

# Sinfo

March-April

The Best from Slovenia



**IN FOCUS**  
The sky is the limit

**I FEEL  
SLOVENIA**



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SLOVENIA**

# Sinfo

**SLOVENIAN INFORMATION**

*March-April 2017*

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## STRATEGIC FOCUS

Slovenia is a country that is increasingly attaining a level of excellence in all areas. This applies to science, enterprise, culture, cuisine, sports and many other activities, too. In some competitive disciplines we are even the best, and of course in many we are highly comparable with other countries in the EU and around the world.

At the end of last year Slovenia became an associate member of CERN. Although Slovenia has been collaborating with this organisation for a number of years, this is undoubtedly an important moment for the country. Now researchers, companies and other interested parties will have full access to all the programmes organised by CERN.

Slovenia is home to many outstanding innovators in the fields of science and entrepreneurship, with the Jožef Stefan Institute one of the main players in this area. Moreover, local innovators and entrepreneurs are increasingly drawn to work together. For this reason, it is no surprise that growing numbers of established events that are now coming to Slovenia. Slovenians excel in many things, and out of our traditions are able to create a high level of competitiveness. This can be seen in areas such as cooking, as we now have the best female chef in the world. We are also one of the most attractive tourist destinations, with stories that will touch everyone.

As Slovenians we are determined to be different, unique, to stand out from the crowd. It is true that our country is geographically much smaller than many others, and it has a relatively small population. But we have focus, and are increasingly courageous in our actions and aspirations.

**Tanja Glogovčan**, Executive Editor



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A white glider is parked on a green grassy field. In the background, there are rolling hills and a bright sunset with a large sun low on the horizon, casting a warm glow over the scene. The sky is filled with soft, colorful clouds in shades of orange, yellow, and blue. The glider has a long, slender body and long wings, with a small propeller at the front. The registration number 'LJ-1000-1' is visible on the side of the fuselage.

### THE SKY IS THE LIMIT

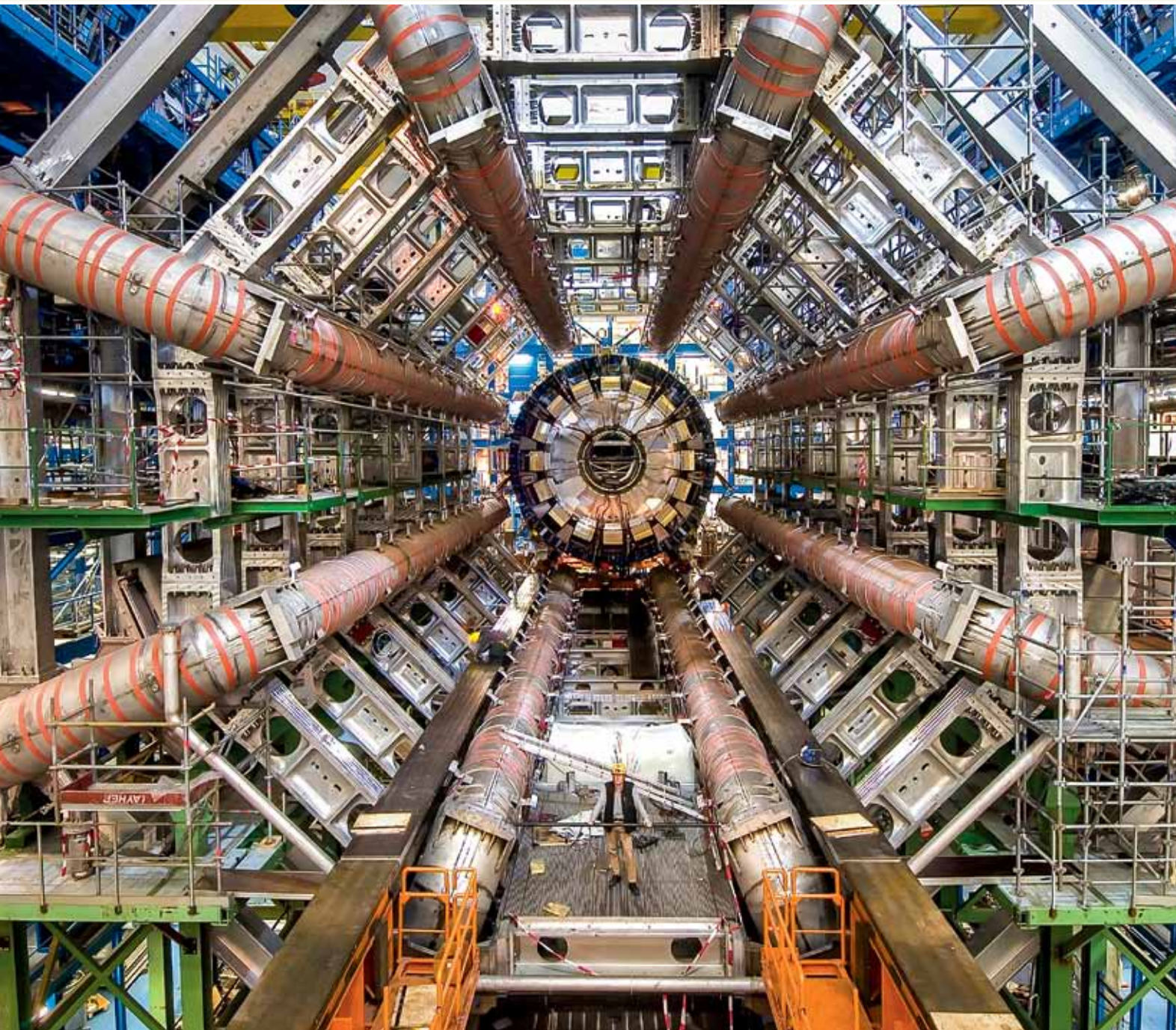
Inspiration, courage and perseverance are keys to the success of a project or product in any field, along with linking together different people, knowledge and energies. No specific challenges are more or less important, but the overall objectives are vital. We Slovenians are exceptional, and only the sky can be our limit.



CERN

# Slovenia set to become a high-tech society

NATAŠA GERKEŠ  
PHOTO: TAMINO PETELINŠEK/STA



The first initiatives for Slovenian membership of the European nuclear research organisation, CERN, date back to 1992, and formal activity towards membership to 2009. However, due to the unstable political situation and deterioration in the economic position of the country of that time, the resolution to implement all necessary procedures for Slovenia to obtain the status of a candidate for CERN membership was not followed up. It was finally enacted in the middle of December last year by the current government and the Minister of Education, Science and Sport, Dr Maja Makovec Brenčič.

On 16 December in Geneva, she signed an association agreement with CERN Director Fabiola Gianotti, whereby Slovenia acquired the status of associate member. This marked the country's first step towards membership, and in five years Slovenia should become a full member.

The country has in fact been collaborating with CERN on research for a number of years, so ties are already well-established.

**The signing of the agreement should see collaboration intensify, and opportunities have opened up for Slovenian companies, especially for high-tech ones.**

Cooperation will also expand in the area of education. "It is right that we should continue to weave together the great CERN family," said Minister Makovec Brenčič in Geneva.

## ASSOCIATE MEMBERSHIP OF CERN OFFERS FULL ACCESS TO ALL PROGRAMMES

Even during the period of associate membership, researchers as well as companies and other target groups will have full access to all the programmes conducted by CERN. Associate membership of CERN will therefore give Slovenian scientists and engineers ac-

cess to the research infrastructure and technological projects being conducted at CERN. They will also be able to use and create high-tech products in the company of leading experts from all over the world.

Alongside research activities, CERN has broad scope for programmes of education and training at all levels. In the period of associate membership, CERN offers to various groups of its members possibilities such as scholarships for young researchers, employment of researchers at CERN, schools for teachers, summer schools for undergraduate students, schools and promotional activities for school pupils, exhibitions about the work of CERN, and more.

**Associate membership of CERN will principally offer Slovenia full access for scientists and engineers to the research infrastructure and technological projects being conducted at CERN.**

Moreover, it will provide the use and creation of high-technology products in the company of experts from all over the world, which will aid the transfer of these advances to the Slovenian environment. We should also emphasise the promotion of a non-conventional approach to problem-solving, which produces highly





trained experts capable of working outside narrow scientific fields, and the transfer and use of the detection methods used in high-energy physics to other areas (medicine, environmental monitoring and so forth).

Above all, membership of CERN represents a clear orientation for Slovenia, whereby it seeks to become a high-tech society contributing its own share among the group of most advanced nations to the further development of the world, and at the same time sees prospects for taking an appropriate share of the economic benefits that arise from these efforts. This is thus a great opportunity for Slovenia.

**STRONG, MODERN, WELL-USED AND INTERNATIONALLY INTEGRATED RESEARCH INFRASTRUCTURE**

Based on the Development Plan for Research Infrastructure (NRRI) and the Research and Innovation Strategy of the Republic of Slovenia (RISS), both of which were adopted in 2011 and apply for the period up to 2020, the Ministry of Education, Science and Sport supports the development, capacity and research infrastructure in Slovenia, and involvement in international research infrastructures. In the definition of research infrastructure, both the NRRI

and RISS refer to the European Strategy Forum on Research Infrastructures of 2008, or what is called the ESFRI Roadmap, which states that research infrastructures are capacities, means or services comprising major equipment or a selection of instruments, along with sources of knowledge such as collections, archives and databases. Such features drive innovation and are the primary condition for research work.

The use of research infrastructures enables responses to important social challenges, such as those seen in the fields of human health, climate change, the ageing population and energy supply, and facilitates successful monitoring and responses to changing social relations and the behaviour patterns of individuals, while aiding industry in developing new high-capacity materials and medicines and in monitoring the environment.

During implementation of the Development Plan for Research Infrastructure 2011-2020 (NRRI), the speed and achievement of targets mainly depend on the annual budget and state of public finances, as well as on the availability of human resources and the level of organisation among the related scientific communities. The development of the national research infrastructure has been financed in large part via the Slovenian Research Agency (ARRS), and, in addition to this, from 2010-2013 the eight centres of excellence provided a considerable direct input to the national research infrastructure from ERDF funds. These funds also served to finance the linking and establishing of a critical mass of highly trained personnel in all of Slovenia's regions to meet the requirements of economic development and competitiveness (the "creative core"). From 2011-2015, over 97 million euros were earmarked for investment in research infrastructure.

**Today Slovenia is involved in 10 priority international projects under the NRRI, it has an associate agreement signed with CERN, and membership of the LifeWatch project is also planned.**

Upon revision of the NRRI 2016, the list includes five new projects, and there are two more on the list for further upgrading. International project priorities are also determined in view of the priority fields of the Smart Specialisation Strategy.



Minister of Education, Science and Sport Maja Makovec Brenčič and CERN Director-General Fabiola Gianotti.



DR. JANA KOLAR

## Europe is home to many outstanding innovators

NATAŠA GERKEŠ  
PHOTO: STA



Dr. Jana Kolar

Dr. Jana Kolar was recently appointed to the group of representatives for the European Innovation Council. She is the Executive Director of the Central European Research Infrastructure Consortium (CERIC), and was head of the Science and Technology Directorate at the former Ministry of Higher Education, Science and Technology.

A doctor of chemistry, in 2002 she received a Zois Prize for major scientific achievements in this field, while working as a member of a research group at the Faculty of Chemistry and Chemical Technology of the University of Ljubljana, and in the National and University Library in Ljubljana. The citation supporting the prize noted that the core scientific work of the research group was of wider European and even world importance, and was oriented towards preserving historical documents and works of art on paper. For a number of years Dr. Kolar has been involved in European research policy, as a member of the European Institute of Innovation and Technology, and she collaborates in expert groups of the European Commission.

**In January, the European Commissioner for Science, Research and Innovation, Carlos Moedas, appointed you to the group of 15 high representatives for the European Innovation Council. What can European science and the Commissioner, as well as the European Commission, expect from this group and, of course, what can Slovenia expect?**

Europe is home to many outstanding innovators, but great ideas alone are not enough to break through in the globalised world. Success depends on the regulatory environment, access to financial resources and the market, to consider just a few factors. For this reason Commissioner Moedas has specifically placed innovation at the centre of his mandate, and our group, together with the Commission, will focus on how Europe can become a better space for the start-up and growth of companies aiming to create new markets and developing breakthrough technologies. However, the group has not started work yet, so we still do not have any concrete proposals.

**As for what this project holds for Slovenia, it is important to stress that we are members of a group of independent experts and are not representing our own countries.**

I see the group mainly wielding influence in the area of new opportunities for Slovenian companies in the European environment, and in the past they have shown themselves well able to take advantage of that. For example, we are already one of the most successful countries in Europe with regard to making use of the European instrument to support innovative companies, the SME instrument.

**As part of the Horizon 2020 programme, last year the European Commission recognised the Slovenian project InnoRenew CoE, which is headed by the University of Primorska in cooperation with seven partners from Slovenia and the German Fraunhofer Institute, as one of the ten most outstanding projects in the EU. How do you regard this kind of project, and this recognition, and what does it mean for Slovenia?**

In terms of sustainable construction, the InnoRenew Centre of Excellence is exceptionally important for Slovenia. It has been set up well – with the aid of international experts and supported through generous funding from the Horizon 2020 EU Research Programme and structural funds. A key element that can contribute to the success of the Centre is the long-term commitment of the state and the involvement of the excellent Fraunhofer Research Institute,

which can contribute to the better management of the Centre. However, I would like the best practices seen here to be applied to the entire support system for science and innovation in Slovenia, and not just in one centre.

**Your time as head of the Science Directorate and Technology at the former Ministry of Higher Education, Science and Technology, saw a rise in the number of projects co-financed by European funding for centres of excellence and competence. How do you see the contributions of such centres to Slovenian science today?**

Our centres of excellence were set up in a very similar way to the previously mentioned InnoRenew. The primary aim was to support excellent science, which Slovenia funds significantly below the European average. This is also reflected in the number of recipients of prestige projects from the European Research Council, where we remain among the least successful countries. A lack of political will and the global financial crisis gave rise to the decision to halt the financing of all the centres after four years. Despite their numerous achievements, this was really too short a period to see the full effects that could have been achieved.

**Since autumn 2015 you have been the executive director of CERIC, the Trieste-based consortium of European research infrastructure that links together seven countries. Would you say that this project links the scientific excellence of the seven countries?**

More than that, it links together global scientific excellence. Our calls enable the best researchers in the world – in the opinion of international evaluators – to have free access to the consortium's research equipment and expertise. Access is not just limited to members of the consortium, since our main objective is excellent science. An added value is better science and more effective use of the invested funds, along with greater connectedness of consortium researchers on the European and world levels. This leads to more international research projects, and a wider network of industrial users.

**What is the difference between being head of the Science and Technology Directorate in the Slovenian Government, where you worked to create the best possible conditions for science,**

**and being director of a consortium that operates internationally in science? In your current work, do you often encounter issues related to the adequate financing of science and research?**

There's a big difference. It's not just that CERIC is international, it's also a research organisation. While I created support for researchers at the ministry, I am now a user of those services. Of course the knowledge and experience I acquired now help me to understand and communicate with policy-makers. Just as I did before, I currently have outstanding colleagues, and that makes dealing with challenges easier.

**In the 21st century, science seems to have no limits, be it in research, boldness and international connections. In the area of science, is Europe and ultimately the world one large, unlimited research laboratory?**

In terms of science and art, national borders have long been pretty much erased, but today the world is even more connected than ever. A good example of this is CERN, where they discovered the Higgs boson and invented the worldwide web.

**Its membership includes 22 countries, and just a few months ago Slovenia became an associate member.**

Another interesting development is the construction of the synchrotron in Jordan, which is progressing with the support of numerous countries in the region, including Israel, Palestine, Cyprus and Turkey. This is a good example of the connecting role of science, which finds a common language even in conflict zones.

**What's it like being a woman in science? Is this even an issue any more for Europe and the world?**

This is always a very topical question. The gender gap is particularly pronounced in senior positions, such as full professorships, or in heading up groups at research institutes. Based on gender, in the past I frequently heard doubts about my suitability for a particular position, or about my suitability in spite of gender. But this is a complex topic that would require a longer answer.



She is currently also a member of the high-level expert body advising the Austrian Minister responsible for Science and a member of the Horizon 2020 advisory group Innovation in small and medium-sized enterprises.



PROF. DR. JADRAN LENARČIČ

## Outstanding achievements, breaking out of the box and into new, untamed dimensions

VESNA ŽARKOVIČ  
PHOTO: STA



Prof. Dr. Jadran Lenarčič

Now in his third term in office, Dr. Jadran Lenarčič heads the biggest and most influential research body in the country, the Jožef Stefan Institute – the leading body of Slovenian science. He is a doctor of electrical engineering, and gained international recognition through his research on robotics, principally investigating biorobotics and humanoid robots. He lectures at universities in Slovenia and is a guest professor abroad, and as a valued expert holds various offices in international organisations involved in science and research. He was also the initiator and head of a series of symposiums that serve to present the latest findings in the area of robot kinematics.

Lenarčič first took over as director of the Jožef Stefan Institute (JSI) in 2005. Since then he has taken part in working groups to overhaul higher education and research legislation, as well as in a number of councils in ministries and other bodies in Slovenia. In the assessment of European research institutes, universities and other organisations involved in science and research, the Jožef Stefan Institute is ranked a high 37th place. The Thomson Reuters agency, which verifies publications and citations of scientific articles, found that, compared to the German Max Planck Institute, the Los Alamos laboratory in the USA and CNRS, the most distinguished French research centre, JSI took third place after the German and American institutes, and ahead of the French one. The agency's data shows that the Institute's most successful field is physics, which in terms of the number of researchers employed has achieved even more published articles than the physicists from the other three institutes. JSI as a whole is also more successful in terms of how much money it spends on research.

### **You proposed a change to the system of financing.**

Apart from the fact that the volume of funding for scientific and technological research in Slovenia is low, our system also has some structural faults. Similar institutions around the world also receive institutional funding, while we obtain income only through projects, in other words, only competitively. The competitive method does have a range of good points, since it forces us to be constantly 'in shape', but it prevents the Institute from

implementing its own development policy. The director and scientific council actually have no money available to guide the Institute, only the researchers have money for their projects.

