

ŁÓDŹ

KREUJE INNOWACJE

NEWS MAGAZINE OF THE CITY OF ŁÓDŹ

NO. 1/2014

**TRANSFER OF BEAUTY
INTO BUSINESS
ART IN THE SERVICE OF ENTREPRENEURSHIP**

**CRADLE OF INNOVATION
MODERN ŁÓDŹ**

**SAFE DRIVER
VEHICLE V. DRIVERS**

**BONE REPLACEMENT
COMING TO THE RESCUE OF PATIENTS**

**LIGHT IN A BOX
DESIGNER PROJECTS**



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ANNA KRAWCZYK,
EDITOR-IN-CHIEF

Easy, Kamil, because when you're nervous, you can't even catch a butterfly – thundered the commentator's voice, full of emotion, just before the medal-winning jump of our golden Olympian in ski jumping. This recording was soon known around the world. We Poles are especially happy with this success. Who does not like success? We experience, therefore, many positive feelings. Some associate success with pride, others are joyful, and some people are moved – or all of those at the same time.

Each of us lives through greater or lesser victories every day. We taste them, but before this happens, we need to prepare them, just as food. Some of the ingredients are persistence and consistency in our goals. The main ingredient of this dish, however, is the vision of what we want. We all have it. This is why we are not afraid to reach for the victory. How can we describe a modern day visionary? It is a person with an open mind, capable of thinking outside the box. This in turn has recently been fashionably named as 'creative thinking'. And creativity is the cradle of innovation. That is how this magazine was established, of which the first issue I pass onto your hands with an enormous pleasure. 'Łódź creates innovation' is a journal of creative people. Our aim is to show many innovative solutions, which are the ideas of the Łódź residents. The issue is opened with the interview with Hanna Zdanowska, the Mayor of Łódź City, who presents the strategy for development and the most important initiatives.

We will have a chance to meet with you six more times. For me this will be a mesmerising journey, because I know that on my way I will meet many fascinating and inspiring people.

Photo: Paweł Lawreszduk

PUBLISHER

Urząd Miasta Łodzi
Departament Architektury i Rozwoju
Biuro Rozwoju Przedsiębiorczości i Miejsc Pracy
Al. Politechniki 32, 93-590 Łódź
T. + 48 42 638 47 00
E. biuro.rozwoju@uml.lodz.pl



REALIZATION

INFRAMEDIA Anna Krawczyk

inframedia

ul. Balonowa 21/3, 02-635 Warszawa
T. + 48 22 856 45 00,
F + 48 22 270 20 55
E. biuro@inframedia.pl
www.inframedia.pl

EDITOR-IN-CHIEF

Anna Krawczyk
a.krawczyk@inframedia.pl

REDACTOR

Jarosław Zaradkiewicz
j.zaradkiewicz@inframedia.pl

EDITING AND PROOF-READING

Anna Kryszczuk

TRANSLATORS

Piotr Szlaużyś
Justin Nnorom

PHOTOGRAPHER

Paweł Ławreszuk

LAYOUT & DESIGN

Joanna Białecka-Rybacka

COVER PHOTO

Paweł Ławreszuk

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Cradle of innovation

‘IN THE ADAPTED DEVELOPMENT STRATEGY WE AIM TO CREATE A CITY WITH MODERN ECONOMY, ITS PILLARS BEING CREATIVE AND ENTREPRENEURIAL RESIDENTS AND WELL-FUNCTIONING, MODERN BUSINESSES,’ SAYS HANNA ZDANOWSKA, THE MAYOR OF THE CITY OF ŁÓDŹ, IN THE INTERVIEW WITH ANNA KRAWCZYK.

This place where we are having the conversation now will soon be thriving. Where are we? What is created here?

Renewed former power plant EC1 is a very symbolic and magical place for the citizens of Łódź. It is our city's history. It is an perfect example of how – thanks to revitalisation – we can breathe new life into the historic space.

How is revitalisation connected with the development strategy of the city?

Łódź is dedicated to the dynamic development, opening itself to new technologies and innovative ideas. In the adapted strategy we aim to create a city with modern economy, its pillars being creative and

**IN THE ADAPTED STRATEGY WE AIM TO CREATE
A CITY WITH MODERN ECONOMY,
ITS PILLARS BEING CREATIVE
AND ENTREPRENEURIAL RESIDENTS
AND WELL-FUNCTIONING, MODERN BUSINESSES**

entrepreneurial residents and well-functioning, modern businesses. To attract such entrepreneurial individuals, the city must offer them cultural attractions also an interesting cultural and entertainment activities. We are revitalising EC1 in order to create – very soon – the space for such initiatives. It will be possible to come and spend time here in an interesting way. It will be the place, of which Łódź residents will tell their friends, including those from other towns, with pride.

Ms Mayor, are you proud of your city?

I am proud of its energy and its residents' creativity, as well as the changes which are happening in front of our eyes. We undertake the initiatives, which increase the involvement of Łódź residents. They willingly participate in the key decision-making in our city. The civic budget, which is a record in Poland, is a tangible example of this. If only the Łódź residents are given the possibility, they readily sacrifice their free time and energy to make Łódź a better place to live in. When I see such commitment, I have even more energy to change Łódź with them. To summarise – I am proud of the city residents, and I am proud of my city.

Each of the local government officials encounters the situation where they must advertise their city briefly and unobtrusively. What do you say then?

Hard facts and specific numbers appeal to consciousness most strongly. Let's consider the subject of jobs for young residents of Łódź. Over the last six years the Łódź companies, within the project 'Youth in Łódź' funded 139 scholarships and over 110 foreign language courses. During three years we, as a city, funded 44 scholarships, and organised 190 free trainings, attended by 3400 students. 600 projects were submitted for the competition 'I have an Idea for Business', and most presented business ideas were successful. As many as 60% of the competition winners opened their own businesses. As part of 'The internships in Łódź', 85 companies took part in three editions of the competitions funding 250 paid internships for students. I could go on for a long time...

Sometimes you give tours around Łódź for guests who have not been here for – let's say – 10 years. What are their impressions?



We have recently hosted the authorities of several cities, which – similarly to Łódź – have problems with their urban tissue, with the decaying houses. Of course, we showed them how we implement the programme of renovation of these buildings, i.e. 'Mia 100 Townhouses'. I can tell you that they were seriously surprised by our results.

