD), and will have to report for the 2024 fiscal year. ESG reporting, which will show where companies stand, is therefore also being discussed as a current business phenomenon.

It was mentioned on several occasions during the meeting that the awareness of ESG should be greater. "*There is a need to educate the public. When we meet with clients and discuss ESG with them, we often find that they are already doing many things, but they don't know about it,*" said Tomáš Lorenc from UniCredit Bank, who explained that bankers differentiate between the impact of ESG on large manufacturers, and on their suppliers. "*Large manufacturers have sustainability and carbon footprint commitments, their goal is to ideally be at zero by 2050, and with sub-goals, for example to increase sales of zero-emission cars by 2030. But the pressure on large companies also affects their suppliers, for example, in tenders, where suppliers who are committed to ESG may have an advantage,*" he said.

To encourage the involvement of businesses in environmental care, the Pilsen Region has created a new Healthy Landscape Partner project label this year, which was presented by Josef Sýkora from the Department of the Environment. "*The brand is intended to connect local governments, public entities, and the private sector, from large companies to micro-enterprises which seek to promote a healthy landscape and positively influence it,*" he said.

An example is the company IDEAL Automotive Bor, which took part in the expansion of a grazing area in the Janovský Wetland Nature Reserve near the D5 motorway near Nýřany. The grazing area for wild horses has also been extended by 4.6 ha, and will increase the biodiversity of mainly plant communities and invertebrates.

"*Although businesses, with the exception of banking, are currently under no obligation to report on ESG, many do. We believe that our new label will gain significance over time, and will indicate that the companies involved are doing something for their environment. As part of ESG reporting, we would like to offer them materials that they can use, for example, in their annual reports. Automotive and a healthy landscape may seem mutually exclusive, but a symbiosis should be sought,*" adds Josef Sýkora.

Sustainability Is Not an Empty Word in the Pilsen Region

Renewable resources, alternative fuels, care for livestock and landscape, a responsible future, meaningful local development. This is what sustainability looks like in the Pilsen Region.

Sustainability. A commonly used, sometimes not very specific term, which also has the reputation of an attractive but empty word – a buzzword. But this is not so in the Pilsen Region. What is the best way to explain everything that the term sustainability can stand for? One can, of course, ask ChatGPT, and get the answer that it is *"meeting the needs of the present without compromising the ability of future generations to meet their own needs. It's about balancing environmental, social, and economic factors to ensure long-term well-being."*

Google adds that the UN General Assembly has declared November 26th as World Sustainable Transport Day. However, it would be better to present sustainability in concrete terms, for example, through some of the activities or projects that are already in place, and have proven effective. In doing so, we can keep to the areas mentioned by AI. There is certainly plenty to choose from and to be inspired by.



● Energy

In the Regional Innovation Strategy of the Pilsen Region, sustainability is addressed, for example, in the Modern Energy domain. The mission? By collaborating in research, development, and innovation "*to ensure affordable energy through reliable, flexible, low-emission, and sustainable energy industry*". What might this mean in practice?

The Pilsen Region is fortunate to have a dense network of companies involved in the energy sector, as well as the research potential of the University of West Bohemia (UWB) in Pilsen. For example, the company Pinflow Energy Storage, which was founded as a start-up by scientists from the NTC Research Centre of the UWB of Pilsen and the University of Chemical Technology in Prague, shows how research turns into practice. Their redox flow batteries allow electricity to be stored for non-mobile applications, so that the cost per kWh per cycle is as low as possible. They boast a quarter-century lifespan, are non-flammable and explosion-proof, and have already won numerous awards for the scientists.

DOOSAN Škoda Power is also no stranger to renewable energy sources, and in addition to the traditional use of fossil fuels and nuclear power, it is also involved in the energetic use of biomass and waste, and the use of solar and geothermal energy. For the use of geothermal energy, DOOSAN offers a specific steam turbine. "*Our solution enables installations worldwide, including in areas of high seismicity,*" its portfolio reads.

As for the use of solar energy, the Pilsen Region can even claim one Czech record, as of this year. The largest photovoltaic project in the Czech Republic is producing energy on the roof of the CTPark Bor industrial park near the town of Tachov. One roof has a capacity of 4 MWp, the other 4.1 MWp, both of which together will produce electricity equivalent to the consumption of 3,000 households in one year. CTP invested CZK 230 million in the project, as part of its support for the transition to clean energy, and sells the energy to its tenants and to ČEZ ESCO (Energy Service COmpany).

● Mobility

Another domain of the Regional Innovation Strategy that may be of interest to us is Smart Mobility, with the aim to "*support research, development, and innovation activities in the Pilsen Region, in relation to transport as an integrating element of society, with a significant socio-economic effect, especially in terms of sustainable development, increasing safety, efficiency, and fluidity of transport*".

The focus of this domain is electromobility. However, as the search is on for new concepts for vehicles, drives, and propulsion, and systems in general, we mustn't omit hydrogen.

The Škoda Group in Pilsen knows this well, and its Škoda H CITY hydrogen bus has been in test operation in Prague's public transport since July 2023. To develop hydrogen technology further, the company signed a memorandum with Hyundai Motor Company in September this year. "*We are convinced that hydrogen, together with energy-efficient solutions, will play a crucial role in the transformation of mobility for a more sustainable future,*" Škoda Group CEO Petr Novotný said.