### **You strongly emphasise that an awareness of the role of science, research, creativity and knowledge in the broader sense has been lost, or at least been subsumed in all the social subsystems, and even in science itself.**

Yes, that is true. Sadly the attention and functioning of Slovenian society have been redirected to what are in my opinion less important and non-developmental topics. We are occupied with more or less populist issues that attract media attention. But what we want is for Slovenians to finally focus their minds on their fate, on how to improve conditions and to involve all the potential we possess in our own development. Here I see the key role of scientific and technological research as a basis for economic and broader social development. Above all I want to experience the mental breakthrough I have been awaiting for at least 25 years.

### **Just these few facts point to a valued scientist whose views are always clear, sharp and committed to scientific truth.**

My heart is in my work, otherwise I would not be here, that's all. And we need to protect the best that we have. We have quite a few leading researchers and outstanding achievements that are, I would stress, not so much fruits of the system but of spontaneous ideas. I am talking mainly about the successes of individuals, and



not of some organised innovative system. Basic, applied and developmental research is pursued quite randomly. Fortunately our institute goes beyond the average, but still we want the system to be set up in a more integrated way, as was set out in Slovenia's research and innovation strategy. Of course we would need additional money for a radical change to the system of innovation. Today the cost of one coffee per month per inhabitant would cover a fundamental shift. We also need to be more aware that the results of science are not evident in the short term, this is always long-term work that usually has a lot of indirect effects. Of course, we are also not yet a knowledge-based society, in the noblest sense of the term. And local knowledge is only worth something if it can compete with knowledge internationally.

**You employ young people, the most talented people with superlative knowledge, and they are ready to compete with the whole world.**

The Swiss, for instance, see clearly that they will be winners if they have good science. Each individual there understands that. Here, sadly there is no such understanding. Perhaps as a nation we have trouble accepting the fact that science is in essence abstract, since it deals with something that does not yet exist, but will do later. You can only understand the role of science when you look ahead, when you have vision. And this is what we lack.

**Your institute ranks among the most prominent in Europe and the world, so there are probably no major issues with regard to its good leadership.**

Our institute is something special, even just because of its size. We employ nearly 1,000 people and we are the only multidisciplinary research institute in Slovenia. This critical mass of people creates a strong spirit of cooperation among different groups, some healthy competition and a constant proving of ourselves, which generates good results. We are most certainly special, since there is no comparable institute in Europe. Within Europe that makes us very strong, and in European projects we are one of the most successful partners and also the most successful in securing funds, although we operate with much less money than comparable institutions in Germany or Switzerland.

**So the secret of your institute is the high motivation of the people?**

Absolutely. Employment at our institute is a great privilege. If for no other reason than there is an extensive selection process before you get in here. First you have to be the best student, doctoral student and later post-doctoral researcher, then you have to have a special character, a sense of belonging to the profession of scientist or researcher, and you have to be prepared to live that character. Our institute is a truly specific environment. It comprises a mass of people involved in physics, chemistry, biology and information technology, the environment, automation, nuclear technology and so on. There are a lot of young people, and a fifth of the employees are foreign researchers. This environment creates the spirit that is not simply an institute, but the Jožef Stefan Institute.

**As demonstrated, of course, by you. You are in your third term as head of JSI, and you have been employed there since the very beginning of your career, which is now winding down. Your one, first and last job.**

My contribution to the Institute definitely includes loyalty. We have a saying: once an institute guy, always an institute guy. Even people who have only been here a short time like to come back and maintain ties. It is a kind of cultural phenomenon. The very first director, Anton Peterlin, said that JSI is not just a scientific but also a cultural centre. And this is one of my main missions – to make it a cultural centre. We have constantly been cultivating this spirit, in part because we bear the name of the most famous Slovenian of all time, Jožef Stefan. All over the world, everyone knows Stefan's Law.

**You speak of a cultural institution, but how close is science to culture?**

Culture is all too often mistakenly understood only as art. Culture is something much broader. Our institute for instance is a centre of natural science and technical culture. Furthermore, as is well known, a major fine art gallery is housed at JSI, complete with permanent exhibitions, and we collaborate with the Ministry of Culture. Our employees become socially engaged in various events that are not just about science. We will soon be planning Stefan



J. Lenarčič is the initiator and chairman of Advances in Robot Kinematics. ARK is a series of international symposia, the first was organized in 1988 in Ljubljana and the last in 2012 in Innsbruck (Austria). Many new discoveries in this area were first reported in ARKs.



At the Jožef Stefan Institute, scientists deal with mysterious nanotechnologies, biotechnologies, computer algorithms and particle accelerators. They collaborated in discovering the Higgs boson and clarifying the question of where antimatter has gone in the universe. For both they can claim a small piece of the Nobel prizes. They also created a self-cleaning cover for cotton fabric, an atlas of Slovenian science, and they the Slovenian meteorite, the Jezersko meteorite.

Days, where we open our door to the public. At such events we are not just talking about science and research; this year for instance, we will discuss the current state of Slovenian society, or real virtuality as I have called it.

**Real virtuality?**

We live in a time when news, aided by social media, spreads very rapidly, regardless of whether it is true or not. This becomes reality, because it has a real influence on our life, and instead of us dealing with the real, we deal with the virtual. This engenders the spread of lies and artificial self-images, where we can all be anything. This is becoming an integral part of the society of real virtuality.

**You seem to be a researcher with a heart and soul.**

I am truly a researcher in all areas of my life. Wherever I arrive, I start looking for changes, most especially in the sense of design. I come from the coastal city of Koper, where as a child I lived in surroundings marked by Venetian architecture. That has also fired my imagination. Even Einstein said that knowledge is limited, while imagination embraces the entire world. I also experience things in this sense – a researcher with all the dimensions elements, perseverance and dedication to work – through imagination and vision, which leads and guides you. Creativity is the foundation in

science and art, since it enables outstanding achievements and breaking out of the box and into new untamed dimensions. The opposite of this is being obtuse and closed. Creativity develops better where doubt is permitted and where making mistakes is not prohibited, where there is less conformism and stubbornness, and more freedom and interchange. I see the status of a true scientist as being someone who enjoys to the maximum everything they do and constantly questions their own achievements. And the progress of the individual, group, society and all of civilisation relies on the outstanding achievements of creative people in all realms of human endeavour.

**You are not one of those people who see work as an imposition.**

No, no, far from it! Sometimes someone tells me that it must be hard in such a demanding job to cultivate my artistic efforts. I would simply die if I could no longer do all of that. It is my obsession, who I am.

**As an amateur painter, and also a member of the fine artists society, even without any formal training in art, you probably experience the world in images.**

In my head I am constantly creating images, which if I do not put them on canvas, stay in my head. I have painted all my life. It has been my love ever since childhood. I do abstract painting, since that allows me greater creativity. Images of Venetian Koper from my childhood continually appear to me – streets, houses, churches, chimneys, of which no two are the same, the sound of birds, the splashing of the waves in the marina, the smell of decomposition from the sea, the ship horns as they enter the harbour... I paint all these images and feelings on my canvases. I thought about studying painting, but I was afraid that I would lose a large part of my other talents, plus, how would I survive? I was even interested in studying philosophy and sociology, and that breadth comes in handy nowadays in establishing contact with people.

**Clearly your parents did not clip your wings through the wrong kind of upbringing.**

They never made anything forbidden to me. My parents were

extremely interesting personalities, very sharp. They allowed and permitted me anything. It is true that as a child I would not take orders from anyone, but I always felt like an adult. At that time I did not want to be a child, but now I am increasingly recognising the child in me. I am convinced that the most creative person is the one that manages to keep the child in themselves. We were a family in which creativity was cultivated, and I am extremely grateful to my parents for this. There is greater creativity in environments where there is greater knowledge, diversity and fresh air blowing through, where there is culture disposed to the muses. Knowledge, diversity and culture are three sides of the pool of outstanding achievements. Science and art are both creative and intellectual processes. All of this is encouraged by a kind of inner muse, an impulse, something irrational. Scientists are also drawn to be creative by an artistic muse, a desire for something new that no one has yet created. This is the same process in both the artist and scientist.

**It seems your fundamental method of work is the complete freedom to create, so you agree that the director should leave researchers in peace and not get in the way of their work.**

And allow open discussion at all levels. I am convinced that important social issues should not be decided upon only by politicians or economists, but also people who are active in society.

**How do you respond to the question of how to help the economy to become more competitive with the help of science?**

Basic scientific research and linking science to the economy are key to the future development of Slovenia. Given that in our society the concept of science is conceived in very abstract terms, it is not enough to just be aware that knowledge contributes to success in all areas, including the economy, culture and social security.

**How do you predict science developing in the future?**

The greatest scope for development lies in nanotechnology, which offers the possibility of understanding processes on the atomic and sub-atomic levels, while robotics also has enormous development potential, since in everyday life there will be robots

that are similar to people. We will see the development of a civilisation of robots that will communicate with each other, and the human-machine connection has a big future. New materials, biochemistry and information technology will also feature in this.

**What are your thoughts about Silicon Valley?**

I am convinced that we already have a Silicon Valley in Slovenia, or are very close to having one. I mean the Vič district of Ljubljana, since it is home to all the technology and natural science faculties, as well as research institutes. I am certain that such an area will draw in people from all over the world. We need to invest in that environment, in the infrastructure and urban planning. The preconditions are already in place – principally the people.

**And your wishes for three years' time, when you are retired?**

That I will never again in my life have to put on a suit and tie. In shorts and T-shirt, spattered with paint, and a brush in my hand, I want to spend creative years with paints and enjoy it to the maximum.

Three of the most prominent achievements of JSI in the past year have been in the fields of physics, chemistry and IT. The first one is the fastest computer memory in the world. The potential from this discovery is enormous, since memory speed is now the main obstacle to the further development of computers. The other achievement was in the area of piezo-electric materials, where scientists at JSI explained how their properties depend on the impurities they contain. The third important achievement was the miniature ECG heartbeat sensor, which a Slovenian company will manufacture. This is a personal sensor that collects vital data about heart function via a mobile phone. All three achievements are breakthroughs in the world of science and technology.

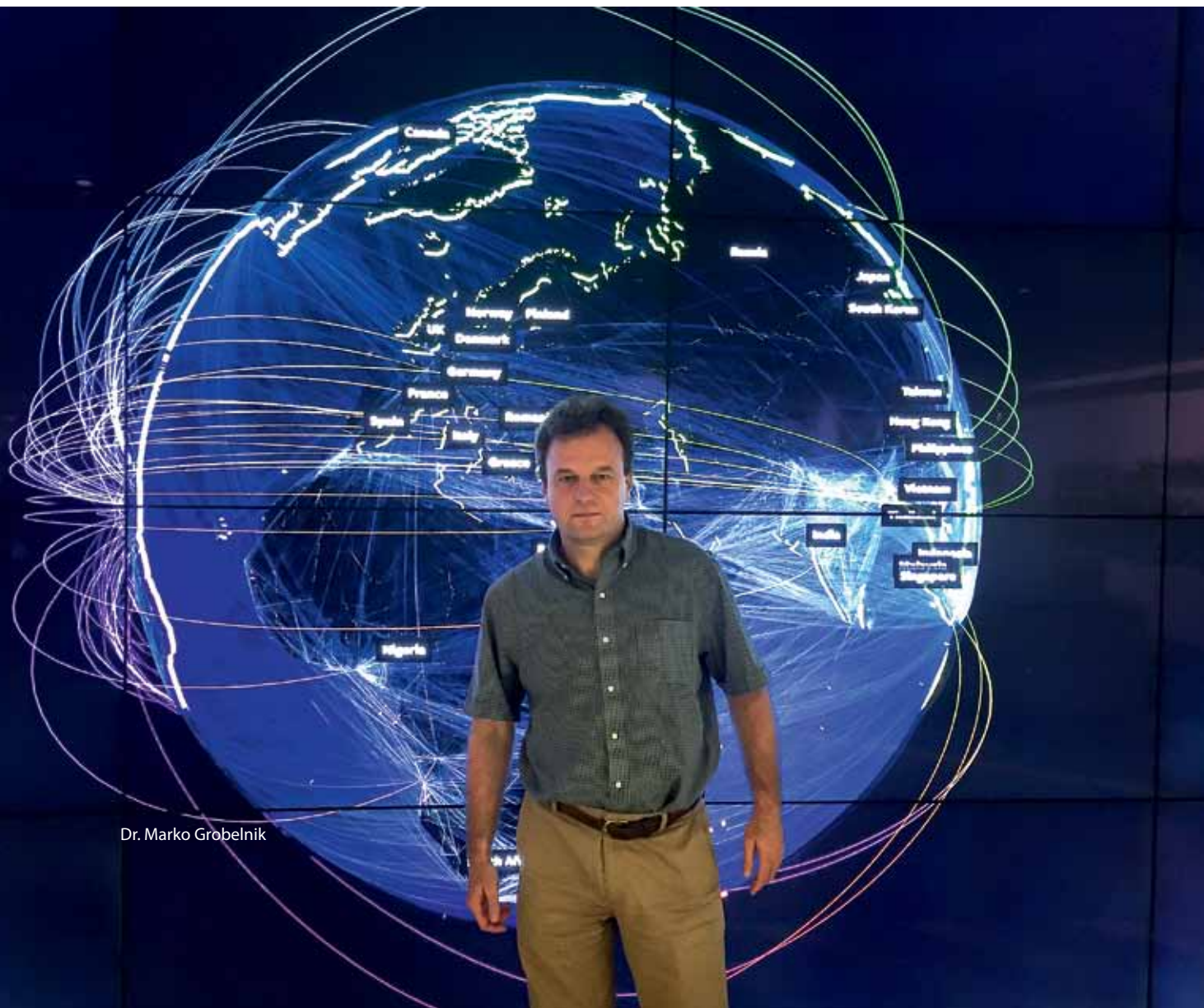


# MARKO GROBELNIK

## Digital Ambassador

DANILO GOLOB  
PHOTO: PERSONAL ARCHIVES

In September 2016, the government appointed Marko Grobelnik as the country's digital ambassador, who will promote e-inclusion for all during his four-year term.



Dr. Marko Grobelnik

The new ambassador is a scientist who specialises in artificial intelligence. He works with tech giants and has a great deal of international experience. He works at the Jožef Stefan Institute, as head of the Artificial Intelligence Laboratory, and among others collaborates closely with Stanford University and University College London. His solutions are used by several well-known companies around the world, including Microsoft and British Telecom. Grobelnik has also founded two companies, Cycorp Europe and Quintelligence, which are involved in artificial intelligence research and development.

The role of the digital ambassador is fairly broad, since it also includes working with European politicians, networking with the business sector, science and education, and setting up instruments that are designed to raise awareness that digital technology is a part of our lives. According to the new ambassador, the digital transformation process has been under way for 30 years and now is part of our everyday lives.

**Grobelnik says that digital technology is not something to be afraid of, since it creates a wealth of opportunities for a better life. It is simply a tool for making our lives easier.**

### DIGITAL SLOVENIA

One important function of his ambassadorship is promoting Slovenia's positive features and the areas in which we excel. He thinks we have a lot to be proud of. He sees a great deal of positive developments, people, trends and happenings which most Slovenians don't even know about. We have a good education system, our companies are competitive, and we are good in science, but we are lacking in the commercial aspect. We are not very skilled at selling, but we know how to make things, which makes us very competitive on a global level. Slovenia ranks at the very top of European Union countries in terms of number of researchers per capita working on EU projects. We are also ranked high in terms of use of mobile technology and the internet. We are quite good in innovative technologies, which often come from small groups of people. The startup culture is also developing nicely. There are a lot of Slovenians who push the envelope and drive development forward, and who are very progressive, says Grobelnik, who hopes to use his position to channel positive opinions and form connections among people.

He says that he is already holding discussions with various stakeholders in the field of digital technology in Slovenia. He also took part in a government delegation tour of Silicon Valley, and will meet with the digital ambassadors of other European countries.

As ambassador, Grobelnik would like to promote e-inclusion for all, even those who avoid digital technology for various reasons, usually because of a lack of knowledge or access, or due to fear of cultural isolation, lifestyle factors, etc. He wants to teach each of these groups in a different way, using a small-steps approach.

### THE INTELLIGENCE OF THE PRESENT AND FUTURE

Since the dawn of the computer age, scientists and philosophers have debated whether it is possible to create a system that will act intelligently. Artificial intelligence (AI) has become very popular in the last few years, and is showing up with increasing frequency in numerous cutting-edge solutions within the tech industry. Today, computers are good at speech recognition. They are more powerful, they can handle huge amounts of data, and almost everyone uses smartphones, which are as powerful as the fastest computers in the world from the mid-1980s. Speech recognition, image recognition, and all of the sensors which allow us to observe our living and working environments, all fall under the category of artificial intelligence, says Grobelnik, who adds that artificial intelligence is at work behind every single Google search – when we type a keyword and click “search”, a lot of what we call artificial intelligence goes on in the background.

**Slovenia is way ahead in terms of the number of AI researchers per capita, as we have been working in this field since the late 1970s.**

Grobelnik says that around 150 people work in AI in Slovenia, and notes that this is a very broad field, which includes everything from linguistic analysis to deductive logic, learning, statistics, and so on.