Up until now Wrocław was a leading model when it comes to the repairs of the urban buildings. Today Łódź copes with it best...

Of course, creating this programme, we drew on the experiences of Wrocław, but today we are ahead. We revitalise more townhouses at a faster pace and on a much larger scale. Not long ago we began the works at Famuły, on Ogrodowa Street – this is unequivocally our jewel in the crown of revitalisation of Łódź. Today other cities wish to learn about the houses revitalisation from our

**DURING SIX YEARS THE ŁÓDŹ COMPANIES, WITHIN THE
PROJECT 'YOUTH IN ŁÓDŹ' FUNDED 139 SCHOLARSHIPS AND
OVER 110 FOREIGN LANGUAGE COURSES**

IT IS CRUCIAL TO SUPPORT THE DEVELOPMENT
OF THE CREATIVE INDUSTRY, INCLUDING
THE FASHION, DESIGN, FILM PRODUCTION,
AND MODERN INDUSTRIES,
CREATING HIGH-QUALITY VACANCIES



The Construction of the New Centre in Łódź

experiences, but 'Mia 100 Townhouses' is not just renovation. It is mainly a programme, which changes the situation on the real estate market in Łódź. We create possibilities for young people to rent the flat in the city centre, which will not be too costly for the student pocket. Revitalisation only makes sense when the residents are involved and given a chance to improve their situation.

What conditions must be met in order to benefit from the programme?

As many as two (laughs): one needs to hold a certificate of employment and obtain the recommendation of the rector of one's university. It is similar in the case of the innovative programme 'The Attic', which aims to convert attics into residential spaces. Entitled to benefit from the programme are, amongst others, students, and graduates who settle in the city. It is cool to live in Łódź.

And how do the business owners react? Those who come back and those who appear here for the first time.

I observe as the investors' and business owners' interests in Łódź are growing. A prime example of this is the increase in real estate prices. Łódź areas, especially the ones in the city centre, are more and more attractive. Please take a look at the City Gate, as an example. The private businesses paid over 40 million PLN for the land for this building.

For business owners the energy and creativity of young people are important. Łódź is a university city. More than 100 thousand students live and work here, from over twenty colleges and universities, including 6 public ones. Every year Łódź academic take high positions in the national rankings of universities, and individual courses are marked as distinctive by the National Rankings Committee.

**I OBSERVE AS THE INVESTORS' AND BUSINESS OWNERS'
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It is also positively perceived by the private businesses.

We have the impression that during the past years Łódź dynamically moved from the 19th to 21st century. How has this working class city become the cradle of innovation?

Without betting on innovation, in several years not only Łódź, but probably the entire Poland would cease to be a player in the international race. This is why it is an absolute priority of all our actions.

We promote innovative and creative companies of Łódź. Our aim is to inspire the Łódź entrepreneurs, e.g. through organisation of competitions and publishing texts on promoting the innovative businesses. The idea is make the companies implement the innovative solutions and co-operate with the creative industries on the regular basis. One of the basic tasks is to show the strongest and most valuable brands that function in the whole agglomeration.

What other goals do you have?

It is crucial to support the development of the creative industry, including the fashion, design, film production, and modern industries, creating high-quality vacancies. The key here is also promoting the innovative and creative companies, products and services, which translates into building the image of Łódź as innovative and creative city. It is a classical 'feedback loop', which benefits both sides.

You have changed the decaying factories into the clusters of entrepreneurship. What is the driving force of the change in Łódź? How did you manage to change the stagnating city into one where people begin to have a will to take action?

The driving force is the human capital. Simply speaking – the energy, commitment and creativity of people, especially young ones. This is why we revitalise former factory spaces, to make them alive again, and invite the people to take action. The example is the Art_Inkubator in Łódź. It is a former complex of warehouses, which belonged to the Łódź factory owners. In 1990's it was still used by Uniontex, later it was closed and decaying. Today, thanks to the EU funds, it was renovated and modernised.

What are the effects of conducted works?

We have created a place for 24 companies from the cultural and creative industries. They can run their business there on very concessional terms. The goal is to stimulate the entrepreneurship and the activity of people involved in culture and art (especially

**I AM CERTAIN THAT THE KEY GOAL WILL BE RENOVATING
THE AREA IN WHICH WE LIVE AND BUILDING
THE NEW CENTRE OF ŁÓDŹ.
THIS WILL BE A DRIVING FORCE,
WHICH WILL POWER THE DEVELOPMENT
OF THE CITY FOR DECADES TO COME**

in Łódź), i.e. the creative sector developing in the European Union. The implementation of the project will allow supporting the entrepreneurs, organisations, and young artists, also in difficult moments of their early business development, bases on the innovative and creative merge of the art and culture with business. We offer them a full support and care in the areas of promotion and marketing of the creative and artistic activities of the subjects working within the 'Incubator of Culture'.

The city is seeking to acquire businesses, but is also famous for its creative activity. Łódź is a recognised brand in the global world of artists. More and more young people follow in their footsteps. Do you make it easier for them? Do you support them?

Of course, we have scholarship programmes for people involved in artistic creativity, as well as popularising and animation of culture. Different artists may benefit from them: from the visual arts through music, to literature. For example, we have creative studios to rent in a very attractive place – on Księżny Młyn. I am convinced that work in this area is even more interesting and may lead to even greater creativity.

Is this the end of transformation, or do you have plans for further development of the city and if so, what are they?

I have a vision how Łódź should look like not only in 2020, but also in 20 and 30 years. I know where Łódź should go and what the strategic points of our city's development are. I am certain that the key goal will be renovating the area in which we live and building the New Centre of Łódź. This will be a driving force, which will power the development of the city for decades to come. We have a unique opportunity for Łódź to join the leading cities in Poland. We invest most in history. We implement the strategic investments and small local projects. We ask the Łódź residents for their opinions and listen to suggestions. I believe in Łódź and the residents of our city.

Thank you for the interview.



BY JAROSŁAW ZARADKIEWICZ

Transfer of beauty into business

The awarded project of the cafe on Pogonowskiego 23 Street, by Sabina Świątkowska

ARTS AND INDUSTRY ARE WORLDS APART. IS IT POSSIBLE TO COMBINE THEM? DO THEY AFFECT EACH OTHER? OF COURSE, THE ANSWER IS YES. INDUSTRY NEEDS NEW MODELS AND DESIGN SOLUTIONS, VISUAL REFRESHMENT OF THE OBJECTS. WHO CAN DESIGN THEM BETTER THAN STUDENTS AND ALUMNI OF THE FINE ARTS ACADEMY?