However, when you say Pilsen and hydrogen, you should also mention the University of West Bohemia, where the Hydromun project has started this year at the Faculty of Mechanical Engineering. In co-operation with the University of South Bohemia in České Budějovice, the University of Regensburg, and Es geht!, a Bavarian company focused on sustainable energy, a platform of universities, research organizations, and other actors involved in the use of hydrogen technologies in the Czech-Bavarian region is being formed. The platform will serve primarily for knowledge transfer towards representatives of small and medium-sized enterprises. It should be added that Professor Ludmila Kučerová, who leads an international scientific team from the Czech Republic, Slovakia, and Japan, which is developing a material for hydrogen storage, also works at the Faculty of Mechanical Engineering.

● Agriculture and Landscape Management

However, in the Pilsen Region, agriculture, for example, is sustainable as well.

The Czech Technology Platform for Organic Agriculture, which brings together actors from science, research and education, agricultural and food production and trade, and NGOs, highlights the fact that organic farms in the Pilsen Region breed the most horses in the country. They are second in the number of beef cattle. "*You will find farms with their own slaughter and direct sale of meat. In organic crop production, cereals and forage crops predominate, but you can also find organic fruit or juices. Many organic farms also offer accommodation.*"

The Report on the State of the Environment in the Pilsen Region, which was last published by the Ministry of the Environment in 2022, adds that the region is among those with a high proportion of organically managed land in the total area of agricultural land: "*In 2022, this proportion was 22.3%, the area of organically managed land in the Pilsen Region reached 73.3 thousand ha. In the Pilsen Region, permanent grassland, which is used for grazing cattle, sheep, and horses in the organic farming regime, is significantly predominant.*"

Along with agriculture, it's necessary to mention the management of the landscape, for example in the form of the Healthy Landscape Project Partner label, which the Pilsen Region has started to award this year. The regional government has decided to engage companies based in the region in environmental care. Thanks to the sponsorship of Plzeňská teplárenská, for example, an artificial island for nesting birds was created in the Zbynické rybníky nature reserve near Hrádek, in the Klatovy district, and thanks to the company IDEAL Automotive Bor, a grazing area for wild horses was expanded in the Janovský Wetland nature reserve near Nýřany, north of Pilsen.

● Education

Being considerate of the environment and the future that is sustainability, according to the University of West Bohemia in Pilsen, which is focusing on this topic in the current academic year. In the streets of Pilsen, Karlovy Vary, and Cheb, people have come across a campaign that introduced them to experts in physics, business, mechanical engineering, medical rescue service, teacher education, law, mathematics, the energy industry... On the website udrzitelnost.zcu.cz, each of the faculties demonstrates their approach to sustainability.

Apart from the projects of the technical faculties, sustainable activities of those focused on the humanities are interesting too.

The Faculty of Health Care Studies, for example, focuses on educating the public not only on first aid, but also on the prevention of civilisation diseases. For the Faculty of Education, the key to a sustainable future is education, which involves "*using new technologies, using resources efficiently, creating a safe environment, and supporting our region*". The Faculty of Arts teaches about sustainability, engages in projects that promote the sustainability of social services and public transport, educates future professionals in the humanities and social sciences, researches the needs of socially disadvantaged groups, and uses the results of its research to plan social services and projects in the region.

The Ladislav Sutnar Faculty of Design and Art teaches courses such as Environmental Design for Architecture, and also concentrates on environmental protection, while the Faculty of Law contributes to sustainability with courses focused on social responsibility, that the society needs in the process of change – for example, Nature and Landscape Protection Law, Agriculture, Breeding and Hunting Law, Public Law Regulation of Industrial Activities, Water Law, and Environmental Law.

● Local Development

This year, Pilsen City Councillors have approved a new Smart City Strategy for the years 2024 to 2028. The document builds on the previous one, which has guided the city since 2019, and its goal remains the same – a sustainable smart city development.

"*Innovative approaches referred to as SMART solutions represent a specific form that relies on the use of modern technological tools, procedures, and services, but not only that. Nowadays, they are constantly being improved, updated, and extended with new findings and approaches using the latest technology. At the same time, our strategic plan responds to societal trends, such as urbanization, migration, destabilization of society and inequalities between regions, housing shortages and digitalization, artificial intelligence, automation, and much more,*" said Daniel Kůs, Pilsen City Councillor for Smart Cities and Business Support.

However, smaller municipalities are no strangers to sustainable development either, with the Town of Tachov being a fine example. The town, known for its industrial zones, has developed Principles for Co-operation with Investors in the Development of Public Infrastructure. In the comprehensive document, it declares, for example, that "*it is obliged to take care of the sustainable development of its territory, the needs of its citizens, and to protect the public interest in the performance of its tasks*".

When developing public infrastructure, Tachov "*prefers sustainable solutions that are in line with the principle of sustainable development, and aim to protect the climate*", and the objective of these principles is also "*to motivate investors to co-operate on ensuring the sustainable development of the town, and to support its compact development and subsequent efficient administration*". ●

We Are Behind the Trends. What is Already the Standard in Europe, we Adopt with a Delay





For an interview with the creative director, idea maker, filmmaker, and writer, Jakub Hussar, one had better have a dictionary. You might learn a lot of unpleasant truths about us Czechs after reading it, but don't burn it. Rather, light a small flame of hope, which Jakub says we have. After all, we are a nanotechnology power, we produce the best lasers in the world and the best equipment for satellites, which, according to Jakub, would give us much more publicity than *"chasing a piece of rubber around on frozen water"*.