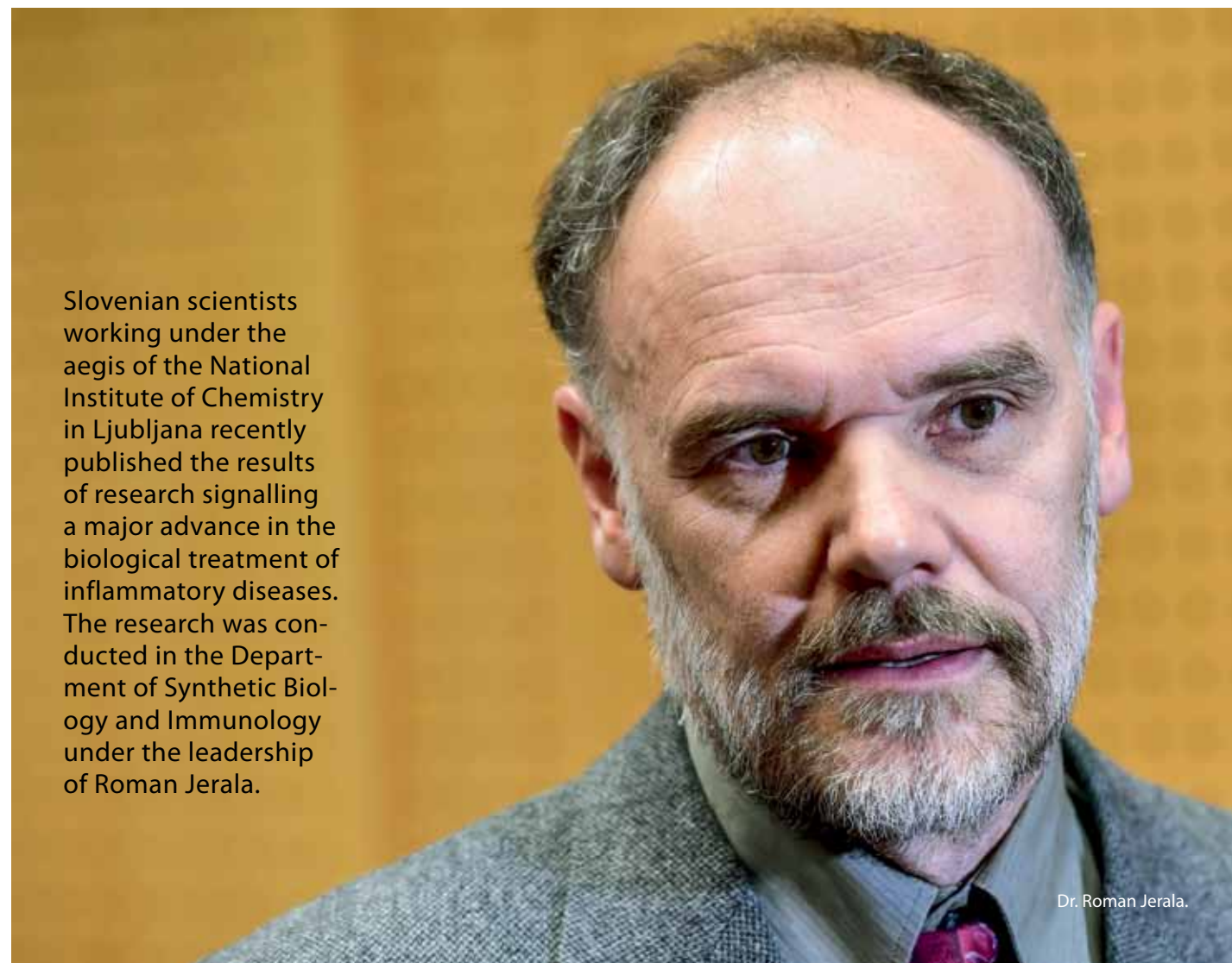
As Slovenia's national digital ambassador, Marko Grobelnik says that the advances in technology, communication and transport that have changed the structure of labour in the past 15 or 20 years are nothing new, as this also happened during the industrial revolution. He also says that innovation always has the potential to provide new opportunities.



## AN EXTRAORDINARY RESEARCH BY THE NATIONAL INSTITUTE OF CHEMISTRY IN LJUBLJANA

### New contribution of Slovenian science to the cellular treatment of inflammatory diseases

POLONA PREŠEREN  
PHOTO: TAMINO PETELINŠEK/STA



Slovenian scientists working under the aegis of the National Institute of Chemistry in Ljubljana recently published the results of research signalling a major advance in the biological treatment of inflammatory diseases. The research was conducted in the Department of Synthetic Biology and Immunology under the leadership of Roman Jerala.

Dr. Roman Jerala.

The group of Slovenian scientists created the prototype of a cellular device that is inserted into the organism, and then functions automatically as a prosthetic organ. Staff of the Department of Synthetic Biology and Immunology at the Institute report that they have modified human cells so that they can independently recognise inflammation processes in the body and begin producing and secreting anti-inflammatory proteins as treatment. This involves cellular therapy, where capsules containing modified cells are placed in the body, and they begin secreting therapeutic proteins only when inflammation occurs. The cells are protected in porous capsules against their own immune system, so the same type of cell can be used for all patients, which could increase the accessibility of cellular treatment. Through the porous capsules the cells can receive nutrition, and upon activation they secrete therapeutic proteins such as antibodies that neutralise inflammation, in a similar way to biological medicines for the treatment of inflammatory intestinal diseases. The cellular device therefore spends most of the time waiting and sensing in the body, checking on the state of any inflammation. It is triggered automatically if inflammation occurs, and then begins secreting the medication.

Staff at the Institute of Chemistry staff say that the cells can detect inflammation even before the patient or doctor are aware of it, and this is particularly important in reducing the negative effects of such events. Researchers have tested the system on cell cultures and in pre-clinical trials on an animal model of inflammatory intestinal disease, and the results show that if the capsules containing cells are placed inside the stomach cavity then they can prevent injury to the intestines.

"This is a demonstration of the use of advanced approaches to synthetic biology in medicine, although we will need a lot of improvements before such a system is actually usable to treat humans. The main credit for this achievement goes to Anže Smole, a young Slovenian researcher who is now in the USA taking post-doctoral training at the University of Pennsylvania, where he is researching immunotherapy for cancer in one of the leading groups in this field. We hope that in a few years he will bring his wealth of experience back to Slovenia. It would be nice if until then we could take advantage of our knowledge, and in cooperation with physicians start treating Slovenian patients with lymphomas through immunotherapy," said Roman Jerala, who headed the project.

#### What is involved in this work?

The conceptual basis for the research was set out by Dr. Anže

Smole in his doctoral thesis under the mentorship of Roman Jerala, while Duško Lainšček, Urban Bezeljak and Simon Horvat were co-authors. As Smole said for the Multimedia Centre of RTV Slovenia, "this involves engineering mammal cells, which we deliberately modify by teaching them to perform new or additional functions, which we can use for therapeutic purposes."

The research itself lasted four years, since it involves very complex matters. Producing modified cells required the coordination of individual modules, ranging from the sensor that detects inflammation, to the amplifier of the combination of therapeutic proteins and other experiments, including modelling. The most important contribution for this last part came from Urban Bezeljak, who is currently pursuing a doctorate at the famed Institute of Science and Technology (IST) in Austria.

A paper entitled *A Synthetic Mammalian Therapeutic Gene Circuit for Sensing and Suppressing Inflammation* by authors Anže Smole, Duško Lainšček, Urban Bezeljak, Simon Horvat and Roman Jerala was published in the January edition of the distinguished scientific journal *Molecular Therapy*.

#### What does this discovery mean for the treatment of diseases?

As Jerala explains, "this achievement represents a prototype for a cellular device for treating inflammatory as well as other diseases, where we used cells to function as diagnostic media and as an autonomous smart device for local production and dosing of medication.

**Cellular therapy is in fact still in its infancy, and for the moment significantly less modified cells are used, for instance, to treat cancer.**

**Undoubtedly, though, with this approach we have shown the possibilities for the future development of treatment."**

Currently there is no realistic possibility for the discovery or device they used in the research project to become an actual clinical treatment. "We would need to make stable cells and carry out a range of safety tests before human use. It is, however, highly probably that similar cellular devices will start to be used in clinical medicine in the coming decades," added Jerala.



## MINI MAKER FAIRE LJUBLJANA

# The biggest innovations, technology and crafting event

BARBI SEME  
PHOTO: MAKER MEDIA ARCHIVES

Mini Maker Faires are events run on the global Maker Media platform, which use local festivals to link makers into a global network. The events are geared primarily towards innovation, and present makers exploring new forms and methods of production, along with new technologies. But the events are not only for technical novices, as they present innovations and experimental works drawn from the entire spectrum of science, engineering, art, society and handicrafts.

### WHEN CURIOSITY, RESEARCH AND CREATIVITY FIND A COMMON PATH, TRUE DEVELOPMENT CAN EMERGE

This year Slovenia is joining the Maker network for the first time. Many Slovenian organisations, companies and project teams are already long-time exhibitors and visitors of Maker Faires held abroad, and their innovations are making an important contribution to global development. Now such groups and individuals can demonstrate their achievements in their home environment, and the event will bring in other Slovenian makers and also host those from other nations.

**One of the important aims of the event is linking and cooperation, and to that end numerous partners have already joined the organisation.**

Credit for bringing the Maker Faire to Slovenia goes to the team at Zavod 404 (Institute 404), which started working on running the event back in 2015, and obtained a licence last year. The potential offered by this event has also been recognised by the Slovenian Government, which has become its patron. The Ministry of Economic Development and Technology, the Ministry of Education, Science and Sport, and the Ministry of Culture are also participating. High-quality content, modern approaches to education and inter-sectoral links will be provided at the event by the co-organisers, who are already filling Slovenia with this kind of work, with teams coming from Poligon, Ljudmila, Kibla, RogLab, MakerLab from the Electrical Engineering Faculty, and Rampa.

### OPEN UP AND CONNECT

The founders of the Maker Faire network say that such events are 'the Greatest Show (and Tell) on Earth—a family-friendly festival of invention, creativity and resourcefulness, and a celebration of the Maker movement'. This will also be the guiding orientation of the event in Slovenia, although it will have a special focus on the area of education, and will organise numerous workshops, lectures and demonstrations to achieve its goals in this regard. The organizers believe that education is the component that provides the important links among the various elements of the event, and thus visitors will not only be observers, but will also be active participants in a range of fascinating activities.

The event will bring together three key areas of society – the economy, education and culture. Mini Maker Faire Ljubljana will not just open up Slovenia internationally, it will also offer the chance for individual the various sectors involved to gain insights into how they all function together, and for them to share their experience and knowledge in this regard. The guiding principle for the organisation and implementation of the event is 'open up and connect'. During the event it will be possible to see technological innovations, modern artistic approaches and new educational methods, using state-of-the-art content, all in one place. The potential to achieve greater connectedness among the participants is one of the main goals of the event.

### OBSERVE, LEARN AND MAKE!

More than 100 exhibitors will present their products and describe how they operate. These will come from a wide variety of back-



grounds, ranging from globally recognised companies to makers operating out of their garages. Visitors will have the chance to learn about the development and production of various items, as well as the related research processes. For this reason the event encourages a free flow of ideas and knowledge, and offers a healthy incentive to further progress and development. Visitors will also be able to learn more from the developers of 3D technology, cognitive analysis projects, didactic robots, automated vehicles and many other innovative projects.

Moreover, visitors will also get to play the part of makers.

**Practical activities will be organised for all those who are encountering specific content for the first time, as well as for those wishing to build on their existing knowledge.**

Participants will learn the basics of electrical engineering, programming, the use of modern computer-guided machines, and be able to observe chemical and physical experiments and demonstrations of the operation of new, technologically perfected products. There will be speakers, details of successful crowdfunding campaigns, presentations of the working of 'fabrication laboratories,' and the new of the latest scientific and technological research.

Modern artistic practices will be another focus of the event, presenting the work of both local and foreign artists. The conference will examine issues such as the demystification of modern technology, group creative approaches and the popularisation of DIY (do it yourself) and DITO (do it together) making.

The evening events will be enhanced by stage performances, and the digital visualisations of makers will be accompanied by musical artists making use of different approaches to creating sounds. The use of instruments such as typewriters, theremins and digital drums will likely inspire some the participants to dance.

**CALL FOR MAKERS**

Up to the end of April, anyone who wants to present their innovations and work at the event can submit an application at [ljubljana.makerfaire.com](http://ljubljana.makerfaire.com). All producers of high-quality content characterised by social responsibility and a spirit of advancement are invited to participate in this project.

Finally, who is a 'maker'? For this event it is any creative individual, group or organisation that develops, researches and tries out new solutions, creates unique products, develops social models and passes on their knowledge, thereby helping to create a better today and tomorrow.

**FOR A CREATIVE TOMORROW**

The open synergy among the participants speaks to everyone who wants to be a part of the future and direct how it progresses. As a blend of scientific, entrepreneurial, artistic and educational pursuits, the Maker Faire offers much to anyone seeking to make new discoveries. It points a way forward for education and employment, encourages young people to opt for research, and above all supports active makers who stand as a model of best practices in their respective fields.

**Since the event is intended for a wider audience, it aims to enhance both popular and scientific understanding of the focal issues.**

It will therefore appeal to all types of people, regardless of age, economic status, professional field or level of education. While most events operate within clearly defined limits, at the Faire various new developments from different fields will be presented together, thereby creating numerous opportunities for new collaborations. The organisers hope that the event will create an impetus in society and political circles in generate further change through practical, direct examples. Overall, its primary aim is to strengthen curiosity, research and the free flow of ideas, knowledge and experience.



This event showcases products like Unusual Tools or Machines, Music Performances and Participation, Bicycles, Electric Vehicles, Sustainability & Green Tech, Home Energy Monitoring etc. in the Gifts & Handicrafts, IT & Technology industries.



## OUTSTANDING RESULTS IN INTERNATIONAL KNOWLEDGE COMPETITIONS

# Nearly 200 exceptional young people

NATAŠA GERKEŠ



Minister Maja Makovec Brenčič with young people.

At the end of the year the Ministry of Education, Science and Sport holds a now traditional reception for pupils and students who have attained outstanding results in international knowledge competitions.

From year to year the number of participants has grown, and at the last such event, held in December 2016 and hosted on the premises of the Ministry of Education, Science and Sport by Minister Maja Makovec Brenčič, there were 150. Their stories show that knowledge and successful young people come from all parts of Slovenia.

**The young people who attended had achieved their results in competitions covering a wide variety of fields.**

Students of the Faculty of Mathematics and Physics at the University of Ljubljana took second place in an international competition for maths students. A group of students from the Ljubljana Faculty of Law won first place in a competition on European law held in Luxembourg. Students from the Academy of Fine Art and Design found success in an industrial design competition held in Hanover, in an international glass exhibition in Denmark, and in an international competition for scientific illustration. A student from the Faculty of Chemistry and Chemical Technology won a silver medal in the international chemistry Olympics, while another from the Faculty of Computer and Information Science won first place in a Painter by Numbers competition. A group of students from the Faculty of Electrical Engineering at the University of Ljubljana came up with a winning project, Think Again, in the regional OSCE competition Challenging Extremism, held in Hamburg. They developed an algorithm for assessing the level of fear expressed in media texts, and this was chosen as the best out of 47 projects.

For several years, students from the Faculty of Mechanical Engineering in Maribor have been collaborating on an international project known as Formula Student. Each year the team aims to

construct from scratch a racing car they then use to compete with in competitions around Europe. In another achievement, a female student from the Maribor Faculty of Electrical Engineering and Computer Science was the first woman to win first place in the competition for student scientific articles that was part of the 25th International Electrotechnical and Computer Science Conference, ERK 2016. A team of students from the Maribor Faculty of Law won the title Best University Delegation in the international competition MUNLawS.

Students from the Faculty of Mathematics, Natural Science and Information Technologies at the University of Primorska achieved an outstanding ranking in the International Mathematics Competition for University Students, and in the International Space Apps Challenge 2016.

In addition to the achievements detailed above, talented young people from all over Slovenia competed and achieved outstanding results in numerous other competitions: the Maths Olympics, in the subjects of physics and geography at the International Science Olympics, in the young scientists competition, in the Science and Art Olympics, the International Linguistics Olympics, the International Computer Olympics, the International Biology Olympics, the International Chemistry Olympics, and many more besides.

### **SUCCESSFUL YOUNG PEOPLE ARE PROOF OF EDUCATIONAL EXCELLENCE**

At the reception held to honour these achievements, Minister Makovec Brenčič said that such successful young people prove that the Slovenian education and research system is in good health, as it enables people to acquire an enormous range of knowledge and skills.



However, he also noted that the system was only able to produce such good results because of the many very motivated and dedicated young people working within it.

The Ministry will continue organizing such receptions to celebrate and promote the achievements of local students. Moreover, in 2017 there are plans to extend the event it to include primary school pupils, as many of these have also been achieving outstanding results in international knowledge competitions.


Young Slovenians were extremely successful in the Euroskills European competition in vocational skills, held in Sweden. Ten Slovenian participants competed for titles in nine sectors: decorating, floristry, ICT specialists, stonemasonry, cabinet making, joinery, painting and decorating, cooking and restaurant service. In the category of architectural stonemasonry, the Slovenian competitors won the silver medal, and in ICT and joinery the Slovenian competitors won medals for excellence. The principal aim of the competition is to promote vocations for which there is currently a shortage of skilled workers.

The synthetic biology student project competition iGEM dates back ten years. Last year, 300 teams from distinguished universities around the world took part in the competition from 27 to 31 October. In the past, Slovenian teams have done exceptionally well (winning the Grand Prize in 2006, 2008, and 2010, and second place in 2012). This year's team comprised 12 students from the Biotechnical Faculty, the Faculty of Chemistry and Chemical Technology, Faculty of Electrical Engineering, Faculty of Computer and Information Science and the Faculty of Medicine. They named their project *Sonicell*, and worked with one of the hardest challenges in synthetic biology, accelerating the response speed to signals from the surrounding environment from several hours or days to just a few minutes or seconds. Their project won first place in the area of Fundamental Progress.

A team of students from the Faculty of Electrical Engineering at the University of Ljubljana and their mentors from the Robotics Laboratory secured third place last October in Zurich at the Cybathlon competition, in the category of robotic wheelchairs. One of the mentors, Jure Rejc, noted that the design produced by the Avalanche team could maintain broad usability of the wheelchair in all conditions. The competition was organised by the Swiss National Centre of Competence in Research Robotics.







HPP Arto-Blanca with "Fishway" for fish and other aquatic organisms.