At the Władysław Strzemiński Fine Arts Academy in Łódź the Technology Transfer Centre was created in 2008. Its goal is to merge the seemingly distant areas – business and widely understood design art, more and more dynamically entering the world of economy. The creative thought, which is the characteristic of students and teachers of the Academy, more and more often translates into the language of production and technology, which results in innovative projects, often implemented in the industry.

THE ARTIST DELIVERS

The Centre aims to support the students and employees of the Academy, and offers them help with implementation of the original designs and scientific thought in order to transfer them to the field of economy. The Academy's em-

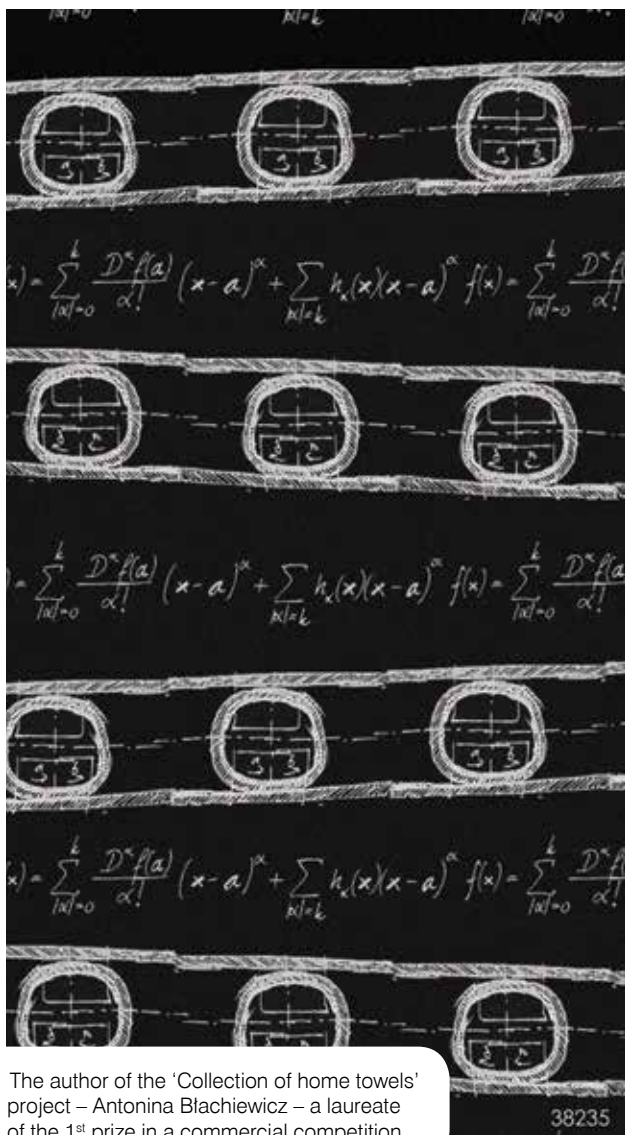
ployees, amongst other things, help to establish the business contacts.

The main goal of the TTC work is commercialisation of the scientific studies results and the student research, as well as that of the Academy's graduates. Until now several projects created at the Academy have been implemented. The logo of new Łódź Cultural Centre EC1 was chosen through a competition organised at the Academy. The students also designed the interior of the Kalka Investment Group offices. Many companies from Łódź and vicinity benefit from the projects organised within the Academy's competitions. They are, among others, towel manufacturer Zwoltex, Adrian – Tights Producer, Polbruk, and Steeldeco, the company manufacturing steel furniture. Thanks to the co-operation with reputable companies operating in the Łódź industry, the students can listen to the lectures delivered by the experts on design for the business needs.

THE ARTIST BENEFITS

Over the years, the stereotype of an artist emerged, a person who is at odds with the accounting issues and legal matters. This is why the Technology Transfer Centre supports the students in such things as managing the rights for the intellectual property, legal service and patent protection of the intellectual property. The experts of the Centre also support the artists in establishing an active co-operation with businesses and the public sector entities that wish to take advantage of their offer.

Thanks to the activity of the TTC, the students participate in competitions, projects, exhibitions and training organised together with partners from the world of business and economy. The Centre will function in the Fine Arts Academy until the end of June of the current year. The aim of the unit, subsidised by the National Centre for Research and Development, which operates under the project 'Creator of Innovation – support for the innovative academic entrepreneurship', is to popularise, create and support issues related to innovation.



The author of the 'Collection of home towels' project – Antonina Błachiewicz – a laureate of the 1st prize in a commercial competition

THE ARTIST DESIGNS

The Fine Arts Academy in Łódź has existed for nearly 70 years. In this time the experienced lecturers developed complex programs for student education in the design field, from fashion to architecture and interior design.

At the Academy the fashion projects are created. They include clothing, jewellery, textiles and printing on fabric. In Łódź it is hard to find better specialists in the fields of graphic design and art, and painting, than the ones associated with the Academy. At the Academy the multimedia arts are also taught and designed.

The local students and teachers are active in arts, designing also multimedia and animations. The strength of the academy is industrial design, interior design, set design and visual communication.

Such a wide range of options means comprehensive services for companies in terms of corporate identity – from the company logo, company paper, through designing new product lines and packaging, to interior design services for the business.

The projects generated through the Technology Transfer Centre of the Fine Arts Academy include both students and lecturers of the school. Thanks to this TTC offers a combination of solid experience with innovative thinking emerging from the young students' minds.

THE ARTIST OFFERS

The task of the Technology Transfer Centre is to attract the businesses to co-operate with the Academy. For its part, the TTC ensures that all projects are created under the professional care of experienced teaching staff, and are innovative at the same time. Crossing the experience of the lecturers and students' energy guarantees the synergy effect, i.e. an accurate diagnosis and analysis of the problem of the project concerned. Thanks to that, the works created here are original and competitive.

According to the Academy's experts, the companies that choose to use the Academy's services can fully entrust the comprehensive services for the widely understood visual company image.

Except the visualisation, the Academy offers mainly the invention of new designs. Thanks to that fact that the projects created at the Fine Arts Academy are identified through an open competition, the client receives a rich offer of the commissioned task implementation. Such solutions are only possible when the company has developed its own design department.