Jakub, the reason we invited you to our November meetup is not just because we know you as a great creative and a highly engaging speaker who has appeared on many podcasts. We were intrigued by your statement that *"the Czech Republic can become an innovative superpower"*. We really wanted to hear about that, plus it sounds promising and positive. You mentioned that the Czech Republic was one of the few countries that can manufacture an entire aircraft. I don't want to ask specifically now whether we actually do produce these planes. In general, I'm wondering whether you think that we Czechs know what capabilities we actually have, and whether we are really putting them to use?
We have those abilities, no doubt, but they are often such isolated islands of positive deviance. There are a lot of smart people here, but it's these isolated stories. If you look at Forbes 30 Under 30, you'll see that we have here a hyper-talented Stanford student, a scientist who has discovered amazing things. A friend of ours has just won a grant from the Max Planck Institute. These are individual accomplishments, but what often happens is that they're not aggregated or publicized enough. Those successes only get covered in the professional media, or the niche industries get to hear about them, but in the mainstream, we still tend to shine a spotlight on TV stars and ice hockey players, and we don't really know what potential lies dormant in those people. The potential is really huge.

Would you say that this is more prominent in the Czech Republic than in other countries, that we don't pay enough attention to these talented people?
I think that not only do we fail to acknowledge them, but we don't even know how to work with them. These exceptionally talented children just flow through our education system spontaneously. They are not developed individually; they're often ridiculed for being different. It's very common for the really successful people to tell me about how they were bullied as children. I'm not saying I'm the successful and talented one, but I'll give you an example. I have Asperger's, and when I was in school, it wasn't really recognized, it wasn't tackled. People said I had St. Vitus' dance *(informal name for Sydenham's syndrome, author's note)*, or that I had ants in my pants. The teachers dealt with it by forbidding me to attend the after-school club, because I was disrupting the group. I was "*disrupting*" it in a way that I started a comic book manufacture there, we used our creativity to make things, which moved me and the other kids forward, but the system didn't know how to work with that, so it persecuted, me rather than letting me teach the kids to draw. We don't know how to capture those talents, and maybe we don't know how to develop them either. We rely on them to develop on their own, and then we'll reap the fruits. By taxing their billion-euro businesses, we make money as a society.

Let me go back to what you said about spotlighting the starlets. On the BBC and US TV stations, the hosts are older people who have worked their way up, so to speak. Here, the presenters are often models and Miss contestants. Is that related to who our role models are?
The UK has its tabloids too, they just don't reach us here, while the BBC does. So, we don't need to look at the Daily Sun and British models. But to some extent, there is a kind of tabloidization of culture. The high culture... and now again it's terribly formulaic to divide culture into low and high, but it's just that the mainstream is content with low culture. Popular films that break records at the cinema are unlikely to develop society, because they're consumer-oriented. It's fun, we laugh at it. Like going to the coliseum to watch gladiator fights, that didn't lead to innovation in Roman engineering either. I'm worried that culture is being neglected a bit, because culture is the breeding ground for progress. In this country, education and science are underfunded, but culture is the Cinderella. There's really not enough money for culture in our country, there's no targeted system development of whole industries. An example is the gaming industry, which has long been subsidized in the world. Scandinavian game studios have huge subsidies, because the state knows that the money will come back to it, there is some prediction, whereas here these things are only just developing, they're in their infancy. The local creative industries don't have nearly as much support as in other countries, and they're losing competitiveness.

Czech computer games in particular are communicated quite a lot by the Czech government even abroad, isn't that so?
They are now, but a few years ago it wasn't the case. It's only now that the tide is turning again.

But the Czech games industry is quite well known in the world.
Definitely, but it's still a relatively new thing. The Department of Game Design at the Film and TV School of Academy of Performing Arts in Prague is new, it should have been established 20 years ago. We're simply behind the trends. What's already standard in Europe, we adopt with a delay. We are so surrounded by mountains here that we are a bit isolated from both the West and the East in our basin. As we're here in such a peculiar region, we tend to pick up the trends late, we're resistant to trends.

So, you could say that we Czechs are *"the latest adopters"*?
Yes. The "*early adopters*" in our country are definitely just the top of the demographic curve, which means that our grandmothers are still learning to use mobile phones, but mobile phones have been here for a quarter of a century, so – and I don't want to offend the elderly now, just giving an example – some things take us a very long time to adapt to, and we're very resistant to them. On the other hand, we are loyal and very consistent. That's why Nova TV is still so popular here today, because it simply shaped a whole generation of viewers. That's why people use the Seznam search engine and shop on Alza, and not Amazon, they're extremely loyal to their brands, and they have a problem adapting even to newer, more advanced things and media.