## CHAINS OF HYDROELECTRIC PLANTS ALONG THE LOWER SAVA

# Top knowledge and care for the environment, working hand in hand

ANDREJ ŠTRICELJ  
PHOTO: HESS ARCHIVES

The hydro power company Hidroelektrarne na spodnji Savi, d.o.o. (HESS) is a commercial enterprise involved in constructing one of the biggest projects in the field of energy and water infrastructure in Slovenia and the wider region.

The project is multi-purpose, and comprises the construction of five hydroelectric power stations along the Lower Sava River, right up to the border with Croatia, and its extensive infrastructure also extends into the area of flood safety. The constructed power plants have a total capacity of 186 MW.

**HESS is one of those rare companies that has both the knowledge and experience needed to carry out this kind of project, and coordinate everything from locating the facility to constructing it, followed by the operation and maintenance of the hydro plant.**

Another key task of the company in the project is coordinating the energy and infrastructure works, since the activities of both parts are connected, and thus the proper coordination of their implementation is all the more important.

### CONSTRUCTION OF HYDRO PLANTS ALONG THE LOWER SAVA

Every 42 months since December 2002, when the project was started, a new hydroelectric plant has been built, and along with all the related infrastructure along the River Sava, thus helping to achieve better living conditions for the local communities.

The project of constructing a chain of five hydro plants along the Lower Sava is economically efficient, and principally the result of Slovenian know-how.

**This is a greenfield investment, where even before construction can begin there is the highly challenging procedure of locating the proposed facility in the physical environment.**



Using its knowledge and experience, HESS has been doing this successfully for a number of years. In doing so, of course, it adheres to all the related EU directives and the strict Slovenian legislation in this area.

Over the past 10 years, the construction of hydroelectric plants in Europe has stagnated, since all the economically attractive rivers have already been exploited, and one cost of this has been a significant loss of knowledge about how to build such facilities. In this context, it is especially important that HESS is maintaining this knowledge. The construction of the hydro plants is carried out by the project being split into individual segments, which the company then integrates into a complete entity on site. This serves to enable direct collaboration among the project designers, supervisors, equipment manufacturers, software providers, construction contractors and expert institutions during the actual construction, while the investors maintain direct control over the execution of

the work. The result is a competitively priced hydro plant.

This project is having a positive effect on Slovenia's energy sector, since it is providing the country with a growing proportion of its electricity from renewable sources, in line with Directive 2009/28/EC of the European Parliament and of the Council on the promotion of the use of energy from renewable sources. At the same time, it is serving to provide flood protection and a regular financial contribution to local communities. As such, this hydro plant construction project along the Lower Sava is also a major stimulus for the local economy.

Alongside alternative habitats, adherence to the highest environmental standards has resulted in the construction of transit passages for aquatic organisms next to the barriers which have a nature-friendly appearance, and the results of several years of monitoring show they allow the free movement of migrating species around



Reservoir at HPP Krško with HPP Arto - Blanca in the background.

the barriers. Meanwhile the alternative habitats that were created during construction offer refuge to numerous species, and in this way increase the biodiversity in this area.

**OBJECTIVES AND POSITIVE EFFECTS OF CONSTRUCTION**

The objectives of the investment that have been tracked were set principally in terms of the construction of new capacities for electricity generation from renewable sources, preventing floods and the arrangement of road and municipal infrastructure.

**Indirectly, the project is also helping to maintain the competitiveness and ability of the Slovenian economy in the field of constructing major energy and water regulation facilities.**

The project has numerous positive effects, which can be seen in higher economic growth, a cleaner river owing to the treatment plants that have been installed, and richer groundwater. The new local provisions also allow the development of recreation and tourism at the lakes, along the lines of the projects seen at numerous other lakes around the world.

**CURRENT CONSTRUCTION STATUS OF THE FIVE HYDRO PLANTS**

Construction of the Boštanj, Arto-Blanca and Krško plants is complete. All three power plants are in full operation, while the Brežice plant is in the final construction phase, with technical inspection and then the start of trial operation envisaged for the end of September 2017. The last plant in the chain, at Mokrica, is in the process of obtaining environmental approval, with construction due to start in 2018.



HPP Brežice under construction



# THE INTERNATIONAL SUCCESS STORY OF LOTRIČ METROLOGY

## We measure. You grow.

TANJA GLOGOVČAN  
PHOTO: LOTRIČ METROLOGY ARCHIVES

Responsiveness, flexibility, expertise and adapting calibration schedule are the Lotrič Metrology qualities which impress their clients.

For nearly three decades the family company LOTRIČ Meroslovje (LOTRIČ Metrology) has performed calibration, testing and certification, and developing superlative, technologically perfected and yet easy to use metrology products and systems. They transfer knowledge, represent the best Slovenian and international manufacturers of metrology, pharmaceutical and laboratory technology, and work to promote the development and advancement of metrology.

Marko Lotrič, CEO and founder of the internationally established group LOTRIČ Metrology, started his independent career by opening a workshop for calibrating scales, weights and pipettes.

**Today the group brings together more than 110 experts in the field of metrology, who are employed in six countries.**

In addition to the main company, LOTRIČ Metrology, which right from the beginning has operated from the Selška Valley in Slovenia – in Kranj to be precise – there are the subsidiaries LOTRIČ Certifikacije and Iskra LOTRIČ in Podnart. The subsidiaries operate in Croatia, Bosnia-Herzegovina, Serbia, Macedonia and Austria, where accredited laboratories are set up.

### ALL IN ONE

**The company is one of the leading providers of “all in one” metrology solutions.**

This means that it covers 95 percent of the metrology needs of the majority of its customers, and selects and represents 30 manufacturers of the highest quality metrology systems.

### EXACTUM MEASURES EVERYTHING THAT CAN BE MEASURED

EXACTUM is a smart system for full automation and automatic control, the fruit of the knowledge and work of the expert group at LOTRIČ Metrology. It is an innovative measurement system that improves working processes in industry, healthcare, laboratories, warehouses, greenhouses, and galleries, in transport and anywhere requiring controlled conditions. It is an investment in quality that eases work and ensures security and comfort.

As the company explains: “This is a systemic solution that uses uninterrupted online measurements to control the most diverse parameters such as temperature, moisture, pressure, lighting, air flow, meteorological parameters and the content of volatile substances in the air. The option of remote control enables access to results gathered together in one place and the monitoring of measurements in real time. In the event of the set limit values of parameters being exceeded, EXACTUM triggers an alarm via e-mail or text message that enables a timely response and rapid action. This advanced system also offers the possibility of automatically saving and generating reports and graph printouts, and thus reviewing the measurement history and critical events.”

The EXACTUM systemic solution currently provides optimal conditions in 10 different countries. “We have 23 extremely satisfied partners and 954 measuring locations. In this our organisation is helped by the international standing of the LOTRIČ Metrology group. With certificates in 36 countries and a QNET network of international partners, the company provides services within the CEE region and beyond.”

**The firm’s references now include more than 12,400 companies.**

### QUALITY, EXCELLENCE, GROWTH

Without doubt, LOTRIČ Meroslovje (LOTRIČ Metrology) can be described as one of those Slovenian companies that are synonymous with quality and excellence. They operate in compliance with the ISO 17025 and ISO 17020 standards and the EFQM model of excellence. In 2012 they received the highest national recognition for business excellence, and a European 5-STAR Recognition Award for excellence. In the same year, they also received national recognition in the form of a bronze Gazela.



The secret of their success lies in part in collaboration and connections.

**They collaborate with 16 research institutes and universities, and have four registered patents as a result of this.**

They are co-founders of NELA, a central development centre for the electrical and electronics industries. Working together with the Jožef Štefan Institute, in 2011 the firm completed the project for an Intelligent System of Laboratories in Healthcare – iLAB – which won a TARAS prize, an award for the most successful collaboration



Marko Lotrič, CEO and founder of the company

between the business sector and academic research environment in the area of innovation, development and technology.

Growth is the shared aim of all employees, and the company is also aware of the important role of the individual in this process. "In creating the common story of a successful firm, the role of the individual working for the good of all is extremely important. We encourage the constant personal development of work colleagues and open up various possibilities for them to be innovative. We have a clearly formulated plan to promote health in the work place and we hold a full Family-Friendly Company certificate. We also devote much attention to our common values and shared links." Growth is the foundation of everything the firm does, and, in contrast to many Slovenian companies, interest in working with them is growing. "Last year we were joined by more than 10 new colleagues, including a female graduate microbiologist and graduate electrical engineer, a woman graduating in health, two masters of mechanical engineering, a woman graduating in social studies, a female doctor of science in the field of biomedicine, and still more we could list."

LOTRIČ Metrology are also planning to recruit more staff this year. "Given the trend for the development of services and products that we have mapped out as part of the company strategy up to 2020, we will employ in particular new colleagues with knowledge of mechatronics, electrical and mechanical engineering and bio-science in connection with information and communication technologies (ICT). We will increasingly need knowledge in the area of biochemistry, where all activities in the future will be linked to ICT support and the programming and automation of processes that are part of Industry 4.0."

**STORY OF THE LITTLE PRINCE**

Often the firm are asked about the secret of their success. They respond with the story of the Little Prince: "The story features a fox who teaches the Prince that he must look with his heart, because the essence is invisible to the eye. But the essence of LOTRIČ Metrology is very visible. The essence is us, the people. Who love to do what we do. And we create with love."

**SPARKLES IN THEIR EYES**

The driving force behind LOTRIČ Metrology's development is their own innovations and culture of excellence, which ensure the company is often first on the market with new features, and that they offer customers superlative and reliable measurements.

**But as they themselves point out, the biggest secret of their success is their love of metrology.**

"Our systems, which exceed expectations, make our eyes sparkle. At each moment we are ready to tune in to challenges and help

solve them. We know very well the importance of the product, the production process, the logistics and each link in the chain. We understand how demanding the market is. It is clear to us that the products and processes must be of the highest quality. An awareness of all this creates the values that we put into our collaboration."

They add: "Companies leave the responsibility for measurements to us. This then frees up resources for them to focus on their core activities and their dynamic development. After all, on the market it is not just growth that counts, but the speed of development. In the LOTRIČ Metrology group we believe that through our metrology solutions we are helping to accelerate their development. Our vision is – We measure, you grow."



LOTRIČ Metrology certificate



# PANORGANIC

## A unique and innovative firm, offering living vegetables to consumers

TANJA GLOGOVČAN  
 PHOTO: PANORGANIC ARCHIVES



The “Živa solata” (living lettuce)grow in a greenhouse covering an area of one hectare. Last year Panorganic produced more than 8,000 units of vegetables per day, and over the entire year this translates into almost three million individual heads of lettuce and bunches of herbs.

Panorganic is a young company striving to become a sustainable and modern agricultural firm, with a responsibility to combine enterprise with a concern for nature. It’s innovative approach, which is winning over a growing number of households, is based on the sale of still living products. This is a business story that speaks of the relationships among food, the environment and cuisine, and it was started by young entrepreneur called Mario Kurtović.

Last year Panorganic received numerous prizes for success at the national level, with this recognition coming after years of praise from consumers. In 2016 the firm received the following awards: Young Entrepreneur 2016, a prize organized by the newspaper Finance *Agrobiznis* – and with the special recognition of “Young and Bold”, an award from the Municipality of Ljutomer for special achievements in the economy, and a Chamber of Agriculture and Forestry od Slovenia prize in the category “From farm to you” for the company’s new approaches to agriculture.

### ENTREPRENEURIAL IN HARMONY WITH NATURE

In order to be as nature-friendly as possible, Panorganic use modern technology that is kinder to the environment, and when the company’s actions do impact the surroundings, the effects are minimal. Panorganic is acutely aware that traditional farming is a source of pollution, and the firm’s practices reflect efforts to address this issue.

As such, the Panorganic’s vegetables are cultivated in greenhouses, using the technology of biaponics (recirculation hydroponics). This means the water in the system is continually circulating and being purified (without the addition of chemicals), with high water quality maintained throughout this process, comparable to that seen with bottled water. This technology has no negative impacts on the soil, water and air, since instead of chemical sprays, pesticides and herbicides it uses organic fertiliser and nutrients, with the firm’s lettuce and herbs grown without pesticides. The vegetables grow in a controlled environment with optimal light and temperature, and are protected from harmful insects and other natural dangers (acid rain, storms and so on). The seeds the firm uses are not genetically modi-

fied, and can thus produce more within a smaller area, while at the same time natural resources and biodiversity of the environment are protected and conserved. This is a major advance in the method of production, since traditional farming causes the most water pollution of all industries, while modern production methods, such as bioponic systems, have no harmful effects on the environment.

**Indeed, this kind of technology is the future of agriculture, since production is carried out under the careful control of computer systems that measure various conditions, such as moisture, temperature and distance.**

Based on such data Panorganic can change the opening of windows and the use of heating and lighting, as needed.

The firm summarized the process, noting: that “the lettuce and herbs are moved automatically in the system. They are bigger and spend longer travelling along the line, and there is a bigger interval between them so they have enough room to grow. When they come to the end of the line, they are packed and taken to stores on the same day – in this way offering consumers fresh products full of nutrition. At the same time we are linked to various universities, faculties and experts from northern Europe that pay attention to the system. A major contribution to our production is made by our technologists, who constantly monitor plant health and various computer parameters, and thus maintain the flawless technical functioning of the greenhouse.”



THE FIRST SUCCESS WAS ČESNEK

Panorganic are now the biggest Slovenian producers of beans and garlic, as well as of lettuce and herbs, while also cultivating American blueberries and strawberries.

In 2011, Mario Kurtović had the idea of growing garlic, as there was a distinct lack of local garlic on the market, and so started selling his own in 2012. After launching his first brand, *Česnek* (česen is Slovenian for garlic), in 2013, something the public received very warmly, the company soon launched the brand *Goji* (organic goji berry fruit spread), which was then followed by other products: in 2014 the company introduced *Svet borovnic* (World of Blueberries – American blueberries grown in Slovenia) and *Fižolček* – Slovenian beans. In 2015 they introduced the brand *Živa* (alive), under which they offer lettuce and herbs which are sold with the roots still attached. Over the past year their range of brands has been joined by a new one, *Čili in feferoni* (chilli and peppers).

With regard to what happens next, the company noted: “Our operation is of course constantly focused on the future. We want to work (and are working) on projects that show potential – be it to address a lack on the current market, or to explore a new area that seems promising. Everything we take on is carefully considered,

and we focus on our partners and final customers – what do they need, what do they want? For the moment this approach is yielding results, since stores are happy to take our produce and products, while shoppers are buying them and are satisfied, which is the most important thing.”

LIVING LETTUCE

One of Panorganic’s most successful products is *Živa solata*, or living lettuce. As the company put it: “Living lettuce and herbs are products of the future. Our greenhouse in Ljutomer is unique in Central Europe, since it boasts the most advanced technology for growing lettuce and herbs. The facilities there collect rainwater, filter it and then, pure as bottled water, it arrives at the roots of the lettuce and herbs. The plant roots only take up as much water as they need, and the rest continues in the system and circulates, so we have no waste water.”

The team of young entrepreneurs behind Panorganic embarked on the project with great zeal, wanting to see Slovenia move in step with the times and international food trends.



Their *Česnek* brand garlic is produced under the integrated production principle, and has a Global G.A.P. certificate, which is a mark for the use of good agricultural practices. Despite making use of the latest in mechanisation technology, some tasks are performed in the traditional way. For example, each garlic bulb is still cleaned by hand, the way it was originally done.

As one of the team noted, since “in Slovenia we value nature, so people find fresh and local flavours irresistible. This year has also been a cold winter, and we are the only ones offering lettuce. Plus, these are vegetables grown without pesticides, without waste water, in a nature-friendly bioponic system.”

EASY EXPANSION ABROAD

Panorganic has already become established in the Croatian and Bulgarian markets. The firm’s latest conquest has been the Austrian market, about which the firm said: “We are the only company in the central part of Europe to have this kind of greenhouse, and the lettuce, which is sold with the roots, is becoming increasingly popular in the more developed countries in the region. People are increasingly aware how many core nutrients and vitamins they can get from this kind of lettuce compared to a chopped lettuce head, which has significantly less nutritional value. For this reason we sent offers to Austrian stores, and started cooperating with the Rewe Group, then with Hofer KG, who were persuaded by our product, as well as by the existing good relations with Hofer Slovenia, which confirmed our excellent quality. We developed strong cooperation, and since locally produced vegetables are extremely important to Austrian consumers (who are concerned not just with the country of origin, but also the region – the closer its origin, the

more they want to buy it), we decided to build a greenhouse over the border.”

Regarding this expansion into the Austrian market, the company also expressed enthusiasm for the efficiency of bureaucratic systems they needed to work with: “The Mayor of Cmurek (Mureck) helped us find land, and so within one month we sorted out all the necessary permits, bought the land and arranged everything else to be able to start work. The project is scheduled for completion at the end of April. Lettuce and herbs will thus be available in Austrian Hofer at the end of May or in June. At that time we will be able to offer Austrian consumers locally produced lettuce and herbs under the Life brand, and cement our position in the Austrian market even more securely.”

Panorganic is thrilled with the positive responses and encouragement received from consumers. “We are not resting on our laurels,” the company continued, “and are working just as hard to become even better, since for us being just good is not enough. We have a lot of ideas for the future. We are constantly thinking about food trends, monitoring new developments from various trade fairs and travelling, and perhaps a new brand or two will join our existing list in the near future. To be honest, we feel the sky’s the limit at the moment.



Tasty, high-quality and diverse produce from the heart of Prlekija. Fresh from the sunshine, and taken just a few kilometres to market.



# WOOD AND THE DIGITAL WORLD

## A good business idea alone is not enough

PETRA ŠOLAR  
PHOTO: TOMO JESENIČNIK



*Dile za darile* (Boards as Gifts)

While a group of five people with state-of-the-art technology are creating a digital world in a former warehouse in the middle of Kočevje, four kilometres away Boštjan Majcen is working on wood with tools familiar to our grandfathers.