For businesses who bet on the corporate social responsibility it can be important to build a positive company image through co-operation with the scientific-research unit and the contact with students. The latter gives an opportunity to identify future employees. The additional aspect of the Academy's co-operation with the company cannot be ignored: business information does not reach a wide audience and potential users of the brand.



BY JAROSŁAW ŻARADKIEWICZ

Safe Driver

ROAD SAFETY DEPENDS ON THE TECHNICAL CONDITION OF THE VEHICLE, AS WELL AS THE MENTAL STATE OF THE DRIVER AND HIS SKILLS. WHILST THE CAR CAN BE THOROUGHLY TESTED ON THE DIAGNOSTIC LINE, IT IS NOT SO SIMPLE WITH THE DRIVER. HIS MOMENTARY PREDISPOSITION IS AN OUTCOME OF SEVERAL VARIABLES, DEPENDANT ON THE HUMAN BODY. AND THESE CANNOT BE MEASURED EASILY.

The scientists of the Nofer Institute of Occupational Medicine in Łódź decided to look more closely at the weaker link of the car-driver duo, i.e. the driver.

Within the framework of the EU project 'Integrated system of monitoring the psychophysical state of drivers in order to minimise the traffic risks', the research is carried out on how the working environment conditions, monotony and fatigue of the musculoskeletal system influence the tiredness of the drivers. Łódź Institute is the project leader, in which the Military Institute of Aviation Medicine is also involved.

PROJECT

Ultimately, the project aims to create a system of testing and training drivers, amongst others using a truck or bus driving simulator. Thanks to this the qualification of the drivers could be improved and the research can be conducted, which will improve the traffic



Conducting research on the simulator

safety. The main goal of the project is the enhancement of road users' safety through building an integrated system for assessing the psychophysical state of the drivers in order to detect threats to the traffic safety.

For the project in Łódź Institute the simulator was built, equipped with a truck cabin on the mobile platform with a wide-screen. Sitting behind the wheel, it is hard to resist the impression that one is driving in the real world. When the driver causes an accident, the same forces impact him, as if in the actual incident. It is possible to simulate the truck or bus driving in the cabin. This makes a significant difference, because both types of vehicles have not got the same centres of gravity and behave very differently.

Many exercise scenarios can be played to the tested driver, reproducing real road traffic situations, from the changing weather conditions to the poor surface quality, and even various types of the vehicle breakdowns. The simulator is fitted with the medical

THE SPECIFIC GOALS OF THE PROJECT:

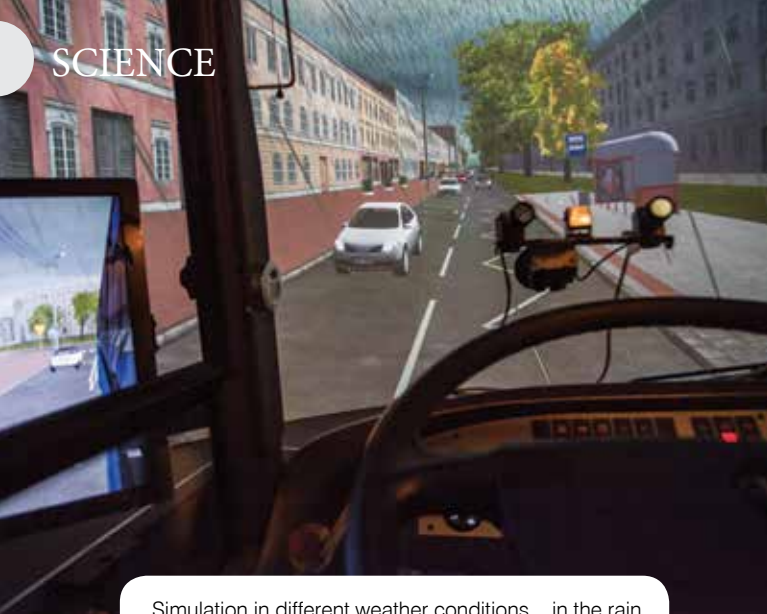
- The assessment of the working environment impact on the psychophysical abilities of the driver in real and model conditions;
- The evaluation of usability of physiological methods in the objective assessment of the changes in the states of tiredness and sleepiness;
- The assessment of the impact of monotony and static load on the locomotor and circulatory systems in drivers;
- The assessment and forecasting changes in psychomotor performance of drivers connected to the exposure to harmful and onerous factors of the work environment using the computer simulation models.

equipment, which registers all significant psychophysiological parameters of the tested driver.

RESEARCH

From the psychological point of view it is obvious that the drivers – especially professional ones – suspend the moments of tiredness and at all costs try to delay the resting time. However, the critical moment can be determined, thanks to innovative monitoring methods, based on the contactless technology, amongst other things. The aim of the project is the research based on the measurable indicators showing the driver's activity. The tests are very complex. The system, using many sensors attached to the body or installed in the car, as well as the camera footage, measures and registers approximately five hundred parameters. It collects the data that includes reaction time, temperature, movements of the steering wheel, eye movement, noise, and also engine revs, speed, and the shifting changes moment. The changes in concentration, tiredness, and stress are also registered. The studies aiming to monitor the psychophysical state of drivers are difficult because of the diverse reaction of the driver's body in many variables.

Based on them, the impact of the work environment on the psychophysical ability of drivers is assessed. The scientists of the Nofer Institute of Occupational



Simulation in different weather conditions... in the rain



...during a snowfall at night

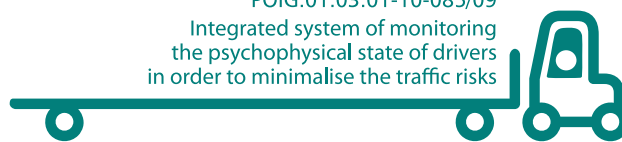


...in the fog



...in a mountainous area

POIG.01.03.01-10-085/09
Integrated system of monitoring
the psychophysical state of drivers
in order to minimise the traffic risks



Registration of the track of the sight, vital signs of the driver and technical data from the car

Medicine also estimate that work monotony and drivers' tiredness have a large influence on these.

The important elements of the research are the tests of the mobile monitoring system of the psychophysiological activity in the road traffic. The pilot studies drivers drive vehicles in the real weather conditions. For the scientists it is important that the data from the equipment connected to the tests participant corresponds as much as possible with the information gathered by the contactless system.