If we compare, for example, a Czech and an American or Japanese senior citizen, there is also a big difference, of course, due to the history and economy. There are certainly

more reasons. Just like in the US you see far more people with disabilities on the streets, because the much younger buildings are logically better accommodating to that…
Just as it's a problem to turn Prague into a cycling power, while Prague would really deserve bike lanes, but our streets are so narrow, they weren't bombed out during WWII like German cities, they weren't designed on greenfield sites, like the dynamically growing Copenhagen, where entire neighbourhoods are suddenly springing up. The initial conditions are not easy, we're here in a kind of open-air museum that we actually want to adjust to the 21st century. We're not completely successful, there are barriers, there are very strong, entrenched traditions and some customs and axioms that are not to be broken. And seniors are a great example. But there is a simple answer with them: communism. These people were kept behind the borders, they were held back, their wings were clipped. Our grandparents were people who lived their productive years under Nazism and Communism. And we still carry this relic, this burden, along with us. My grandmother, who is now a grandmother in New York City, danced in clubs and went on holidays to Mexico and San Francisco, and lived a very different life. That's still a relic of totalitarianism.

You said that your children, the Alpha Generation, would no longer be burdened by this. I agree, but at the same time, I think they're still going to be influenced a little bit by parents who were raised by parents who lived through that time.
It's a stigma, even if we think it's not, it's in our genes. But at the same time, we can think of it in a positive way. We are authentically afraid of Communism, and my children, who have not come into contact with Communism, and it's some obscure historical thing for them, are subconsciously afraid of it in the same way that our parents were afraid of Nazism. It's some kind of leverage against these trends returning. Once we become guileless and trusting and maybe just see an old film, read a nostalgic book, and think that it was actually interesting, that it was sort of a bizarre but actually cool thing, then there's a danger that these things will come back in cycles. Like fashion trends return, political trends do too. That's what I'm concerned about.

Jakub, you have children, and you have an advertising agency, so you must be thinking about young consumers who operate differently than us older ones. How do you perceive them? Are you concerned when you see the kind of influencers they follow, for example?
I'm not worried about what's going to happen to our kids and their kids in particular, because that's an age-old archetype. If you asked a Late Gothic dad what his Renaissance son was wearing, what kind of trousers and shoes he was wearing, he'd grumble. We find it hilarious today, it means those kids will grow up too, those kids will have kids of their own. They'll find and stabilize their own hierarchy of values. And to me, it's absolutely legitimate that they relate to influencers, when we were a TV generation that related to MTV starlets. What's the difference between my friends liking the Spice Girls and my daughter liking, like, Ment? *(a Czech influencer)* That, on the contrary, is fine, and it's often the case that those influencers themselves grow up and follow different paths. Either they quit the trade, or they become educators and spread awareness, as has happened to Kovy *(a Czech Youtuber and influencer)*, who is actually turning into an opinion leader in a positive direction, even though at the beginning it was just goofy videos. I think kids always need their idols, and I don't see the difference between having their hands glued to the phone or me not letting go of the joystick or keyboard for the 1990s games. We spent years in front of computers, never left the room, and we survived. The only thing that might be alarming is that humans have evolved as an organism for millions of years, and suddenly we have mobile phones, we're hunched over them. There's a downside, kids today have a terrible problem with motor skills. I think overall this is a threat, but they'll come to grips with it. They'll just cope, because man has always been adaptable as an organism, and they'll find a way, they'll raise their head. They'll realise that they're doing something like this, and they'll start taking more care of themselves. There's a huge trend now of wellbeing, healthy eating, healthy exercise. I wouldn't be worried about a further existence. Besides, what other choice do we have, otherwise it'd drive us mad, and it's just that we've got a different perspective. We grew up on something else. But it's still the same. On the other hand, the only thing I'm sorry about is that they're competing against the whole world. That's their only disadvantage. I used to compete with the guys in our neighbourhood, you could still get a foothold there on some level, but now you're competing with the global community, and you don't stand a chance there. The vast majority of people don't have a chance to be the best, and maybe don't even have a chance to be in the middle, they're somewhere at the bottom, and those are the reasons why children's mental health is a huge issue, and we're failing miserably in the Czech Republic in this area. We have an acute shortage of child psychologists and psychiatrists. We have an autistic child at home, so we know. Finding care for him was a process for years, but I think that society is not stupid, and that it will hear the demand and respond, and that things will improve in the coming years.

But working with autistic people has improved a lot nowadays, hasn't it? They're in demand in companies too, they're very good at certain areas or activities.
Haha, I can confirm that. Autism is not a disability, it's a superpower, a superpower that comes with some negatives though. For example, you'll be a genius chess player, and you'll wet the bed, or you won't even be able to make tea, but you'll just be in the top 10 experts in the world. There are always some counterbalances, I'm brilliant at something, I'm going to fall short at something. No one is perfect at everything. None of us.

Do you think that if we Czechs just had a higher self-esteem, that half of the problems – and we have already touched on some of them in the interview or in your lecture – would not exist?
Yeah, to get up, stop nagging, and start doing something. It's the bane of the Czech nation that we sit around drinking beer and moan about how everything sucks. It's not going to get us anywhere, it's just a hindrance. Get up and start doing something. The hardest thing for a painter is the blank canvas, the hardest thing is to start, but once you do, it comes naturally. The worst thing is to take that first step, that's for sure. When you're skydiving, it's also the hardest thing to jump out of the plane, but then as you're falling and gaining speed, it's fun… So, it's about not being scared of that first step, and having a healthy self-confidence. You mustn't overdo it with self-confidence, so it doesn't turn out the way it does in politics, for example, where there is a lot of self-confidence for my taste, and it is not proportional to the value the politician brings to society.