The first group, Freeloaders Media House, are becoming increasingly established creators of visualisations, video spots, advertisements and films, and the other is a master of creating chopping boards. What is common to these apparently entirely different worlds and their creators is that they are working in the Kočevje area, countless times they work at night, are self-taught, have invested an enormous amount of time, energy and effort in their products, and – they are successful!

**When Boštjan Majcen took up a piece of wood in his father’s workshop five years ago, he was pursuing a simple creative guideline: make good and attractive chopping boards.**

Tired of sitting at the computer, of the crazy pace of life and incessant deadlines, he resorted to the saw and plane. Thus was created the first *Šavrinka* (Peasant Girl), as he named the board, which took pride of place in a friend’s kitchen. “When Samo saw it, he asked how much I would charge for it. I told him the price, and he paid me twice as much,” says 43-year-old Majcen, warming to his story. Chopping boards made from walnut, maple, maple varieties, wild cherry and oak have been given the name *Dile za darile* (Boards as Gifts). Depending on their shape, they bear names meaning roughly Peasant Girl, Butcher, Long One, Short One, One Schnitzel, Suspicious and more. Their shapes are adapted to the texture of the wood, while the thickness of each board is based on the variety used. He rarely uses more exotic wood, such as kingwood.

After one year of selling products to friends and acquaintances, and visiting fairs, sales grew. Boštjan admits that he had a big advantage in his 20-year experience in marketing. His main advertising medium was and remains the internet. Facebook and his website showed photographs of his unusual chopping boards to the world, and later he was also helped by print media. Wooden chopping boards in interesting shapes are a great way to serve finger food, something this Kočevje craftsman realises. The boards, with their various colours and shapes, have frequently ‘posed’ with

food and ended up on the pages of cooking magazines. Moreover, the boards are so nice that often customers will only use one side for chopping sausages, cheese and vegetables, and the other side for serving.

### HALF A CENTURY CAPTURED IN A PIECE OF WOOD

In the past few years the brand *Dile za darile* has become well-recognised, and sales have doubled several times. Boštjan had previously operated with a supplementary personal business licence, but last year became a full sole trader. On boards made on the outskirts of Kočevje people now chop, slice and offer food in the countries of the former Yugoslavia, the USA, Ireland and even Africa. They mainly appear in the kitchens of those who appreciate the wood, its quality and warmth. “People who have no relationship with work and quality think my products are too expensive,” says Majcen. But (almost) every board is made of Slovenian wood that has grown for at least 50 years. It is made of walnut trees that survived the departure of the Kočevje Germans, oaks that withstood storms and cherry trees from which generations have enjoyed the sweet fruit. Boštjan buys suitable pieces of wood from Slovenian farmers. He started out buying from all corners of the country, but now has several permanent suppliers, and to his great joy is finding more and more wood in the Kočevje area. For each board he carefully selects the piece, saws it up, traces the outline in pencil, then makes the rough shape, refines it, sands it, brands it with the firm’s logo and oils it. In order for the board to serve its owner for as long as possible, it must be taken good care of: it must not be washed in a dishwasher, nor used as a base for hot pans. “They prefer natural cleaning agents – vinegar, bicarbonate of soda and salt,” explains Majcen. And the wood goes nicely in any kitchen.

**In five years, demand for his boards has grown to the extent that they are now sold in seven locations in Slovenia.**

Since Boštjan makes each board himself, he has no stock, making each one for immediate sale. “The bigger orders come in December,” he says, noting this is not a simple process of series produc-



tion. “You can’t press a button and make a board. There are days when I make a lot, and days when I make nothing. If I’m out of sorts, I don’t even go to the workshop,” says this man of Kočevje, in all honesty. And he also plans to place his products on foreign markets.

**FROM A KOČEVJE CINEMA TO LONDON**

The Freeloaders Media House (FMH) emerged as a side project of Kočevje’s online television site. A trio of tech enthusiasts started out helping record video material for TVKočevje.si. In the beginning, in 2010, the team was helped by Urban Bradeško (23), son of one of two founders of the website, Jure Bradeško. Then came Miha Janež (30), and two years later Alen Udovč (28). “At first we helped carry props, set up backdrops in the cinema, and shot frames for contributions,” they say in one voice. Curiosity, a lot of joy in their work, and the chance to try different forms of expression were the main reasons why these young Kočevje guys soaked up knowledge and starting making video spots, adverts, visualisations and more. They

made their first products with an old computer and two cameras in a cramped room above the Kočevje cinema hall. With no money but plenty of ideas, and a lot of passion for what they were doing, they soon got better in their work. “When Igor started buying us equipment, we gave ourselves the name Freeloaders,” says Urban, with a laugh. Jure Bradeško and Igor Rančigaj, the other founder of TVKočevje.si, gradually bought better video and still cameras, drones, new computers and new software, and the young lads admit that they were only too happy to borrow them. “We were scroungers, so we openly took the name Freeloaders,” they say. Then they added Media House, because it sounded fancy.

A time-lapse of Kočevje by night, the video The Angry Silence, promotional videos for two Slovenian secondary schools, advertisements shown on commercial television channels, video spots for music groups, a presentational video for Kočevje, and the feature/documentary film Kolpa-Kupa-Koupa are some of the results of their work. With the financial and technical help of the older Freeloaders, the trio gained new skills. They searched for applied tuto-

rials on the web, and spent many nights trying out what they had learned. “Nowadays the internet enables you to learn anything,” they say, nodding. All three are pursuing new courses, trying out new techniques and creating a variety of products. The digital world offers them knowledge, and the lads are making good use of it. “You have to go with the times,” points out Alen Udovč. The office – for four months now they have been in a new, much larger location elsewhere – is their second home. The years of hard times and freeloaders have paid off.

**FMH has become a synonym for good production, their film about the Kolpa, the border river, has garnered several awards, and Urban’s latest visualisation is so good that he has received multiple offers to work abroad.**

In March he will most likely be in a new job in London. The 23-year-old admits: “My teacher in secondary school got me interested in film,” adding “in the third year of secondary school my school friends and I shot, edited and produced a full-length feature film. This inspired me so much that I no longer saw anything else that I could do.” The other members of FMH nod in agreement that this is a dream come true. The plans for the future are clear: work, become better and better. In five years Alen and Miha will still be making 3D visualisations, but they do not know where, while Urban – he is certain – will be working on visual effects in Los Angeles.



FMH team



Boštjan Majcen



ANNIVERSARIES

# European Community recognition opened the door to international sovereignty

UROŠ MAHKOVEC  
PHOTO: BOR SLANA/STA



The discussion in the new premises of the Representation of the European Commission in Ljubljana, where the entire Slovenia and the EU after 25 Years event was held, was followed by the opening of a documentary exhibition marking the 25th anniversary of the international recognition of Slovenia.

On the 15 January 2017 it was exactly 25 years ago that the then European Community, the forerunner of today's EU, recognised Slovenia. This marked a major turning point in the inclusion of the new state in the international community, and it was followed by recognition from other countries, and then in May of the same year Slovenia was accepted into the UN. This signalled completion of the fundamental shaping of the young country's structure.

The first country to recognise Slovenia, on 26 June, 1991, just a day after it declared independence, was neighbouring Croatia. The two countries in fact declared independence on the same day. In the second half of the year, several countries from the former Soviet Union followed suit.

Iceland, Sweden and the Federal Republic of Germany recognised Slovenia on 19 December, 1991, although Germany only adopted a resolution on recognition, which came into force on 15 January, 1992.

The Vatican and San Marino recognised Slovenia on the 13 and 14 January, 1992, respectively. The first non-European nations to recognise the new country were Canada on 15 January and Australia on 16 January, 1992. Russia recognised Slovenia on 14 February, and this was followed on 7 April by recognition from the USA, which initially had some clear reservations about the new country's independence.

However, the decisive turn in the modern history of Slovenia was without doubt the recognition of the European Community, which followed the Brioni Declaration.

This Declaration was adopted on 7 July, 1991, and served to end the ten-day conflict in Slovenia. This was also the first international agreement between Slovenia and the European Community. Further international recognition started after the European Community's action, and by August 1992 Slovenia had been recognised by 92 countries. Today Slovenia has diplomatic ties with more than 180 nations around the world, and is a member of the majority of international organisations. In March 1992 Slovenia was already operating as a full member of the Conference on Security and Co-operation in Europe, today known as the OSCE. Most recently, in 2010 it joined the Organisation for Economic Co-operation and Development (OECD).

A key factor in Slovenia's international recognition was the position of the Badinter Commission, published at the end of 1991, which determined that Yugoslavia had broken up and that this did not involve the secession of individual republics, and in opinion number 7 proposed that the European Community recognise Slovenia.

After its accession to the EU in 2004, in 2007 Slovenia was the first country of the major enlargement wave to adopt the euro, and at the end of that year it became part of the Schengen Area.

In the first half of 2008 it was the first of the new Member States to hold the Presidency of the EU Council.

“A picture conveys more than words,” said German Ambassador Klaus Riedel on the opening of the exhibition of 25 photographs marking the 25th anniversary of diplomatic relations between the two countries. These photographs were placed on the external fence of the German Embassy in Ljubljana, thus showing the public how well these two nations have managed work together. Mr Riedel emphasised the economic and political relations between Germany and Slovenia, which have been, and remain, on a very good footing. Slovenia has gained around 40,000 jobs due to German investments in the region, while in 2016 trade between the two countries exceeded 10 billion euros.



**SLOVENIA AND THE EU 25 YEARS AFTER RECOGNITION**

On the 25th anniversary of Slovenia's recognition by the EU, the Foreign Ministry, working in co-operation with the Representation of the European Commission in Slovenia and the Slovenian Press Agency (STA), organised a round table on 13 January, 2017, entitled "Slovenia and the EU 25 years after recognition."

The event was opened with an introductory address by the Slovenian Foreign Minister Karl Erjavec, and a welcome address was given by the head of the Representation of the European Commission in Slovenia, Zoran Stančič, who also summed up the congratulations offered to Slovenia by the President of the European Commission, Jean-Claude Juncker: "This was a turning point, when through your own effort you became self-confidently and proudly independent. Facing risk and sacrifice, you took fate into your own hands. It was a change for the better, since you gained democracy, political independence and territorial integrity."

*"Croatia is an important economic partner, and people on both sides of the border have good relations, so there is no reason for pessimism, although it is true that we are burdened by unresolved issues from the past. Some of the matters that are affecting relations today were already problems back in the 1990s. The right time to deal with these was then, and although we have been dealing with Croatia ever since the situation today remains what it is. It's good that a solution was found through the arbitration agreement. While the Croatian side has consistently claimed that it's seeking a bilateral solution, it has already shown multiple times that it does not want such a solution, as seen, for example, with the Drnovšek-Račan agreement."*  
(Foreign Minister Erjavec on the 25th anniversary of Slovenia's recognition)

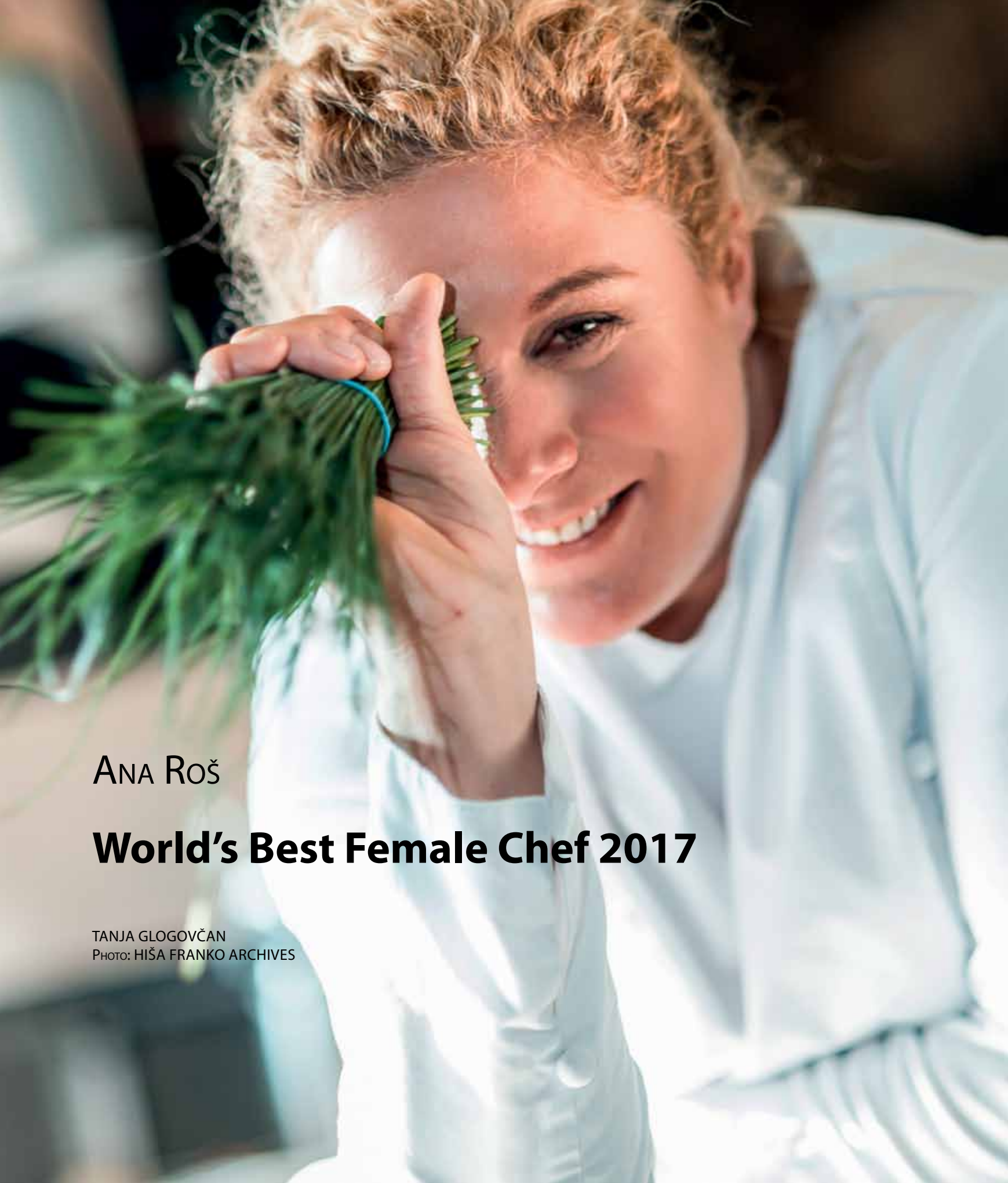
At the round table, views of the events of that time and the current situation and role of Slovenia were shared by the first President of Slovenia, Milan Kučan, the first Prime Minister, Lojze Peterle, the first Foreign Minister, Dimitrij Rupel, the first authorised representative of Slovenia in Brussels, Lojze Sočan, the former director of the Intellectual Property Office, Bojan Pretnar, and journalist Branko Maksimovič.

*"It's up to us how much we persist in certain views. Where it involves our national interests, I think our voice is important. We recall the decision-making about European sanctions against Belarus. At that time we successfully defended our interests. If we want, we can exercise many things, but we must be aware of our specific strengths, and our political and economic power. However, it would be conceited to imagine that with Slovenia alone could prevent the adoption of certain very important decisions at the EU level."* (Foreign Minister Erjavec on the 25th anniversary of Slovenia's recognition)



The round table Slovenia and the EU after 25 Years.





ANA ROŠ

## World's Best Female Chef 2017

TANJA GLOGOVČAN  
PHOTO: HIŠA FRANKO ARCHIVES

The Slovenian Ana Roš is the World's Best Female Chef. Until she was 18 years old, she was a member of the Yugoslav national downhill ski team, she speaks five languages, and at one time her passion was the diplomatic service. Now she is writing history through her superlative cuisine.

Her story will inspire her talented colleagues on their path to creating outstanding dishes, while Hiša Franko is a restaurant that has reinforced Slovenia's place on the global gastro-map.

Following on from Elena Arzak (Spain's Basque Country), May Chow (Hong Kong), Carme Ruscalleda (Spain), Dominique Crenn (California), Nadia Santini (Italy), Lidia Bastianich (New York), Helena Rizzo (Brazil), Bo Songvisava (Thailand) and Antonia Klugmann (Italy),

**Ana Roš from Slovenia is now queen of the world in the art of cooking for those with the most refined palates.**

The recognition awarded by a jury of the British-based global culinary magazine *Restaurant* puts Ana Roš and Hiša Franko among the best chefs and restaurants in the world. This is not a prize for the best cook in a reality show, it is a whole lot more.

### ONLY THE BEST IS GOOD ENOUGH

"Of course I was happy, satisfied and proud after the award. Then I was a little fearful, too. Being the best of outstanding chefs, the top culinary artists, is a big responsibility and also a pressure, although it is great encouragement, too. Now I am under the microscope."

The pressure is even greater because now Hiša Franko is not just getting reservations from Slovenian guests, today the "whole world" is sitting at their table. People from other countries and even other continents are coming to treat themselves. People who are prepared to pay, but who demand something exceptional.

"I don't have a classical chef's training. I took courses in international studies and diplomacy at Trieste University, in Italy." Ana's

path from an amateur to being the World's Best Female Chef took her by surprise, too. She explains that a few years ago her husband Valter inherited the family restaurant, Hiša Franko. This was not the challenge that Ana wanted, but she nevertheless rose to it. Although previously cooking held no thrill for her at all, her sporting and academic character, along with her perfectionism, gradually swayed her towards creativity and then even enthusiasm. In the beginning her mother-in-law taught her some of the basics of cooking, and Ana Roš still values what is local and Slovenian.

**She cooks with local products and sticks to the basics of the "zero kilometres" concept: fresh, alive, healthy.**

Hiša Franko is a family restaurant, and while Ana is a culinary virtuoso, her husband enchants their guests with wine. Together they clearly create works of art. "The greatest chance of a dish becoming something outstanding is when its own flavours reflect its origin in the land, and that land's tradition, season, people and folklore," she says with conviction. The team at Hiša Franko realise that people first eat with their eyes, then they smell food, and only after this do they taste it.