Tomasz Połec

– Chief Inspector of Road Transport



Truck and bus drivers are professionals, who annually drive hundreds of thousands of kilometres. Work 'behind the wheel' requires constant concentration, so they need to take a rest. It is well-known that a tired driver creates a similar – or even worse – hazard on the road as a drunken driver. This is why it is so important for the Road Transport Inspection that the time of work is checked, both during the roadside checks and the controls at the transport companies' offices. During the roadside checks we can examine the activity of the driver over the last month, whilst at the company office – over the last 12 months.

In 2013 the inspectors of RTI conducted a total of 230 608 roadside checks. As a result, they found 105 734 infringements of the legal regulations set by the act on the road transport. More than half of them – 55,4% – were the drivers not complying with the rules on driving times and mandatory breaks and rest periods, whilst 30% of the violations were related to

the improper use of the recording equipment (tachographs). The above data indicate that the drivers continue to work for too long. The most common infringements are illegal reduction of daily hours of rest, prolonged driving without mandatory break or reduction of the required weekly rest. As for the compliance with regulations on the registering devices by the drivers and businesses, the cases are very common where there is an improper use of the controlling device or misuse of the record sheets, which are the records of the registering device – tachograph. Fortunately, usually they are not very flagrant violations, with which we had to deal several years ago. However, if the record sheet or a card shows that the driver is overtired at the time of control, the inspector forbids him to continue driving. Road Transport Inspection significantly contributed to improvement of road safety. Through our inspections, we try to force the businesses and drivers to comply with the current regulations and the principles of fair competition.

COMMERCIALISATION

Ultimately, the test system is to be used for training and qualifications of drivers. However, it will be available for use to the companies, who are working on developing the technology of monitoring the human psychophysical state. Eventually, it is possible to create a relatively cheap, possible to install in each car system of early warning against the threat, such as driver's tiredness or his sudden indisposition caused by fainting or heart attack. The system is to be maintenance-free, contactless, non-invasive and non-absorbing for the driver. It can be especially useful for those working in the heavy-industry transport, dangerous goods transport or for corporate drivers who cover long distances.

Thanks to using the driver's condition monitoring system, it will be possible to warn that his ability to dri-

ve the vehicle worsened and he should rest. In case of fleets of trucks or business vehicles, the signal will also be received by the person managing the fleet.

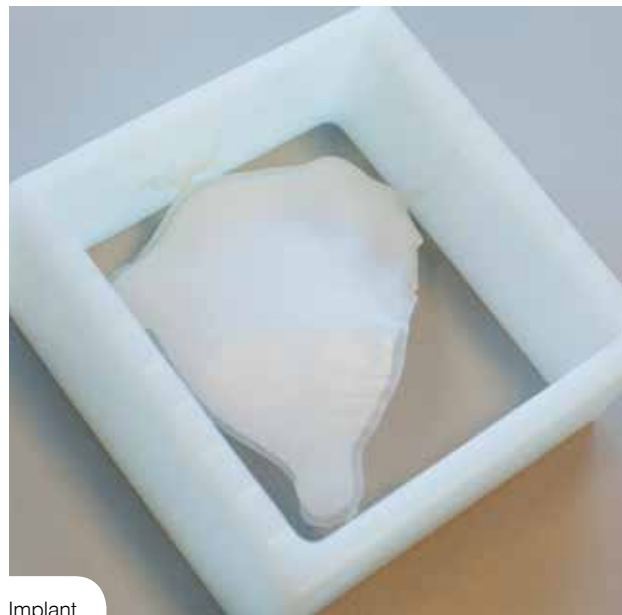
The opportunities for using the system are wide-ranging. It will be integrated with the other, complex software, e.g. serving the purpose of monitoring. The driver will be able to install the smartphone application, which will assess the level of his tiredness. In turn, the fleet manager will gain another tool to control the employee. He can also receive the report data, trend graphs, as well as alerts in the real time, if the system notices the driver's tiredness.

For now, the system is in the testing phase. However, it turns out to be reliable, because in 80% cases it detects the driver's fatigue.

Photo: Paweł Lawreszuk, Road Transport Inspection,
The Nofar Institute of Occupational Medicine in Łódź

Bone replacement

RECONSTRUCTION OF THE HUMAN SKELETAL SYSTEM HAS NEVER BEEN AS EASY AS IT IS TODAY. THANKS TO THE CO-OPERATION OF THE ŁÓDŹ TECHNOPARK AND THE NICHOLAS COPERNICUS SPECIALIST HOSPITAL IT IS POSSIBLE TO PREPARE AN IDEALLY FIT PART OF THE FACIAL BONE OR THE EYE SOCKET.



Implant

Among the many medical cases, the ones occur where the patient loses some of the facial bones, eye socket or jaw. This happens in accidents, but also in the case of cancer. Cancer of the head or neck often forces the removal of parts of the tumour cells along with some elements of the skeletal system. Despite the winning battle with illness, the person can be disfigured. This is why it is so important to reconstruct the removed element of the skeleton.

A few years ago the reconstructing surgeon, during an open-body surgery on the patient, under the pressure of time, formulated an element from the titanium mesh to replace the removed bone. It was not always perfect, because each one of us is different. It was impossible to prepare the implant earlier, which would ideally match the patient's anatomical structure. It could so happen that the face after surgery remained disfigured or asymmetrical.

DEDICATED INDIVIDUALLY

For more than three years the Laboratory of the Individual Medical Implants, a part of the business implementation centre BioNanoPark within the Łódź Tech-

nopark, produces implants, perfecting the method of their preparation. Thanks to the co-operation of the radiologists and the surgeons of the Medical University in Łódź, it is possible to perfectly match the implant to the individual patient's anatomy. In an incredibly precise way it fills the defect resulting from the surgery or other accidental events.

At first, mainly the implants for eye sockets were made. 'They are extremely hard to prepare, because they are small and very complicated elements of the skeletal system,' explains dr Marcin Elgalal of the Laboratory of the Individual Medical Implants.

Until now, over 90 implants have been inserted. The Laboratory estimates that annually it can produce even 100 of such elements. The insertion of the modern implant is decided by the doctor every time. 'The shortest time for the patient to qualify for the implant insertion is approximately two–three weeks. In practice, however, it usually takes longer, because various kinds of complications arise,' emphasises dr Marcin Elgalal. The problem, nonetheless, is the issue of reimbursement by the National Health Fund, because implants made with the use of the latest technology are more expensive than the existing methods of reconstruction.