During your lecture, you asked the audience what we Czechs are good at. I always found it interesting how Czechs are so proud to say ice hockey or beer. Of course, it's great that we have such wealth or heritage, but don't we have it in our minds that *"this is who we are, the beer drinkers"*, that that's enough? Not for me.
We're the best at ice hockey, we're the best at drinking beer, and we're the best at colon cancer. We have the most developed porn industry, and the most meth labs in the world. So yes, there may be a lot of superlatives, but for me, those are not satisfactory metrics. I may like beer, but I don't think it's the kind of thing we should be bragging to the world about, because it somehow frames our image, and we will forever remain that alcoholic eastern periphery at that point. And if we're good at ice hockey, I'm not belittling the fact that everyone in, say, Canada will know us. In the ice hockey regions we will be recognized, and it is a good promotion of the Czech Republic, because the Czech Republic doesn't know how to promote itself, we fail in this as a country, we really don't know how to self-promote, so at least something, but I'd much prefer if we promoted ourselves by having leading scientists and leading experts in niche fields, that we are a nanotechnology superpower, that we have the best lasers in the world, that we make the best equipment for satellites, that we are trendsetters and innovators. That, I think, will ultimately do us a lot more good than chasing a piece of rubber over frozen water. But when we win the Ice Hockey World Championship, people are over the moon. The nation unites around the hockey puck, people get intoxicated by the unity and togetherness, all the cars honk, and everyone waves flags. The moment a Czech scientist wins an international award, or when Dana Drábová recently received a medal from the Japanese emperor… I learned this from her personal Facebook page. I wouldn't have known if I didn't have Dana Drábová in my friends list. And I think that's more important than winning the ice hockey championship.

Do you think that if there were more women leaders of world powers that global events would be different? That there might not be so many wars? The masculine world is more aggressive.
It's actually a distrust of female elites, at least among the chauvinistic world of high-ranking men. They feel threatened that they could suddenly be ruled by someone who might be the source of their inferiority complexes, because maybe they had a strict mother, or maybe their female classmates did better in exams than they did. And they take it hard. Men are driven by hormones, they're hunters, and they feel like they're conquering the outside world, while women are by the fire, taking care of the kids. I'm a huge advocate of women in politics and in business leadership positions, because women cultivate discussion. But women often have more complex, complicated relationships than men, which is sometimes a bit of a disadvantage. A man will use Occam's razor, and slash the debate, it's a more straightforward way, but hand on heart. How many women have started wars? How many women dictators have there been? It's going to be in the single digits. Yeah, there may have been a Lady Mao behind Mao Zedong and the murdering of millions of Chinese, along with her husband, but those women are relatively few. All these conflicts, the testosterone muscle flexing, the architects of these events are men, so for me, definitely more women in politics, because politics is being cultivated by them, and it's to our benefit.

Some people respond to criticism, others to praise. What do you think works for the Czechs? I think we're a bit timid, without the necessary self-confidence. I'm going back to the unmown lawn example. If you say to your neighbour in the Czech Republic that you would like him to mow it, that you want the place to be nice, I think he's more likely to dislike you than to get down to it. So, it's more the praise, isn't it?
Well, I guess praise works for everyone in the world, but I think it's more like hope. If you tell a person the benefits, and give them an option that is advantageous to them – and we Czechs are pragmatists, opportunists to a certain extent – it will sink in for him, and he may rethink or change his behaviour. I tell people that we Czechs have hope that we can really be inspiring in many fields, that we're not a small country, that we're a medium-sized country, and that we are exceptional in many things. I think one can then shift the paradigm of how one perceives the world in a positive way, that it can't affect them in a bad way. That means not scaring him, not telling him: if you don't do this, we will be the worst ones. I don't think that's the right thing to do, but rather the opposite: If you do it, we'll be good. Turn it into hope, people need hope. They've been hearing for a long time that everything's messed up here, but scaring people is not the way to go. They're going to get deeper into their social bubble, lock themselves in their homes, and run away to their weekend houses, like they did under Socialism. That's not a solution. The solution is to say things can be really good. We have a huge potential. We just need to start doing something systematic. And a little bit is really enough. It's not that we're all going to run out and become Japanese salarymen, working from morning to morning.

Innovation drives growth, and collaboration is key to accelerating it

Michael Zankl and **Lucie Valentová** are colleagues at the *"Beratungsbüro Oberpfalz,"* a consulting office in the Upper Palatinate established by the Bezirk Oberpfalz and funded by the Bavarian Ministry of Finance. Their primary mission is to foster Czech-Bavarian cooperation by promoting innovation processes in small and medium-sized enterprises. This involves preparing and implementing technological projects, providing consulting on funding programs, and organizing networking and informational events. *"Our central location in Europe helps us build cross-border partnerships, bringing together the expertise and resources to support businesses in adopting new technologies."*

Can you briefly introduce yourself and your professional path?