"We do truly devote ourselves to each dish. Including its presentation, and not just its great taste. We have an advantage in our beautiful natural surroundings and traditional environment, with a hint of folklore. I am also of course inspired by the culinary tradition. My grandmothers were not from the Soča river area, but the river valley and its tradition are probably the primary treasure trove from which I draw knowledge, stories and basic recipes."

She describes the family restaurant thus: "Hiša Franko is a country house, and it has that kind of energy, which is increasingly a draw. This, too, makes us special." She has also started thinking



Ana Roš's husband, Valter, co-owner and sommelier at Hiša Franko.



about Slovenian food design. "This story is still in its infancy. I'm collaborating with the Ljubljana Fine Art Academy. Some good ideas are emerging. But we are all struggling with a lack of time. I myself am currently on tour a lot. In February I came back from England, and then immediately travelled to Russia. Because of these tours, Hiša Franko was closed until the end of March."

#### **HAUTE COUTURE OF SLOVENIAN CUISINE**

Ana's table is not limited to the classic Slovenian ingredients and dishes.

**Instead it is a presentation of Slovenia as a country that is sufficiently diverse and multi-coloured, sufficiently inspiring, healthy and alive, to keep reshaping what is traditional into ever new and different forms.**

On her plates you can find combinations of oxtail and elderflower, Kobarid potatoes and carrots from Livek, cabbage and whey and hazelnut, or ice cream of dark grapes and dehydrated spinach.

In a reflection on her relationship with nature, Ana Roš notes: "In my dishes you can feel the Love for the raw ingredients, Love for stuffed pasta, Respect for the environment, and also for the season. As for desserts, we start from scratch again: the same ingredients and still a play of sweet and savoury."



Revival of brodetto



In addition to the award that was won by Ana Roš, each year Restaurant presents a list of the 50 best restaurants in the world (with another 50 mentioned). The jury also selects the best pastry chef in the world, the best restaurants by continent, and there is a lifetime achievement award.



Ana will receive her World's Best Female Chef Award at a ceremony in Melbourne, Australia, on 5 April. Last year the award was conferred on chef Dominique Crenn of the Ateliera Crenn restaurant in San Francisco.



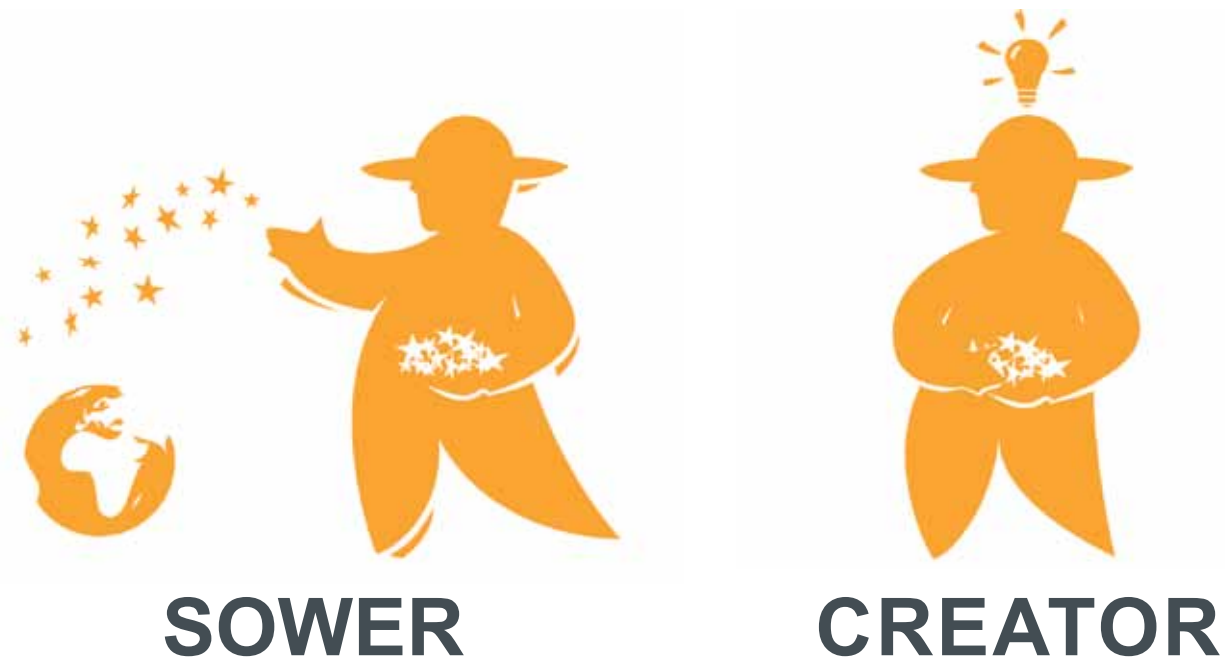
Squid, lamb sweetbreads, fermented cheese



## INNOVATION IN SLOVENIAN TOURISM

# Get to know the Slovenia of special experiences

PETRA ČAD  
PHOTO: STO ARCHIVES



The Slovenian Tourist Board has been promoting and recognising innovative tourism products for over a decade. Through various projects it has been embracing ideas for innovative new tourist products, promoting creative thinking and comprehensively supporting innovation in tourism.

The main projects of the Slovenian Tourist Board in the area of innovation include the Bank of Tourism Potentials in Slovenia (BTPS) and the public calls Sejalec (sower) and Snovalec (creator). The BTPS project began at the end of 2006 at the 9th Slovenian Tourism Forum in Maribor. It is a platform that enables the flow of information about promising tourism concepts, and is aimed at bringing together the right people and right assets to make the concept work. The project has won several awards (a UNWTO Ulysses prize in 2009, and recognition from the OECD in 2012 as an example of promoting green innovativeness in tourism on the national level, and in 2014 as an innovative instrument for financing tourism SMEs and good business ideas), and has been noted as an example of best practices (by the European Commission during the European Year of Creativity and Innovation 2009). In 2016, BTPS and the public calls Snovalec and T-lab Snovalec were also part of the ongoing OECD study "Financing Approaches for Tourism SMEs and Entrepreneurs". The platform BTPS was followed up with the development of innovative support and cooperation mechanisms: BTPS-challenges, BTPS-coffees, the T-lab project (challenges, advice, match-making, job shadowing, etc.), hosting young entrepreneurs from abroad, and so on.

### SEJALEC FOR CREATIVE AND INNOVATIVE ACHIEVEMENTS IN TOURISM

The Slovenian Tourist Board has been holding public calls in its Sejalec project since 2004, and to date a full 50 innovations have been rewarded. Prizes are awarded to those innovations that contribute to greater recognition of Slovenia's tourism services and products. For the requirements of the call, an innovation is defined as the high-quality planning and successful implementation of new features or improvements in products, processes and/or market approaches, containing elements of the unusual, of the applicant's originality, of systemic business thinking and the promotion of Slovenian tourism.

**The aim of Sejalec is to promote creativity, inventiveness and innovation on an**

**entrepreneurial level, on the level of destinations, tourist product and provider associations, and in designing and marketing tourist products from Slovenia on both domestic and foreign markets.**

### SNOVALEC PROMOTES THE IMPLEMENTATION OF NEW IDEAS

Ideas which through implementation can become innovations ripe for application as part of the Sejalec public calls are rewarded through the Snovalec project, which so far has been run six times, and in the period since it was first held in 2009 we have received 323 applications.

**The competition supports the creation and implementation of projects to develop and introduce new tourist products to the market.**

The annual competition is supported by a cash fund assigned for the innovative development of Slovenian tourism by the Directorate for Tourism and Internationalisation at the Ministry of Economic Development and Technology, in cooperation with the Slovenian Tourist Board. Snovalec prizes are open to those who have created inventions or innovations and intend to put them into practice, and who want recognition that they are on the right track, plus promotional and expert support, as well as a share of the cash funds to implement their projects.

### LAST YEAR FEATURED A TOWER, BEER FOUNTAIN AND SUGAR LACE

The enviable title of Sejalec 2016 was earned by the 53 metre high panoramic tower of Vinarium Lendava. The impressive view from





Festival cake with sugar lace

the tower, which stretches to four countries, is not just breathtaking, but also reflects the symbolic interweaving of cultures, and thus the coexistence and friendship of nations. Joining it as finalists were the Radlje ob Dravi Water Park, the first public biological swimming pool in Slovenia, and the Hotel Špik Glacier Wellness, which is based on 1,500 year-old glacial water that comes from a reservoir beneath the hotel. In the past year a total of 44 concepts were competing for the Snovalec prize, and the ten-member expert committee first selected eight finalists who got to present their ideas in person.

**Two innovations won prizes: the first beer fountain in Europe – the Green Gold Fountain – which found an innovative way to promote Žalec and the hop-producing Savinja Valley; and the aesthetically outstanding edible textile of Sugar Lace, which transfers the motifs of traditional Idrija lace and a wealth of Slovenia’s cultural heritage to the culinary arts.**

Past Seialec and Snovalec recipients have included innovative tourist accommodation (Garden Village Bled and Dreaming and Sleeping In a Treetop, where guest can sleep and dream amid the tree tops), transport providers (GoOpti), culinary events (Open Kitchen, The Trnič Cheese on Every Dining Table), and also experiences (Escape Igloo, Forest Selfness). You can find more information about these special experiences at [www.slovenia.info/sl/dozivetja/posebna-doizivetja](http://www.slovenia.info/sl/dozivetja/posebna-doizivetja), and current news on innovations, the Seialec and Snovalec projects and public calls at [www.slovenia.info/sl/poslovne-strani/razvoj-in-inovativnost](http://www.slovenia.info/sl/poslovne-strani/razvoj-in-inovativnost)

In 2017 the Slovenian Tourist Board is continuing to promote innovative products, as those with high added value enrich Slovenia’s tourism sector, and where they are based on sustainable development provide an important aid to experiencing Slovenia as an active, green and healthy destination. Be guided by an innovative and green thought wherever you are!



Forest Selfness



## KRAŠKE ZAPELJIVKE COMMUNITY

# They link and promote the diversity of Karst creativity

PETRA LOŽAR

PHOTO: KATJA PEGAN GORUP, NUŠA ŠVARA



Kraške zapeljivke Community.

The word “karst” denotes a type of landscape characterised by the dissolution of the ground, underground drainage of water and numerous other karstic phenomena. But the Karst region is one single, unique entity.

It is not only the natural properties and wealth of this area's cultural and historical heritage that make it a unique and amazing destination on the Slovenian, European and even world scale, but also the creative and singular Karst people. The couple behind the Kraške zapeljivke (literally “Karst enchantments”) community are seeking to present the treasures of this area and culture to local people and outsiders.

## KARST MYSTIQUE

The Karst region is a plateau up to 15 kilometres wide and 46 kilometres long between the Gulf of Trieste, the Vipava Valley, the Soča or Gorica lowland and the ponor of the River Reka. This is the original Karst (in Slovenian *Kras*), after which similar types of terrain have been named elsewhere in the world (in Italian *carso*, and in German and English *karst*). The area's charms, surprises and also mystique are certainly fostered by the geographical features, natural sites, unique karst phenomena, rich biodiversity and pleasant climate.

**Owing to the closeness of the sea and thus the exceptionally gentle climate, and also given its geo-strategic position, the Karst has been settled since at least the Bronze Age.**

The Karst surprises visitors with its rocky relief. There is no abundance of fertile land here, so the local people have always been very respectful towards it. Owing to the porosity of the ground, the Karst is also an extremely sensitive area. Heavy industry has no “right of abode” here, so the landscape has to a large extent been able to preserve its primal wildness.

## KARST SOILE

The Karst soil *jerovica* (also *jerina*, and *terra rossa* in Italian) differs significantly from any other. The iron accumulated in it gives it a

distinct red colour and it is very fertile. Everything that grows in this soil comes out different from elsewhere: a more concentrated, distinct taste, one that's “stronger” overall.

**So the wine that grows in the Karst from Refosco grapes is not known as Refosco, but Karst Teran. This native Slovenian dry wine, with a crimson-red colour, has a truly special taste.**

It is an excellent antioxidant, and given its high iron content has been used since earliest times to treat anaemia. It is also recommended for patients with insufficient acid and those who are convalescing. The acid in Teran has a therapeutic effect on the gastrointestinal organs, and also promotes appetite. The wine is thus a great accompaniment to grilled meat, game, cheese and the famous Karst *pršut* ham, a kind of prosciutto.

## RICHES OF THE KARST – DIVERSE CREATIVITY

Since the earliest times, the Karst has been known as an enchanting land ruled by Teran wine, *pršut* ham and stonemasonry. The fact is that these three features have been part of the Karst culture for a very long time, and have a venerable tradition. Yet many people do not know that the magical Karst landscape harbours numerous other industrious and talented craftspeople, working in a variety of fields.

It is this wealth – based on an abundance of superlative Karst creativity – and its promotion to local people and tourists alike, that drew the attention of Vojka Žgavec Clemenz and Jurij Clemenz, who moved from Ljubljana to the Karst village of Tomaj in 2006. Although both of them still pursue their original occupations, encouraged by their friends in 2013 they launched the brand Mmm Beatrice (homemade Karst marmalades, chutneys and tomato salsas). At the time they were sure there would already be a community linking Karst craftspeople, which they could join. But they were





Cheese from goats that graze in the Karst landscape.



Homemade jam from the Karst region.

wrong. The craftspeople of the Karst were not linked together, and each one worked more or less individually, and only occasionally did a few producers of the same type of product join forces.

**THE KRAŠKE ZAPELJIVKE COMMUNITY**

Since they were convinced that strength lies in unity and that the wealth of a particular region lies in its creative people, in 2014 the couple did an experiment in their front garden. Their company specialises in market communication and the positioning of brands through the promotion of original, sincere and imaginative stories, so they created the brand (or community) Kraške zapeljivke. Via social networks and e-mail they invited around 200 people from all over Slovenia to the event. They offered not just the viewing, tasting and purchase of Mmm Beatrice products, but also unique, handmade Marmeu craft items.

**They offered visitors local Karst jota stew, Teran, herbal juice and pancakes with Karst Mmm Beatrice marmalades.**

The response of local people, visitors and fellow Karst craftspeople was encouraging, so they repeated the event at the beginning of October the following year. For that they invited four other Karst craftspeople to participate. They did not just organise the event and cater for visitors, but also provided a far-reaching media presentation of the Karst, the village of Tomaj, each of the associated Karst craftspeople and the Kraške zapeljivke community itself. Although the event was postponed because of bad weather, when it was eventually held it had almost 450 visitors.

The event took place for the third time in October 2016. In view of the major interest among other Karst craftspeople in joining the Kraške zapeljivke community, the day was moved from their garden to a nearby meadow. From there the visitors could admire the vista of the imposing Tomaj church on one side, Mt. Nanos on another, and the vineyard where the last grapes had been harvested a few days before on a third.

**EXCLUSIVE OPEN-AIR KARST LIVING ROOM**

At the Kraške zapeljivke event in 2016, outstanding products and services from all four Karst municipalities were presented on the sunny first day of October. Out of the many craftspeople who wanted to participate in the event, Vojka and Jurij selected just 15. Their vision is that the day should not grow into a mass, impersonal sales event. They want the gathering to remain an “exclusive open-air living room,” where just one outstanding Karst craftsperson from each sector presents their work in person.

**Last year the Kraške zapeljivke community thrilled guests with goat’s cheese, lavender and hemp products, including handmade lavender dolls, as well as honey, unique clay products, Karst herbs, Teran, spirits and liqueurs. Visitors could also see the area’s masonry products, wood products, unique jewellery, fashion accessories, modern movement therapy and Karst marmalades, chutneys and tomato salsa.**

The creators of the community are proud that they succeeded in attracting over a thousand people to Tomaj in one day, more than has been seen in the village in one day for at least 250 years. The Kraške zapeljivke event not only brings together the community of Karst creators of high-quality, boutique products and services, and those who are enthusiastic about them, but also breathes new life into the fascinating Karst village of Tomaj, which is listed as part of the country’s immovable cultural heritage, but which sadly tourists too often overlook.

Even though several members of the community, family members and friends help Jurij and Vojka in holding the event, the bulk of the organisation and promotion work is in their hands. Perhaps for this reason they may not be able to hold the event every year, but they are certain that the Kraške zapeljivke community will continue, expand and get richer. They are encouraged in this by numerous visitors, Karst craftspeople and locals. In the Kraške zapeljivke events they see the prospect of reviving the creative pulse which in many a Karst village is dying out, precisely because of the lack of connections they are working to foster.



Teran, a genuine Slovenian wine with design- nated original.



Karst lavender products.



MOJCA MAKUC – FASHION AND COSTUME DESIGNER

## Clothing as a powerful form of non-verbal communication

VESNA ŽARKOVIČ  
PHOTO: STANE JERKO



Mojca Makuc

For Mojca Makuc, clothing is a powerful form of non-verbal communication that we really don't take seriously enough, as it shapes both our outer image and what we are in our selves. We are, she admits, characterised by many other things besides clothing, including how we move and talk, our posture, the energy we give off, our education, way of thinking and social status.

However, Mojca feels that our clothing should be drawn from ourselves, from our inner orientation to everything that surrounds us, and in this way it can be a form of self-expression. For this reason it is important not to follow fashion too strictly, but to seek out your own style, an approach that explains what clothing means to Mojca Makuc.

Makuc is a fashion designer, a costume designer for theatrical productions, and the creator of independent fashion shows. She was most active in the 1980s and 90s, and notes that in those days there used to be rules to fashion, but this has now changed, since today everything is acceptable to some degree or another, and thus everyone should design a wardrobe for themselves and find the trends and styles that suit them best.

In answer to the question of how to judge whether someone is well-dressed or not, Mojca says to her mind it depends on whether the outfit is in harmony with the person wearing it, and whether it is tasteful. "I can tell straight away," she says. "When I see someone, I immediately know what attitude they have towards clothes and their outer image, and so towards themselves."