THE MYSTERY OF PRECISION

Technologists from the BioNanoPark base their works on the computer tomography tests of the patient, to whom the implant is to be dedicated. Using the specialist software, the 3-D model is created first, to fit the anatomy of the particular patient, taking into account the natural curvature of the skull. The design precision reaches tenths of a millimetre. All is done virtually, without the patient's participation, based on the CT scan, i.e. computer tomography. The implant itself is made in aseptic conditions from biocompatible polyethylene of ultrahigh molecular weight. This material has been used in medicine for years, e.g. in orthopaedics for hip endoprosthesis. The process itself of producing an implant is exceptionally complicated.

After 'reading' the three-dimensional picture, e.g. of an eye socket, from a tomographic record, the virtual anatomical model is created; the implant is designed based on that model. Then, after consultation with the surgeon regarding its scope and method of attachment, the implant is prepared by the precision CNC milling machine with the biocompatible polymer. Such prepared implant is sent to hospital. The operation itself boils down to securing the implant in place. This allows to reduce the time of surgery and anaesthesia to the maximum.

TITANIUM LASTS

So far, mainly titanium implants have been used. With the development of technology, it was beginning to be replaced by the biocompatible polymers.

'However, not every part of the skeletal system can be replaced by the polymer implant, because it cannot be used, for example, in reconstruction of jaws or spine. These elements of the skeletal system are exposed to overload, which polymer cannot withstand,' explains dr Marcin Elgalal from the Laboratory of the Individual Medical Implants. 'Then the titanium implants must be used. Those, similarly as the polymer implants, are made based on very accurate 3-D models. Just as polymer implants, they are cut on precision CNC milling machines. Titanium implants can also be printed on special 3-D printers, using the biocompatible titanium alloys.'

The titanium mesh is still used. However, now it can be shaped in anatomical models tailored to a particular patient, for whom the 3-D model of the replaced part of the skeletal system is printed. Special head of the 3-D printer creates a 3-D model, layer after layer. It is very precise: one layer measures only 16 microns, so it corresponds to one-fourth of the thickness of a human hair, and each added drop has computer-calculated ballistic path. Creating one model takes



dr Marcin Elgalal

several hours. If, for example, one eye socket is damaged, the mirror image of the other eye socket can be made and used to shape and cut the titanium mesh. This way the surgeon can easily prepare the implant before the surgery, and then pass it onto the sterilisation. After sterilisation it can be used at the time of the operation.

There are also situations where it is necessary to use polymeric implants. In cranioplasty, i.e. surgeries of the cranial bones reconstruction, the titanium cannot be used, because it behaves as any other metal. In the summer it conducts the heat to the brain, while in the winter it cools the brain. Reconstructing the skull bones, it is necessary to use implants other than metal ones.

CATALOGUE OF SUCCESSES

In Łódź Nicholas Copernicus Hospital complicated surgeries of reconstruction of face, jaws, teeth and tongue are carried out. Recently, dr hab. Paweł Kolaszka, PhD, Head of the Department of Neurosurgery and Cancer of the Nervous System, conducted three cranioplasty surgeries. Their aim was to fill the cavities in the skull bones. First patient was a young farmer who damaged his skull in a fall. Next – a teenager, who in a car accident suffered extensive facial injuries. Her own bones sank into her brain with the force of a bullet. The third patient fell under the rotary lawn mower.

The doctors are surprised by the effects of the surgeries. They do not require any adjustments, and the cosmetic result is sensational. Restoring the original shape and symmetry of the skull was successful, and rehabilitation goes very smoothly. Such achievements hold promise for the future patients of the Łódź hospital.

Photo: Paweł Ławreszuk



BY JAROSŁAW ZARADKIEWICZ

Medical Fabric

ŁÓDŹ FABRIC IS OMNIPRESENT. IT IS USED IN THE TEXTILE AND DEFENSE INDUSTRY AS WELL AS FOR SANITARY AND MEDICAL PURPOSES.

Tricomed SA is a company that has been the pride of Łódź for years. It has operated under its current name since 1995. However, its traditions refer to the Laboratory of Medical Articles established in 1959 by Czesław Okrojka at the then Central Laboratory of Knitting Industry.

TRADITION AND MODERNITY

The production of medical materials – biomaterials and dressing materials has lasted in Łódź for 55 years. At present, the company develops and manufactures a wide range of knitted medical implants, modern dressing materials and auxiliary products for surgery. At Tricomed, the first Polish blood vessels prosthesis, successfully implanted in a patient in 1961, was developed, just two

years after the first analogous operation was performed in the United States.

The company offers medical implants, modern dressing materials, as well as articles for general and vascular surgery, neurosurgery and orthopedics.

Since 2003, Tricomed SA, as a stand-alone unit, has been the member of the TZMO group (TZMO SA), one of the shareholders of the company. In 2010, the company was granted by Ministry of the Economy the status of Research and Development Centre. It is awarded only to the companies that carry out research and innovative activities. The company has repeatedly received awards for introducing creative solutions to production in the field of medical articles.

The achievements of the company include more than 50 patents and two 2nd Degree National Awards in the



The compression garment used to accelerate the healing of scars

field of medical sciences. Tricomed SA has constantly been working on new projects. The works related to the design of prototypes and introduction of new medical devices to production have been performed in the Research and Development Centre of the company.

Łódź can boast of Tricomed as a company developing modern technologies on a global level. The company belongs to the international elite companies producing the prostheses of blood vessels, tendons, bones, skulls and other biomaterials implanted into the human body, as well as high class dressing materials. Such a specific production requires the cooperation of a team of specialists with high qualifications and years of experience, and such a team was created at Tricomed. The company steadily expands and modernises its assortment by introducing new biomaterials to production.

Tricomed marks its products with CE safety mark and holds ISO 13485 certificate.

INNOVATIVE DRESSINGS

Tricomed offers simple knitted and elastic bandages. However, the pride of the company is innovative dressing used in pressotherapy, i.e. the method of treatment of post-burns scars, consisting in the use of special elastic compression garments and bandages. After burn wounds are healed, a common complication is hypertrophic scars and joint contractures. They are a nuisance, because they limit the efficiency of the locomotor system and, at the same time, disfigure the ill patient's look. Thanks to the use of Codopress compression clothes and silicon Codosil dressings, it is possible to restore the skin condition that existed before burns and restore the agility of joints. Compression clothes are sewn on an individual customer's request, after making accurate measurements of the patient's body. The therapy is long and demands consequent actions. The compression sweatshirts have to be used for two years, 24 hours a day, with breaks only for swimming as well as necessary rehabilitation and cosmetic treatments.