Michael M I have a background in Industrial Engineering and Economics, and my career has consistently centered on project management. At Witron Logistik + Informatik, I managed large-scale projects in the US and Spain, focusing on logistics systems. Later, I joined Moll Automatisierung, where I led automation projects for BMW and VW across England, Poland, and Germany. Now, as the Technology and Network Manager at the Beratungsbüro Oberpfalz, I work with Lucie to foster collaboration between businesses and academic institutions, driving innovation and facilitating partnerships.

Lucie L I come from Pilsen, where I completed my Bachelor's degree in Business Administration with a focus on small and medium enterprises. Afterwards, I moved to the partner city of Regensburg to pursue my Master's in Business Administration. During and after my studies, I managed various German-Czech projects, ranging from youth education to securing skilled labor. For the past 18 years, I have been involved in funding across various sectors, including NGO, associations, and businesses. In my current role at the Beratungsbüro Oberpfalz, I apply all aspects of German-Czech collaboration, SME knowledge, funding, and project management.

How exactly does the consulting office help Czech-Bavarian relations and development?

L The office has been actively supporting Czech-Bavarian relations for over 8 years, with funding from the Bavarian State Ministry of Finance and for Home Affairs. Our work focuses on three main areas. The first area includes advisory and funding services, where we help small and medium-sized companies find suitable technology funding programs and support them throughout the application process. Second, we foster collaboration between the Pilsen region and the Upper Palatinate by connecting businesses with research institutions and universities, helping them identify funding opportunities and moderating these cross-border partnerships. Lastly, we organize events that bring both regions together, such as the Czech-Bavarian Innovation Day. Additionally, in the past years, we have started to focus on strategic innovation management.

M Our consulting office plays a key role in fostering Czech-Bavarian relations by connecting people and organizations on both sides of the border. The focus is on building partnerships that promote innovation, which is essential for staying competitive in today's global market. We help businesses and institutions access the right resources, whether it's through funding opportunities, technological facilities, or expert networks. Additionally, we guide them through the often-complex application processes, making it easier for innovative ideas to take shape and succeed.

What obstacles do you have to overcome when implementing projects?

M In both Germany and Czech Republic, bureaucracy is a significant factor that slows the adoption of new technologies, and cross-border projects add an extra layer of complexity. You can't simply adopt a new technology pragmatically, you have to navigate through various regulations, cybersecurity concerns, and other barriers. Additionally, larger companies often see smaller innovative companies as a threat, leading them to either acquire these startups or compete aggressively against them. These factors collectively slow down the pace of innovation on both sides of the border.

How do you perceive the differences between the work cultures in Germany and the Czech Republic?

L Oh, it is different. In the Czech Republic, colleagues tend to become informal quite quickly. In Germany, especially in a professional setting, trust and familiarity take longer to develop. It's usually a more gradual process before relationships move to a more personal level, like going out for a drink together. However, I think we are very similar, especially in Upper Palatinate and Pilsen. We share a lot of common ground in terms of lifestyle, work habits, and even food preferences, which creates a natural connection. Ivan Nový and Sylvia Schroll-Machl wrote about cultural stereotypes, stating that Czechs are more flexible and improvise, and Germans are more structured and prefer planning. In our case, it's funny that I, a Czech, prefer planning, while Michael, a German, is more inclined to improvise. Ultimately I believe that in our core values, we are in agreement, and our small differences can be very fruitful and enriching for both sides in German-Czech cooperation.

What opportunities do you see in the area of Czech-Bavarian cooperation for the future?

M Both the Czech Republic and Bavaria share many cultural and industrial similarities, creating a strong foundation for future collaboration. Our regions have a highly skilled workforce and a strong tradition in manufacturing, engineering, and innovation. Key sectors like automotive, precision engineering, and advanced manufacturing offer great potential, particularly in areas like automation, robotics, additive manufacturing, and digitalization. While these topics are globally relevant, we have unique strengths in specialized materials, high-quality production processes, and industry-driven research. As Milan Edl from the University of West Bohemia noted in an earlier interview, it's crucial to focus on implementing technology in a way that serves people's needs, rather than adopting technology for its own sake. By combining our strengths, we can develop people-centered innovations that benefit both regions and help us remain competitive on a global scale.

How do you think new technologies might affect people's lives and work in the future?

M I align with Milan Edl's view that technology should primarily eliminate repetitive tasks that people find unenjoyable. With advancements in AI and generative language models, tasks that are not well-suited to humans can be automated, allowing people to focus more on interacting with each other rather than with machines. However, this also raises the crucial question of what roles humans will play when machines can perform many of their jobs. It's essential to think carefully about how technology can best serve humanity and ensure it's applied thoughtfully. This conversation needs to take place across schools, universities, and industries to prepare for these changes.

L In our community, handling these technologies is routine, but the average person doesn't encounter AI or 3D printing daily. We need to educate people to prepare them for these tools. In both industry and everyday life, people need to be ready for these changes. For example, contactless payments have been common in the Czech Republic for about 10 years. In Germany the pandemic has accelerated the increased use, but cash is still commonly used and important to many people.

That's interesting. What do you think are the reasons for the difference between Czechs and Germans in adopting new technologies?

L I think it's because the Czechs lived under communism for 40 years, and many doers were either unable or unwilling to drive the country forward. Now, we have the opportunity to try things out, to experiment rather than working out processes in advance and only then taking action.

How do you evaluate the success of your project, and what key indicators do you use to measure them?