When pressed what it really means to be well-dressed, she answers: "When a person is in harmony with themselves and they project a kind of aesthetic balance. In fact, clothing is something very intimate, and not always easy to talk about. It's easier to show than to say."

One thing Mojca Makuc is certain of is that you don't always have to wear new things. Clothes can be from completely different eras and styles, and all that's important is how you put them together.

**She notes that you can use older items to make something new, and that true style means creating your own image according to your own taste, knowledge and experiences.**

But what if you lack the necessary sense of style? Mojca shakes her head and dismisses the idea. "When you put clothes on and look in the mirror as if you were looking at someone else, not yourself, then you know exactly what's not right. If you're self-critical enough, you soon realise that something is not suitable for you. But of course, you need to cultivate a feeling for all this. You need to look closely at clothes and sharpen your sense of style, which is an on-going task. To always look good, you need to practice continuous presence and discernment regarding your outfits."

### IMPARTING KNOWLEDGE AND TIPS

Mojca likes sharing her knowledge and offering advice on how to dress in an appropriate and stylish manner, and has been doing this for years at various workshops and talks across the country, as well as in her fashion studio in the centre of Ljubljana.

When asked about the key idea in fashion today she replies: "The street, which dictates comfort and simplicity. We all dress in clothing that offers broad scope for experimenting with our image. Dressing well is no longer subject to the rules it once was, and nowadays it can seem like anything goes, but what remains important is what we select and how." Here she compares the selection of an





Sketches of costumes for ballet productions

outfit to cooking a meal, with the right ingredients, and seasoning, the keys to success in both areas.

**Always paying attention to the trends that surround her, Mojca likes to watch the tourists in Ljubljana and guess their nationalities.**

She says she usually guesses correctly, since our self-images, ways of speaking and moving, as well as our cultural backgrounds, all affect how we dress. She is thus convinced that Slovenians know how to dress well, despite having no great sartorial tradition, like that seen in Italy or France, because they know how to put together different outfits from a few components.

Still, Mojca offers one criticism of Slovenian's underlying conservatism in this regard. "We give precedence to various labels, because they offer security, and sadly often exclude our own creativity, since we're letting someone else choose out outfits for us. But the trend is shifting here, too. There's actually a resistance to the uniformity of labels, and a greater desire to express one's own personality by creating your own outer image, which can draw from many different influences. However, for this you need to put in more effort and attention, and this is not for everyone."

**COSTUME DESIGN FOR THEATRE PRODUCTIONS**

Over the years, Mojca Makuc's child-like sense of experimentation and continuous search for new elements of style to play with evolved into fashion shows and the making of costumes for stage performances. No matter where the final products are worn, for Mojca the process of design is always based on the raw materials, the fabric from which a new garment can be made. She thus selects the materials by structure and colour, without always knowing what will come of it.

**When it comes to performers Mojca has mostly worked with ballet dancers, and has a special affinity for this art form, having been a ballet student herself when younger.**

This training taught her the beauty of movement, the relationship between the body and good posture, and in general helped develop her aesthetic sensibility to a high degree of refinement that she was then able to put into her work. Mojca's father was also a dramatic actor, and so she grew up with the smell of theatre costumes and make-up, and the idea that one's appearance could reveal one's character.

In addition to her work for the stage, Mojca has also worked as a costume designer for fashion shows on numerous television programmes. These were thematic shows that always involved a basic, core message, and in such productions she undoubtedly broke new ground, taking the opportunity to set her unique designs alongside other forms of artistic expression, even when some were less than receptive to seeing fashion as an art. Mojca never accepted this dismissal of the importance of costumes and clothing in general, and remains convinced that whether worn on the street or stage the work of a clothing designer is a valid art form, as deserving of respect as all others.

**FASHION SHOWS AS THEATRE**

As one might expect from her background, Mojca Makuc's many fashion shows have not only featured models, but also appearances by ballerinas, adding to the grace and beauty of these events, and bringing together aesthetics, theatrics, drama and new fashion trends. A characteristic feature of Mojca's shows is thus that they are truly theatrical, with the larger ones always based on a specific theme or concept, such as the colour white or the idea of travel. Moreover, in addition to models and dancers Mojca's shows always draw on the talents of musicians, choreog-



Sketches of costumes for ballet productions





Detail  
Photo: Franci Virant

raphers and actors, as she is attracted to work that is different and original.

As noted above, Mojca has a special fondness for ballet costume design, as seen in the numerous outfits she created for the Slovenian National Theatre (SNG) in Ljubljana and Maribor. She explains that the language of a dancer is movement, and the costumes worn on stage must be both expressive and mobile. This is entirely different from making costumes for the theatre, where the actors can wear heavier and more complicated designs, since the voice, rather than the body, is their primary tool.

Regardless of her own beliefs, Mojca stresses that a costume designer must heed the wishes of the choreographer or director in each show, and thus work to create the performer's persona and enhance it through the costume. While she maintains that costume and fashion design are always interconnected, she does note one important difference: "On stage the costumes are guided by the text, script and direction, and this requires a different approach to fashion design, where you are your own director and choreographer." When asked the driving forces of her designs, Mojca responds that she follows inspiration, beauty, and the moment.

**The actual feeling that an outfit evokes depends on the materials used, the day it was designed, how she feels when working, and even the concert she went to the night before.**

The artistic process of creating a costume for the stage begins with reading the script, and at this time the ideas begin to flow and gradually take hold. This gives rise to sketches for a costume that will emphasise the character being portrayed. After a sketch has been chosen for further development, Mojca adds edges, lines and other details to the final design. This process has been repeated many times over the years, with costumes she has designed for stages in Slovenia and elsewhere.

After such a long and successful fashion career, what plans does Mojca Makuc have for the future? "To have as good a time as possible, and enjoy life," she says, laughing. To this end she continues to work and live creatively, drawing from her love of fine art, theatre, ballet, music, exhibitions and culture in general, which is in abundant supply in Ljubljana. Moreover, in addition to such clearly artistic endeavours, Mojca is always observing the things around her, as material for her life and work. She notes the shadows painted by the sun and how the light changes over the day. "When you start observing your surroundings with that kind of orientation, one of constant attention and openness, the beauty of life becomes clear. So my greatest plan for the future is to continue to develop freedom and my world, which I won't give up for anyone."



Grey Stones – Exhibition  
in Eqrna Gallery.  
Photo: Franci Virant



The Statute of Piran during the conservation-restoration treatment.

SIXTY YEARS OF THE RESTORATION AND CONSERVATION CENTRE

## Conserving written and graphic heritage

DANILA GOLOB

A book is more than merely a collection of sheets of paper, parchment or other material that have been written, drawn or printed on, bound together on one side and protected by a cover. It is one of the most beautiful creations of humanity and conceals within itself knowledge from the past and present. The group of nine conservator-restorers at the Restoration and Conservation Centre of the Archives of the Republic of Slovenia do a very important job. They carry out the most complex curative and preventive tasks in the field of protecting written and graphic cultural heritage.

The Centre for the Conservation and Restoration of Books and Papers at the Archives of the Republic of Slovenia is the country's leading conservation-restoration workshop for written and graphic heritage and works of art on paper and parchment. The Centre looks after material from the Archives of the Republic of Slovenia and regional archives around the nation, and other heritage of this kind that is at risk.

### DEVELOPMENT OF THE RESTORATION CENTRE

The Centre's origins date back to the 1960s and 1970s, when a restoration workshop was set up at the National Liberation Museum of the People's Republic of Slovenia – today's Museum of Contemporary History.

**The workshop's staff occupied themselves with the conservation and restoration of various documents from archives, museums and libraries around Slovenia.**

The department dealt with paper material of historical and artistic value that had been damaged during the war, with various types of weapons, and with textile, wooden and leather artefacts. It also car-



ried out preventive work designed to defend against various atmospheric and biological damage to museum and archive material, and assisted and advised archives and other institutions involved in looking after written and graphic cultural heritage.. Notable in this period were the complex restoration carried out on the family tree of the House of Herberstein (nine copper engravings from 1712, with total dimensions of 1350 x 180 cm), kept in the Historical Archives in Ptuj, and the related publication.

The amount of written and graphic material, both older and more recent, that needed to be saved, and which was gradually going beyond the department's area of expertise, combined with a shortage of space at the museum, were the reasons why the department's subsequent development would be as part of the Archives of the Republic of Slovenia. Larger premises, along with a lot of new equipment and staff, were important acquisitions that gave new momentum to the institution's work.

Since 1990 the Centre has been headed by Jedert Vodopivec Tomažič, a chemist by education. Her time at the head of the Centre has been characterised by intensive training, the exchange of experiences, international ties and activity in the fields of consultancy and education. Today the work of the Centre may be characterised as interdisciplinary and team-based, while specific types of work, such as projects involving archival books, photographic material and plans on transparent paper, are the province of specialists.

**COMMITTED WORK**

Restoring books and papers is demanding and time-consuming work. Much depends on the type and severity of damage, and on the quality or age of the material. A restorer needs on average at least an hour to restore a single damaged page. In the case of books, the restorer must also conserve the binding, which means removing the old one and restoring it using the same techniques and the same or at least similar materials.

"Conservation-restoration work requires a lot of scientific, technological and humanistic knowledge, an aesthetic sense, a great deal of experience and, above all, a lot of patience and perseverance," says the Centre's director. Ms. Vodopivec Tomažič. When rescuing heritage, conservators and restorers observe a set of basic criteria

in order to set priorities. These include the substantive importance of the material, the severity and type of damage and the frequency of use.

**Their main objective, however, is to preserve all the characteristics of the original and to interfere with it as little as possible.**

Ms. Vodopivec Tomažič explains that interventions in the past – particularly in the case of books – were often too crude and insufficiently considered. The restoration of damaged bindings was usually done by partial reconstruction of missing sections, which in most cases did not match the original. "Through such procedures we lost the authentic features, while in cases of complete rebinding most traces of the original appearance have been erased. The starting point of any intervention has to be a holistic approach, involving research and minimal interventions," she says.

The principal phases of the work of conservator-restorers at the Centre are: preparation of accurate documentation of the state of the object before the intervention, identification of materials, and diagnosis of the causes and type of damage. This is followed by the conservation-restoration intervention itself, where cleaning and restoration are among the most important tasks – and also the most time-consuming. The final phase consists of the preparation of an exact report that includes written and photographic documentation of all phases of the work carried out, and recommendations for the appropriate storage and use of the material that has been conserved.

**TECHNICAL ASSISTANCE**

All phases of restoration include a great deal of time-consuming manual work, and in only a few cases can restorers also make use of mechanical devices. At the same time, however, advances in procedures, tools and equipment are also important in restoration. One such innovation is the use of a cellulose pulp machine, which is particularly welcome when restoring badly damaged material on paper. A prototype was tested at the Centre in 1981, but the first machine was not purchased until 1995. Over the course of the years, the process has been refined and some deficiencies of the

existing device identified. Thanks to the engineering know-how of Kambič, a laboratory equipment firm based in Semič in Slovenia, since 2010 the Centre has been using a newly perfected machine that today enables them to rescue badly damaged paper material very successfully.

Staff at the Centre are aware that the most valuable material is that which has merely been maintained. Only then comes material that has been conserved or restored, which is why proper training for everyone involved in the safeguarding and management of heritage – not only conservator-restorers – is vital.

**RESTORATION OF IMPORTANT MONUMENTS OF WRITTEN HERITAGE**

The bilingual (Slovenian-English) publication, supported also by the Slovenian National Commission for UNESCO, issued by the Centre to mark its 60th anniversary, which is largely dedicated to books – their structure, material protection and conservation and restoration – gives details of conservation-restoration interventions on numerous important monuments of bibliographic heri-

tage. Two such works that are well-known to people in Slovenia are *the Dalmatin Bible* of 1584, and Valvasor's *The Glory of the Duchy of Carniola* of 1689.

**THE GLORY OF THE DUCHY OF CARNIOLA**

Before the conservation-restoration of the third volume of a badly damaged copy of *The Glory of the Duchy of Carniola*, staff at the Centre once again asked themselves the ethical question of whether it was really necessary to intervene on such an important book, given that any conservation-restoration efforts with regard to the original object would reduce its authenticity. The book in question is, in fact, printed, and not a one-off manuscript. A number of very well preserved copies are available for use.

**According to published data, 21 institutions in Slovenia hold a copy of *The Glory of the Duchy of Carniola*, while quite a number of copies also exist outside the country.**

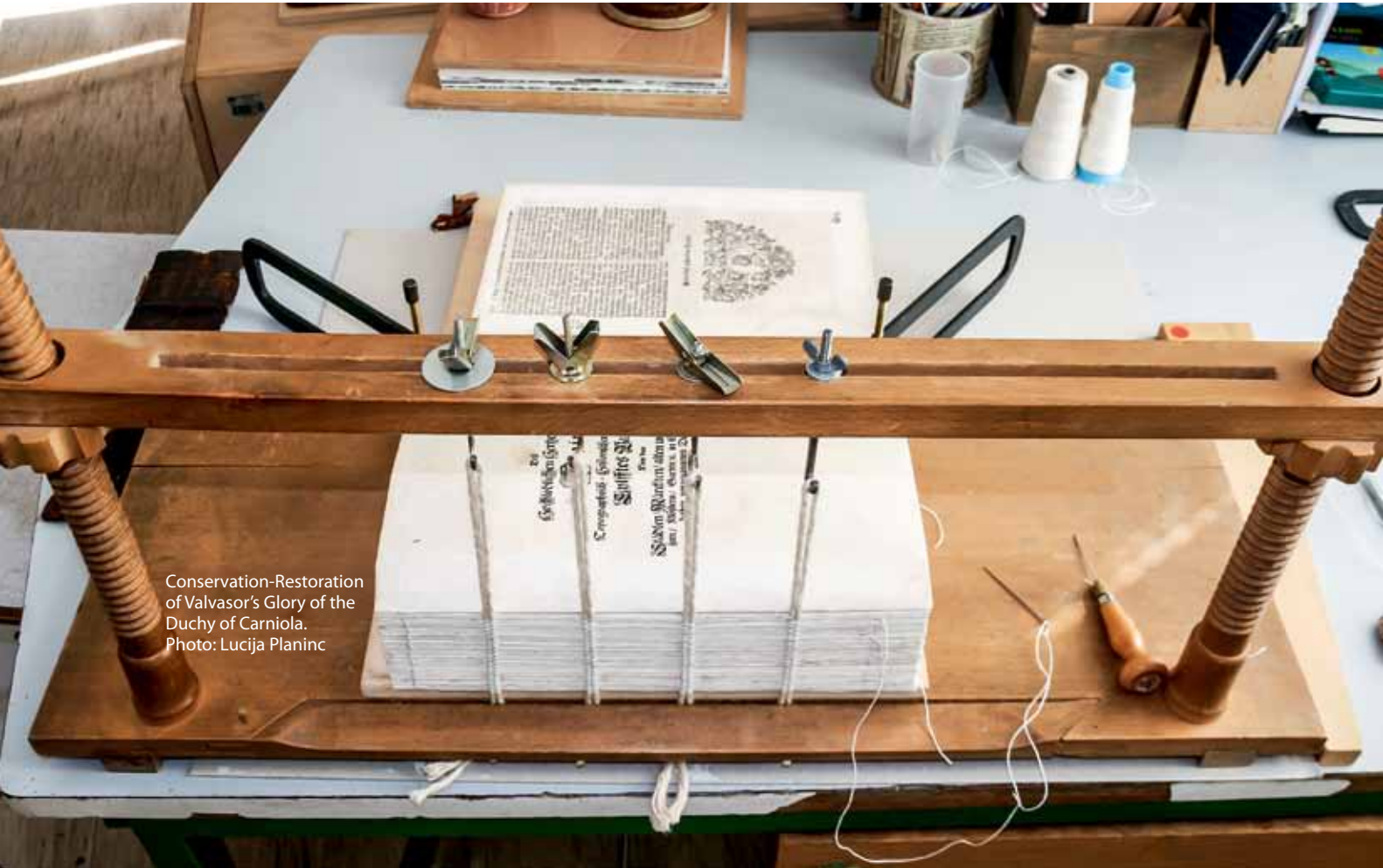


The copy of the Dalmatin Bible during the disbinding process.  
Photo: Lucija Planinc



On the basis of a detailed examination of the condition of the text block and binding, it was decided to undertake a conservation-restoration intervention that included unbinding, surface cleaning and wet-cleaning, coating and manual restoration of all the leaves of the text block, and reconstruction of the binding. Owing to the large number of different stains in the damaged copy and the water-solubility of the glue used in the glued bands, the only effective solution in this case was wet-cleaning of the paper. Comparative analysis of the physical and optical properties of the paper before the intervention, and its condition following wet-cleaning and coating, showed that certain characteristics changed after this work. However, following the coating process the related characteristics were more or less in line with the properties of the paper before the intervention. The paper was more voluminous and porous, less opaque and showed slightly greater superficial rough-

ness, while its whiteness and colour were almost unchanged. All these changes were expected. The bindings of various copies of *The Glory* were examined in order to identify original elements in surviving editions and establish whether a uniform type of binding existed. The results of this examination showed that there was, in fact, no entirely uniform method of binding. In the case of the damaged copy, it was decided to follow the surviving structures of the binding of the text block, and, with regard to the cover, to conserve the materials and appearance that the book had following a partial rebinding. Although *The Glory of the Duchy of Carniola* is a printed work, every copy that has survived to the present day differs in its material appearance. As such, but each copy is a source of valuable information with regard to paper, printing, binding and the technical history of books.



Conservation-Restoration of Valvasor's *Glory of the Duchy of Carniola*.  
Photo: Lucija Planinc

THE DALMATIN BIBLE

*The Dalmatin Bible* of 1584 is the first Slovenian translation of the entire Bible. It is the greatest achievement of the Reformation period in Slovenia.