Until now, more than 20 000 products of this brand have been manufactured. Individually prepared clothes cause adequate pressure on the scar, do not cause allergies and irritation of the skin as well as reduce itching. In specialised burn centers in Siemianowice and Polanica Zdrój – Poland's leading centres treating severe burns, clinical trials have been carried out on a wide group of patients. Thanks to this, Codopress products series enjoy a good reputation.

The company also offers numerous medical products, but it is most proud of its latest invention put into production. Tromboguard, i.e. first aid dressing was created as a result of Łódź scientists' cooperation with the Institute of Security Technologies Moratex and the Institute of



Codollops surgical extraction



Hernia mesh

Biopolymers and Chemical Fibres. Hemostatic dressing is designed to provide first aid and dress traumatic wounds. It has the ability to inhibit bleeding in 2–3 minutes after its application and has antibacterial properties within its structure. The dressing may well be part of every first aid kit and part of the uniformed and emergency services equipment. It is a three-layer product, including a highly absorbent layer of hydrophilic polyurethane foam – an active layer constituting a unique combination of chitosan, alginate and salt of silver as well as the outer layer formed by a membrane made of polyurethane elastomer with selective vapour permeability. The value of Tromboguard dressing was recognised, among others, at Poznań International Fair ITM 2011 and the 62nd World Exhibition on Inventions, Research and New Technologies 'Brussels Innova' 2013, during which the product was awarded with gold medals with distinction.

MODERN IMPLANTS

Tricomed SA offers a wide range of implants, prostheses and medical products used in surgery.

The company produces, among others, surgical meshes used in hernia operations. They are made of a biocompatible monofilament and polypropylene multifilament yarn (Optomesh and Dallop PP). The meshes are used to remove the defects of connective tissue during hernia surgery.

Tricomed also offers knitted Dallop NM urological tapes for the surgical treatment of urinary incontinence in women together with the system of applicators. The knitted polyester – polypropylene is also used for making skull bones (Codubix), eye socket (eye socket Codubix) and rib bones (rib bones Codubix) prostheses.

The research work aimed at developing the prostheses to deal with cranial bone defects in the Medical Devices Workshop (currently Tricomed) began in the second half of the 70's in the last century. The works were also

continued in the 80's. As a result, a biomaterial called Codubix was created with knitting technique combining the features of implants made of polyester and polypropylene. Excellent results contributed to the efforts to extend the application of Codubix. The biomaterial became very popular at the end of the 90's. The attempts to apply it to the reconstruction of facial skeleton, eye socket and ribs have yielded excellent results. This material is characterised by high strength, low specific weight, non-toxicity and the possibility of modeling.

Dallos prosthetic ligaments and tendons, offered by Tricomed, are also made out of polyester yarn. They show resistance to the actions of tensile forces – expressed by a constant, low flexibility and high mechanical strength. In addition, the company offers polyester vascular prostheses, which are intended to reconstruct or replace the damaged or affected blood vessel.

Surgeons also use useful coloured markers, i.e. Codollops surgical bands, which can be found in the portfolio of Tricomed SA. They are made of plastic fibers and used to support and pull away organs during surgery. They are manufactured in various thicknesses and colours.

DEVELOPMENT PLANS

Tricomed SA is ready to cooperate to solve medical engineering issues and participate in research projects aiming at the creation of innovative medical products.

Currently, the company is conducting research and development works on antimicrobial dressings with silver nanoparticles, biodegradable chitinous dressings, ultra-light implants for urology and urogynecology, as well as many other ultra-medical solutions. The names of some developed implementations sound even cosmic. However, the company emphasises that its sole purpose will be constant development and improvement of safety devices for saving the health and lives of patients.

The canvas that resists bullets

THE LAND OF ŁÓDŹ IN THE POLISH CONSCIOUSNESS IS STRONGLY LINKED TO LIGHT INDUSTRY. CAN THE FIBER OF THE ŁÓDŹ REGION BE USED IN THE HEAVY ARMAMENTS INDUSTRY? PERHAPS. AND WITH SUCCESS.

MORATEX Institute of Security Technologies has been, for twenty years, specialising in the design of personal protective equipment such as bulletproof vests, bullet-proof and fragment-proof helmets, ballistic shields and inserts.

These items of personal protective equipment are irresistibly associated with durable steel material. Hardly anyone would expect that just such objects, whose task is to stop a bullet or shrapnel, are formed from... fabric.

More and more armies in the world use lightweight composite materials instead of outdated and heavy steel components of ballistic protection.

AS HARD AS RESIN

The scientists from Łódź have developed an innovative way of combining fabrics impregnated with epoxy resin. Under the influence of sufficiently high temperature and pressure, a composite that can stop a bullet or shrapnel as effectively as a steel barrier can be produced. When using a specialist

press, the composite is combined. It successfully replaces heavy and rigid ballistic shields of the old type.

The research carried out in Moratex has been recognised as a key project for the Polish economy.

However, what would the research and development works be without their implementation in production? Owing to cooperation with Maskpol company, located near Częstochowa, a trial series of the barriers made of fibrous

THE AIM OF THE PROJECT IS TO PROVIDE NEW AND INNOVATIVE SOLUTIONS IN THE FIELD OF FIBER COMPOSITES USEFUL TO ENTREPRENEURS AND CREATE DEMAND FROM ENTREPRENEURS FOR THIS SOLUTION.

Anti-terrorist police officer, Voivodeship Police Station in Łódź

We tested helmets made of polymeric fibres. An interesting solution is a rail designed for the helmet, to which a flashlight or a night vision device can be mounted. Services in other countries have been using such solution for a long while now, whilst our helmets have not had such functionality. Moratex managed to prepare the helmets and ballistic inserts, which are much lighter than the currently used steel shields.

Considering the total weight of a several kilograms of anti-terrorist's equipment, the difference of a few hun-

dred grams does not make a big impression. However, with prolonged use, it is noticeable. You need to remember that the missions sometimes last many hours, and the officer must wear all equipment at all times.

The ballistic shield, on the other hand, is much lighter. Picking it up, we expect it to weight much more. Steel shields weigh almost 30 kilograms, while this one is almost a half lighter.