M Since we are a funded project, our success is measured by specific, predefined indicators outlined in our proposals to the government. These indicators include the number of advisory consultations we conduct with companies, the number of funding applications we assist with, and the number of successful projects or grants secured by companies in the region. These metrics help us track our impact and ensure we are meeting our objectives.

L Other indicators include the number of events we organize or workshops in strategic innovation management. Our project is successful when the companies we advise gain added value, thank us for the connections, and find partners to develop their ideas.

M Our ultimate goal, however, is to establish long-term partnerships and sustainable projects that continue even without our direct involvement. We aim to create an innovative ecosystem supported by ongoing collaborations between businesses, government agencies, and academia.

Do you have any favorite experiences from your work or life in Pilsen?

M There are many. I really enjoy Pilsen, especially thanks to my colleague Lucie. She's shown me how Czechs work and live, and I feel almost Czech now. Lucie has also embraced the German way of life, so I guess I'm a good teacher too. Pilsen is a fantastic city, and I plan to visit again with my children, perhaps to the Dinopark or the Zoo. We definitely need to talk more about Pilsen and highlight all the innovative things happening there.

What motivates you to work in the field of Czech-Bavarian cooperation?

L We are a community, a big family. Czechs and Bavarians are different but similar in many ways. We learn from each other every day, and this mutual learning is our competitive advantage compared to other countries.

M At first, I wasn't specifically interested in Czech-German cooperation, but rather in innovation and technology. However, once I learned more about the Czech Republic and its effort in research and development, I began to appreciate it. In fact, my football team in Runding has started collaborating with several Czech teams. We organize matches and get to know each other better. These experiences, both professional and personal, greatly increased my motivation to contribute to the cooperation between our regions.



BIC Pilsen Spring Incubation Programme 2025? Innovation on the Rise!



At the beginning of February 2025, the seventh year of the BIC Pilsen incubation programme was launched, attracting a record of fifteen innovative companies. After initial consultations, a dozen of the most promising projects qualified for the programme, which then underwent intensive mentoring to help them strengthen their business strategies, attract new partners, and prepare for expanding into the market.



***"In a region like the Pilsen Region, incubation plays an extraordinary role. It supports the diversity of the economy, boosts the competitiveness of companies and creates new jobs. The incubation programme was piloted as part of the Smart Accelerator of the Pilsen Region II project in 2021. Since then, we've been financially supporting several promising startups in their take-off every year through the programme,"* said Martin Rybár, Deputy Governor of the Pilsen Region for IT and European Affairs. This time, the newly incubated companies offer solutions ranging from logistics, to education, to healthcare. The main trends are digitalization, artificial intelligence, and sustainable technologies.**

● **Advantiq Projects s. r. o.**
Vladimír Kvarda's company is the youngest one in the incubation. It intends to provide external project managers for SMEs, making it easier for companies to manage and use resources more efficiently, and also plans to start long-term development of AI PM as a SaaS solution. As part of the incubation process, the company will appreciate support especially in the areas of sales, marketing, and brand strategy.

● **BattleLand s. r. o.**
Ondra Novák and his company BattleLand are developing a unique action park that combines popular motion games (laser game, archery tag, water tag…) with video game elements (characters, skills, quests, rewards, levels…) and complex exercise. The aim is to create an innovative form of sport and entertainment that will not only be fun, but also improve the players' physical fitness, co-ordination, stability, and endurance. Players can create their own account and a game character that reflects their real progress in skills and abilities. This allows for individual training goals to be set, which players naturally accomplish through the gaming experience.

● **AMR Software Platform by Vojtěch Formánek**
Vojtěch Formánek's company is developing a software platform for bespoke Autonomous Mobile Robots (AMR) in logistics, which enables upgrading, extending functionalities and individual customization of existing robots, without the need to buy new ones. Thanks to its modular design and AI support, it increases the flexibility and efficiency of automation in warehouses and industrial facilities. The project in incubation will receive assistance in marketing and business strategy, establishing partnerships with manufacturing companies, and developing business and project management skills for scaling and sustainable growth.

● **CTF Technology s. r. o.**
It's the second time CTF Technology is going into incubation. In the autumn 2023 edition, the Incubation Programme Board considered the company's plan difficult to implement, so the company didn't receive any funding. In the meantime, however, development has progressed. Funding has been secured from the Technology Incubation Programme, thanks to which a pyrolysis unit demonstrator will be constructed. Having consulted experts, the company knows what legislation it's dealing with, and what needs to be sorted out. This is also why it needs to go on and bring its recycling unit into commercial use.

● **Ergosenc s. r. o.**
Two students of the Faculty of Economics of the University of West Bohemia in Pilsen, Eduard Šuster and Lukáš Pilc, decided to find a solution to the back pain of people with sedentary jobs. Existing aids, such as balance chairs, exercise, and medication don't address the improper posture of sitting. So, they teamed up with students from other departments at their alma mater to develop sensors that not only alert users to poor sitting posture, but also use an app to advise them on what to improve, when to stretch, or when to change the height of a reclining desk, for example. In incubation, the founders of Ergosenc want to finalize the development of their solution, obtain certifications, establish collaborations with manufacturers of complementary solutions, and start production and sales.