**The book is thus a Slovenian cultural monument of the highest category and is indeed an extraordinary work, both from the point of view of content and in material terms.**

The copy of the *Dalmatin Bible* discussed here was in active use for a very long time, as proved by numerous examples of damage caused by frequent use and inappropriate storage in the past. Both the text block and binding were badly damaged. Not only that, but the back cover and quite a number of leaves of the text block were missing. After careful examination, it was established that the book was vulnerable in its present condition and that every use of it, no matter how small, would only increase the damage. It was therefore decided to unbind the book, wet-clean the leaves of the text block, conserve and restore the damaged leaves and reconstruct the original binding. In view of the importance of the book, the conservation-restoration intervention was without a doubt a major logistical and technical challenge, but at the same time it was an opportunity to study in more detail the materials used and the technique of manufacture. The book was printed in the folio format. It was sewn onto four double hemp bands fixed to wooden boards via tunnels and grooves. The original headband system was entirely torn off. The cover was dressed in alum-tawed pigskin decorated with blind stamps of cylindrical, linear and flat metal seals. The rigid parts of two brass clasps of the German type survive on the upper cover. The lower cover was lost. The main purpose of intervention was to examine the structure and materials, conserve and restore the leaves of the text block, restore the binding and conserve as much as possible the original character of the book.



The copy of the *Dalmatin Bible* before the conservation-restoration treatment.  
Photo: Lucija Planinc



The copy of the *Dalmatin Bible* after the conservation-restoration treatment.  
Photo: Lucija Planinc



## TOLSTOY, SEEKER OF TRUTH

The timeless phenomenon of *War and Peace*

VESNA ŽARKOVIČ

PHOTO: DRAMA THEATRE ARCHIVES



Matej Puc, Jure Henigman, Viktorija Bencik Emeršič, Sebastian Cavazza, Jernej Sugman, Jana Zupančič and Blaž Dolenc; Part I: Peace

How can you convey the substance of one of the most important, yet also one of the most extensive novels in history, through a stage performance lasting little more than three hours? How is it possible in such a short time to enter into such a rich and expansive work as this novel?

An answer to this has been offered by the co-production staging of *War and Peace*, based on the famous work by Lev Nikolayevich Tolstoy, in the Gallus Hall of Ljubljana's Cankarjev dom. This baptismal staging involved the combined forces of three main production houses: the Ljubljana Slovene National Theatre Drama (*Slovensko narodno gledališče Drama Ljubljana*), Ljubljana City Theatre (*Mestno gledališče ljubljansko*) and Cankarjev dom.

**A total of 25 actors appear in the production, of which there are 11 female actors playing more than 50 parts.**

The stage production does not provide a detailed chronology of the tragic fates of the Bolkonskys, Rostovs, Bezukhovs and other Russian aristocrats during the Napoleonic Wars, nor all the love stories. Instead, the production takes us through the imaginations of a group of artists reflecting the figures and events of Europe 200 years ago, as recorded by the great writer. His message is that war and peace are of the same substance, and one cannot exist without the other. Peace is born from war, and thereby in itself contains its metastasis. In the irony that pervades Tolstoy's novel, there is something distinctly modern, and it seems as if Tolstoy felt that war is not necessarily worse than peace – for in peace, too, dreadful things can happen, while noble things may occur in war. Both are woven from the same thread.

## PRIMARY PHENOMENA ARE ETERNAL

The first night of the production of *War and Peace* was staged on 21 January, 2017, in the Gallus Hall of Cankarjev dom as the main event of the festival *Tolstoy, Seeker of Truth*. It was adapted for the stage by the France-based Romanian director Silviu Purcarete, one of the most distinguished names in modern European theatre. Purcarete is not entirely faithful to the original work in this production, – although not because of the vast scale of the novel, but

because unfaithfulness is an immanent part of his theatrical work. "I am almost always accused of distortion, which I do with classic texts, such as cutting and inversion, but I believe that this is essential to keep the text alive. In efforts to be respectful to the classic text, I find only hypocrisy. Such an extensive and rich text would be impossible to recreate in just a few hours, with all the events and twists; so in order to convey the multifaceted content, we tried to find a completely original theatrical idiom. I had the idea that the production could be seen as a kind of theatrical training exercise, where the actors switch between roles and scenes – in Tolstoy's views, which were very religious, there was also a bit of fatalism, as if all the events were choreographed by God. And this is a situation that is very similar to the theatre."

As Uršula Cetinski, Director General of Cankarjev dom, notes: "The production is a huge project that is challenging not just in content, but also in terms of organisation. We have brought together actors from two theatres, there are many creative and other colleagues, not to mention props and costumes. *War and Peace* is a message for all time, it is the entrapment of lives in the mechanisms of their own personal and social dramas."

The director and artistic director of Ljubljana City Theatre, Barbara Hieng Samobor, says of the staging: "In terms of acting, art and sound the production is quite magnificent, in a kind of enchantment over the fantastical nature of human life, which ranges from the poorest, most miserable grovelling to the most ecstatic flights and peaks. Of course, from birth to death. From grace to horror. From light to dark. From ice to fire. From the individual to the crowd. From war to peace, and peace to war."

**The production triggers a wide variety of associations in audiences, but it is essentially philosophical.**



It conveys the message that the primary phenomena are unchanging, and they change little or not at all.

**War and Peace contains a message for eternity, showing how people can be trapped in their own personal and social dramas.**

**STAGING – A TREAT FOR THE EYE**

“In this production I play four different parts, but I understand them as one single part, since I see them as different expressions of the Russian national consciousness, and therefore as a kind of metaphor,” says actor Jernej Šugman. “In the first part, I mainly play an unusual buffoon, who is a kind of driver of events and the linking element. Tolstoy’s entire novel in fact jumps from one tragedy to another – and my role, as I understand it, is somehow to orchestrate these tragedies, then take my leave and move on.”

Purcarete arrived for rehearsals, which began at the end of November, with around 160 pages of text he had prepared based on the novel.

**“But right from the start he invited us to co-create it,” recalls Marko Mandić, who plays Andrei Bolkonsky.**

“He gave us a few scenes to work on from that vast quantity of material, to see how they worked and what ideas for staging them we had.”

Viktorija Bencik Emeršič, who plays Natasha Rostova, adds: “We didn’t just start with parts, we improvised a lot, and some ideas that turned out to be interesting were incorporated into the production. Gradually, from the original version of the script, which was still more of the “classical” drama type, we arrived at a completely unique staging format, a series of fleeting impressions with brief dialogues.”

**“It seems to me that none of the characters has space to develop in the usual sense. But this doesn’t even bother me, since the main emphasis is on the whole,” says the third Natasha, Jana Zupančič.**



The spectacular stage backdrops, the explosions of colour and the layers of sound, the simultaneous layering of events, the mass scenes, the theatrical jostling of characters, all of this held together under a kind of ‘controlled chaos’. The exception is Jernej Šugman as Apraksin, whose imposing figure is enhanced by the conceptualisation of the character as a transvestite, albeit in a very expressive delivery, whose deliberate caricature, inner distance and strained grimaces ultimately take into account the conditions in the vast Gallus Hall. The play is in two parts: the first, considerably longer part (peace), draws its inspiration from the amorous, convoluted, familial and rival protocols among Tolstoy’s heroes and heroines. The second half, in contrast to the first “intimate” part, focuses on war and extends into a larger realm of metaphor, and is very suggestive but not analytical. The production is a treat for the eye and is perfect for those lovers of Russian literature who are not burdened with what has happened over the last two centuries in terms of criticism and the social issues of politics, war and gender roles.



**Actor Saša Pavlin Stošič:** “Since it’s a large stage, a big set and it has superb actors, the production seemed great to me. I love Tolstoy, and War and Peace is a wonderful and truly vast work, and it’s a very challenging undertaking for the stage. I was especially impressed with the maestro Jernej Šugman and his characters. I enjoyed this co-production, so compliments all round.”

**Actor Aljaž Jovanović:** “This is the first time I have been in such a big theatre company. Even though The Iliad was also a monumental work, it was a more intimate production, and this is by no means so intimate. Perhaps in some performances it is, because everything seems in some way to be a rehearsal, with so many people and so much to get through. We kept coming up against the fact that we don’t have enough time. In the end I said to myself: ‘No, we have exactly the amount of time we need, and that’s how much you have, now get on with it!’ I have to say, it was very tough.”



Planica. A word with many meanings. For some a glacial valley in the Julian Alps, for others the cradle of ski jumping. Some people call it the biggest Slovenian sports festival, others regard it as a unique place on a world scale.

At the mention of Planica many people think of ski flying, although increasing numbers also think of cross-country skiing. This is a place where sports people become heroes, where huge crowds breathe as one and unforgettable stories are written.

#### SPORTS SPECTACLE

At the end of March the rich sporting history of Planica will continue with the new and exciting contests in the Ski Jumping World Cup.

**The valley under the Ponce mountain range will once again play host to tens of thousands of sports fans from all corners of the globe, who will loudly cheer on the fearless competitors, creating an incomparable atmosphere.**

In the Alpine and Scandinavian parts of Europe, ski jumping – which is not as well-known as some other sports – has a long tradition and large number of loyal adherents. And as for Planica, we can only speak of this sport in superlatives. Last year over four days a crowd of 110,000 people gathered at the foot of the slope, while every fourth Slovenian watched the competition on television. The main credit for such enthusiasm of course goes to the competitors, whose flights simply take the viewers' breath away. At 100 kilometres an hour they fly 10 metres above the ground, for a flight of around seven seconds. The current record on the ski flying hill at Planica is 248.5 metres, set in 2015 by the Slovenian Peter Prevc.

But flying through the air is not the only way to travel at Planica. Many sports people remain on the ground, even though they are crossing it at high speed. Cross-country skiing, a sport related to ski jumping, is

PLANICA

## A sports event and so much more

MATEVŽ PERŠIN

PHOTO: NORDIC CENTRE PLANICA ARCHIVES



now returning to its former glory at Planica. A year ago the challenge of the World Cup drew the best cross-country skiers, who showed everyone that Planica is not just a “jumping” valley. These competitions spurred the launch of the Nordic Centre, the most modern sports complex of its kind in the world.

**PLANICA AS A MODEL FOR OTHERS**

Although Planica was always a centre for Nordic sports, until recently it had not exploited its full potential. Now its facilities have caught up with the rest of the world, and even overtaken it. The refurbishing of the jumping centre, which comprises seven jumps and a flying ramp, the new cross-country centre, which includes seven kilometres of cross-country ski trails, plus other multi-purpose facilities, have transformed Planica into a destination that attracts many visitors outside the winter months.

Since December 2015, when we saw the official opening of the Nordic Centre, Planica has offered year-round sports.

**It now hosts guests who are just seeking relaxation in unspoilt nature, as well as sports people, both amateur and professional, who can make use of the range of ultra-modern facilities.**

Moreover, each year teams from 30 different countries around the world come to train at Planica.

The philosophy behind the renovation of the Nordic Centre was to shift the facilities into a natural setting, and the end result is that the great majority are now concealed underground. Concern for nature is also one of the leading concepts of the project of sustainable development, which the Planica Organising Committee began four years ago. The main elements of this project are promoting the use of public transport among visitors to the March ski flying competitions, and care for the area’s nature and heritage.



Wind tunnel at Planica Nordic Center was constructed with intention to fulfil human natural aspiration after flying. Wind current in the tunnel is very strong, so you can simply lie on the air mattress and fly!

In 2013 visitors were first able to come to Planica by train, and in this way help in meeting the targets that were set with regard to environmental protection. Since then almost 8,000 people have come to Planica by rail. The project is continuing with a new co-operation agreement with the Slovenian Railways company, which during this year’s World Cup competitions will step up its scheduled train services and offer special and additional trains. These will bring visitors from all parts of Slovenia to Jesenice, and from there buses will run to Planica and back.

**EXCLUSIVE EXPERIENCE OF PLANICA**

Unspoilt nature, a sporting spirit and the loudest fans around are the ingredients that together make Planica so special. In addition, the choice of admission tickets on offer at Planica has always been extensive, with something for every type of visitor. These range from passionate fans, who come with friends to cheer on the Slovenian flyers, to families who want to liven up their day with some unforgettable experiences, and also business people using Slove-

nia’s biggest sports festival to connect with their partners.

**This year the organisers will enhance the drawing power of the competition by enabling both local and foreign guests to experience Planica in an exclusive way, one not yet witnessed at any other Slovenian sporting events.**

In this area too Planica is breaking new ground, with a special VIP facility called the Crystal Globe Lounge. The VIP service involves helicopter transport to Planica, a guided tour of the Gorišek Brothers Ski Flying Hill, top cuisine in an exclusive atmosphere, and many other privileges. The organisers are certain that the exclusivity of the Crystal Globe Lounge will satisfy even the most demanding guests, and in this way complete what Planica can offer.



A competitor taking on the Gorišek Brothers Ski Flying Hill



ANDREJA STERLE PODOBNIK

# The ultra-marathoner who conquered the Himalayas

POLONA PREŠEREN

Andreja Sterle Podobnik is living proof that anything is possible if a person wants something.  
Photo: Personal Archives



Andreja Sterle Podobnik is a recreational ultramarathon runner, an entrepreneur, mother and sports enthusiast who in the middle of November 2016 was in the Himalayas, Nepal, when she unexpectedly, and with a huge lead, won a six-day stage race called the Everest Trail Race. Until that time was completely unknown on the national scene, but a short time ago was declared Slovenian Woman of the Year 2016.

Last November, Andreja Sterle Podobnik convincingly beat all the competition in the race. Those taking part had to complete a trail approximately 160 kilometres long in the Himalayan range. The race followed a course at altitudes of two to four thousand metres, involving a total altitude gain of 29,000 metres along the way.

**Podobnik needed a little under 31 hours to cover the entire course, putting her three hours ahead of the next fastest racer. She also beat the majority of the male competitors.**

On her return to Slovenia, the people she shares her town with in Stari Trg pri Ložu laid on a heartfelt reception for her. "I was truly positively impressed, they really surprised me nicely. The people in my town still tell me how excited they are about my success and they are celebrating with me." And without a doubt, Andreja's success has also inspired other Slovenian women and men. The Slovenian Woman of the Year award, which Andreja won, is selected by readers of Jana magazine, who vote for one of ten exceptional and inspiring candidates.

"It is not just that our editorial office selected ten exceptional women who left their mark on last year, our readers also cast a lot of votes for each of them. Perhaps none of the candidates were known to the general public before the selection, but this is precisely the mission of Jana – to provide an opportunity for women who have no media presence to present themselves to the whole of Slovenia. Slovenia needs such women, whose work and example are changing things

in this country for the better," said Lidija Petek Malus, the editor of the magazine, after the selection was complete.

## THE ULTRAMARATHONER

As she said when she was selected, Andreja Sterle Podobnik was surprised at just being nominated Slovenian Woman of the Year, since she had never appeared in the media before her life-changing exploit. Perhaps the people who voted for her were inspired and won over by her extraordinary energy. "Perhaps they sensed something in me that they themselves would like to attain. It's all about will-power. A person has to have objectives, a path they should travel, and they need to follow their heart," says Andreja, with conviction.

The Slovenian Woman of the Year is an award chosen by readers of the legendary Slovenian magazine *Jana*. In Slovenia there are few awards with such a long tradition, standing and recognition in society as that enjoyed by the Slovenian Woman of the Year. It is a special recognition for outstanding women who for the most part are not public figures, but whose sacrifices, perseverance, courage, imagination and success have enriched society. The mission of the Slovenian Woman of the Year campaign has remained unchanged since its inception: to seek out, present and reward that special female energy that gives life, inspires and warms hearts.



**Her energy is truly extraordinary, and when we sit and chat about her Himalayan experience, her positive nature simply radiates.**

Especially when she explains how even decided to accept that challenge and how she prepared for it. She loves running and does so a lot, and, as she says, she feels at home in the hills. "It's that real thing where my heart sings," she says. "There my heart sings, I connect with nature and I am me."

Ever since she was little Andreja has pursued recreational sports, and has movement inside her. As a teenager she did biathlon training, and now she mostly runs and walks in the hills. She had always wanted to go to the Himalayas, and when she learned about the Everest Trail Race decided to start preparing for it. She trained a lot, she says, and prepared both physically and psychologically. A lot of it is "in your head", and this kind of race is a big unknown. The conditions are unpredictable, you never actually know how the body will respond to high altitudes, and although she had bouts of self-doubt, she persevered.

**PREPARATION**

Throughout her preparation period she was supported by her family – her husband and two children. Moreover, Andreja is also a business woman, and her colleagues came to her assistance in the business field. Every day she ran for two to three hours in the hills, and she added an hour of flat running for speed. If the weather was good, she also spent time on her road bike for strength. She is also a functional training coach, which certainly helped in her efforts. Moreover, as she herself says, while everyone supported her during this training period she did not have much time or space for egoism.

**She had to coordinate her family duties, work and training. Since most of Slovenia does not offer such high altitudes, she trained on Mt. Triglav, the country's highest mountain, at 2864 metres.**

At 03:00 she set out from home, and at 10 or 11 she was already at her job. Although the ascent along the route she took normally takes six hours, after just over two and a half hours Andreja was already back at the bottom.

She practiced special breathing techniques, to make the greatest possible use of her lung capacity. This served her particularly well at the high altitudes of the Himalayas, where there was not much time for acclimatisation. She managed to master these breathing techniques so well that she also uses them in her ordinary running.

In the Himalayas Andreja felt somehow at home. The conditions were hard, and the effort needed above average. At the start she was thrown off course by a mass of problems. She was entirely alone, while her co-runners were mainly professionals and had their own support teams. She faced a crisis on the very first day of the race. After ten kilometres she was crying and just wanted to go home. But then she concentrated on one step at a time, and waited for the troubles to pass, which they did. She relaxed and enjoyed doing what she loves. Of course, everything then fell into place, and if it hadn't, she would not have won against such competition.

"You can do anything if you want to," says Andreja Sterle Podobnik. She embodies the importance of will, strength and trust in oneself. She is living proof that anything is possible if a person wants something. Although it did not occur to her when starting this journey, she is already planning new athletic adventures. And who knows, perhaps sometime soon she will bring home another victory.



She won the prize Slovenian Woman of the Year  
Photo: Anže Malovrh/STA