● **FligtTechFC s. r. o.**
Ing. Jan Žalud develops drones for military and civil logistics, using innovative design solutions. As part of the incubation, he wants to complete the development of the demonstrator, set up the company's business plan, conclude market research, gain knowledge about the management and business operation of the firm, and continue reaching out to customers.

● **Future Petz s. r. o.**
Robert Hašek's entry in the incubation programme was Future Pet, the company behind the ScanMy.Name service. This uses NFC technology to identify animals and objects in case of loss. In addition, the firm is developing a comprehensive data management and monetization platform for the pet sector that enables personalized services, marketing activities, and collaboration with veterinarians and pet food manufacturers. The company is preparing to expand abroad, including Slovakia, Poland, Germany, and Israel, and is looking for ways to accelerate growth and increase brand awareness.

● **Limany s. r. o.**
Limany has been in business for almost 25 years. Its founder, Petr Vach, had always had a passion for woodworking. But then he discovered Resysta – a German product made from compressed rice husks, which is maintenance-free, and has an eighty-year lifespan. But its processing is not easy. So, he teamed up with the design centre Rešl Kamas and began to test processing methods that could withstand the sun's heat. and began to test processing methods that could withstand expansion in the sun. His goal is to test new methods of anchoring, bending, and processing on first prototypes in a wide variety of conditions, and to launch Resysta products on the market.

● **LV Grid Company s. r. o.**
LV Grid's goal is to bring maximum economic value to producers and consumers of electricity from renewable sources, e.g. to manufacturing companies with their own PV plants). It creates a system that combines HW and SW, and optimizes the use of available energy. It automatically chooses between self-consumption or selling on the commodity market, preventing penalization and blackouts, or voltage fluctuations in corporate grids. In incubation, they want to fully develop the system to be competitive in an international environment.

● **Patentoid s. r. o.**
Patentoid makes intellectual property protection available to everyone – easy to understand, affordable, and without unnecessary bureaucracy. It helps innovators, start-ups, and established companies protect their ideas, without getting lost in legal complexities.

● **RYGTILRYG s. r. o.**
RYGTILRYG was founded by Vladimír Pálek and Radomír Staněk less than a month

before applications to the incubation programme were accepted. The two experienced fathers with a passion for hiking are developing an emergency baby carrier that will be appreciated by parents whose offspring often stumble and fall while out walking, and carrying them back to the car or home is not an easy task. In incubation, they want to get certifications for their product, create a business model, and set up a marketing and sales strategy. They plan to start production in the second half of this year.

● **VR Training s. r. o.**
Mark Bárdy's company specializes in training employees using VR. Bárdy enters the incubation programme, which he completed with his VR school project exactly one year ago, with a new product – first aid training VR Rescue. Bárdy has successfully combined a resuscitation mannequin with VR and, in collaboration with the emergency services and the Red Cross, launched on the market a solution that aims to get adults and teenagers to know how to save a life. VR Training is planning a big VRR1000 event at TechTower on 18th June 2025, demonstrating that it is possible to train 1000 volunteers in one day. ●

Companies incubated in the programme are now refining their business models, and preparing for market expansion. They are planning a big networking event in June 2025 to present themselves to investors and partners.

Why the Incubation is Vital

Incubation is a targeted support programme for start-ups and fast-growing companies to help them overcome major barriers, such as lack of funding, limited experience with business strategy, or weak partner and investor networks.

Participants receive:

- **Mentoring from experts:** an experienced team of consultants and mentors from finance, business, marketing, and technology
- **Financial support:** subsidies for key services – legal, marketing, and development
- **Connecting with partners and investors:** networking events and presentation opportunities

How the Programme Helps Companies Grow
The growing interest in the BIC Pilsen incubation programme reflects the growing innovation potential of the Pilsen Region. *"This year, a new mandatory pre-application consultation was introduced to help companies set themselves apart from the competition, realistically assess their strengths, and better define the needs that the incubation can cover,"* said Lenka Palánová, head of the incubation team.

Thanks to the programme, the incubated companies gain:

- **Access to the business community:** Important exchange of experience between start-ups and more experienced companies.
- **Financial support for expert services:** for example, legal advice, marketing, technology development
- **Expert guidance:** mentoring and coaching to help accelerate growth, and avoid critical mistakes

Strong Mentors and a New Incubation Board
An incubated project has a six-member team of experts to help with key areas of the business. This approach spurs growth, and increases the chances of success in launching products on the market. A major new feature is the expansion of the Incubation Board, which evaluates individual projects. For the first time this year, half of the members come from different areas of business, academia, and public administration – and for the first time, women are also represented. A more diverse perspective and a broader range of experience are essential for incubated start-ups.

Why Regional Incubation Is Crucial
The Pilsen Region defines itself as a centre of innovation and technological development. It's home to the Pilsen Innovation Ecosystem, PINE, which, thanks to a sophisticated support system, prevents talented people and promising ideas from leaving for other cities or countries.

The main advantages of the regional incubator include:

- Creating new jobs and supporting the local economy
- Linking academia with the business community and accelerating technology transfer
- Greater attractiveness of the region for investors and foreign companies
- Faster commercialization of innovative solutions

If you have an innovative idea too, follow the BIC Pilsen calls www.bic.cz – the next call for applications is scheduled for summer 2025.

#pilsenregion



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