It is very important that Moratex, as a native company, while designing new gear takes into account our suggestions and comments.

materials was produced. In the laboratories located in Łódź, they have been tested with positive results. On the shooting range, the weapons of different caliber as well as machine guns have been used. After a series of tests, the composite products have been put into production.

LIGHT LIFE OF ANTI-TERRORIST

The innovative solutions devised in Moratex can be put into practice by the police, Government Protection Bureau officers and anti-terrorists. The ballistic shields used so far by the latter forces have weighed about 30 kilogrammes, while modern Moretax shield weighs only 18 kilogrammes. With such a large decrease in the weight of equipment, the mobility and responsiveness of first striking groups have increased.

The recipients of composite products used for the protection of life and health are in principle officers of all uniformed services such as the Border Guard and Customs Service officers.



Three patterns of vests dedicated for: the Government Protection Bureau, Border Guard and the Police

SPECIFIC OBJECTIVES:

- acquiring institutions and enterprises to cooperate in the project,
- involvement of academic staff to perform the tasks of the project (including women),
- involvement of students and PhD students in the project (including women),
- creation of new jobs (including women),
- increasing the number of implementations,
- application of inventions for patent protection,
- commercialization of the results of R&D works,
- creation of new research posts,
- development of new technological solutions,
- preparation of the publication related to the results of research works,
- preparation of preliminary technical and technological documentation for practical applications.

Ph.D. Marcin H. Struszczyk,

Moratex Deputy Director for Research

The key problem that we came across during our project was to invent the method for combining several materials differing from each other so that the ballistic shield structure was stable and reliable. Such an achievement has enabled the development of a range of ballistic shields for the protection of the bodies of officers, and even the shields for the means of transport that can be used for the armoured of cars and helicopters. The lightness of the materials al-

lowed to increase the comfort of their use, and with regard to means of transport – their economics (e.g. through reduction in fuel consumption). This type of design work requires knowledge in many areas. The ballistic properties (a degree of protection against the penetration of various types of bullets and fragments) and the comfort of use should be simultaneously tested through the implementation of a simulated scenario of actions by incorporating new ballistic shields.



Helmets – frame with multi-layer fabric, coated (after the tests carried out – in close-up, the bullet retained in the helmet is visible), on the right – black, lacquered



The vests, ballistic inserts or protective shields may also be used by the employees of private companies engaged in the protection of life and health.

One of the goals of the project was to develop the ballistic shields for stationary and moving objects. They can be used by such means of transport as armoured vehicles. They can also be used to protect military and civilian buildings, i.e. banks.

COMPOSITES FOR THE MARKET

Research on modern ballistic protective barriers lasted more than four years. In last year, the project was commercialized. The production included: material compositions for the armoured of means of transport, ballistic inserts to bullet-proof and fragment-proof vests, ballistic shields as well as bullet-proof and fragment-proof helmets.

Photo: Paweł Lawreszuk



Electronic Łódź

BY JAROSŁAW ZARADKIEWICZ

ONE YEAR HAS PASSED SINCE THE OPENING OF THE CENTRE FOR RESEARCH AND DEVELOPMENT OF SAMSUNG ELECTRONICS POLAND. KOREAN TECHNOLOGY CENTRES OF THE GIANT ELECTRONIC INDUSTRY IN POLAND HAVE EXISTED SINCE 2000. IMPROVING THE CLIMATE FOR INVESTORS IN ŁÓDŹ HAS RESULTED IN THE DECISION TO ESTABLISH THE NEXT THIRD SAMSUNG CENTRE IN POLAND. THE COMPANY HAS JOINED THE RANKS OF GLOBAL BRANDS PRESENT IN ŁÓDŹ AGGLOMERATION, WHERE NUMEROUS COMPANIES OPERATE IN THE FOLLOWING INDUSTRIES: ELECTRONICS, LOGISTICS, FINANCE AND CONSTRUCTION.

The centre is located in one of the most modern Łódź office buildings - University Business Park at ul. Wólczańska. Around 100 people are supposed to work there.

The Managing Director of the Research and Development Centre of Samsung Electronics Poland - Dae-Hyun Sim said during the opening that the company intended to expand the Samsung centre of Łódź.

– We decided to develop our technology in Poland, among others, due to a high level of education at Polish universities,

the opportunity to work with the best engineers and favourable economic situation – stressed Dae-Hyun Sim.

ACADEMIC BACKGROUND

In the Samsung centre of Łódź, the engineers specialising in the latest technology as well as designers and linguists are the most wanted professionals. The company cooperates with universities. This cooperation involves, among others, the implementation of joint research projects and research into ground-breaking technologies that will be



South Korean company Samsung Electronics, the largest member of Samsung Group, is one of the largest electronics companies in the world. It was founded in 1969, employs more than 200 thousand employees in nearly 60 countries. Samsung Electronics is considered to be one of the fastest growing global brands, a leading producer of digital TVs, memory chips, mobile phones and TFT-LCDs, as well as the world's smallest laser printers and multifunction devices.



used in the company's products. The company representatives have announced that the best students and graduates specialising in computer science and other science subjects available at higher education institutions in Łódź will be able to find employment in the new office. City officials announce that the talks of the city and Łódź University of Technology with Samsung lasted more than one year before the opening of the centre. Before the decision was made, the representatives of Samsung repeatedly visited Łódź. The company participated, among others, in the University Job Fair as part of the campaign 'Łódź creates jobs'. On this occasion, it had the opportunity to present its offer to students - potential employees. Łódź was successful to attract the South Korean investor because of, among others, developing business facilities, competitive labour costs and the operation of companies. However, of greatest importance was the opportunity to work with academic centres. It gives a chance to implement exceptional scientific projects. The best students and graduates of Łódź higher education institutions can hope to be employed next to experienced professionals.

TECHNOLOGIES OF THE FUTURE

Specialists from the Samsung centre of Łódź work mainly on the development of software for products from Samsung Smart group - mobile devices and TV systems.

The Polish Samsung Research and Development office significantly contributes to the creation and development of Samsung Galaxy S telephone series. Samsung engineers are also working on smart home technology - 'Smart Home'. The idea is to connect wirelessly all the electronic equipment available at home. The company sees the future of these technologies.

At the Research and Development Centre in Łódź, the software for digital television set-top boxes, LCD TVs and Blu-ray players is also prepared.

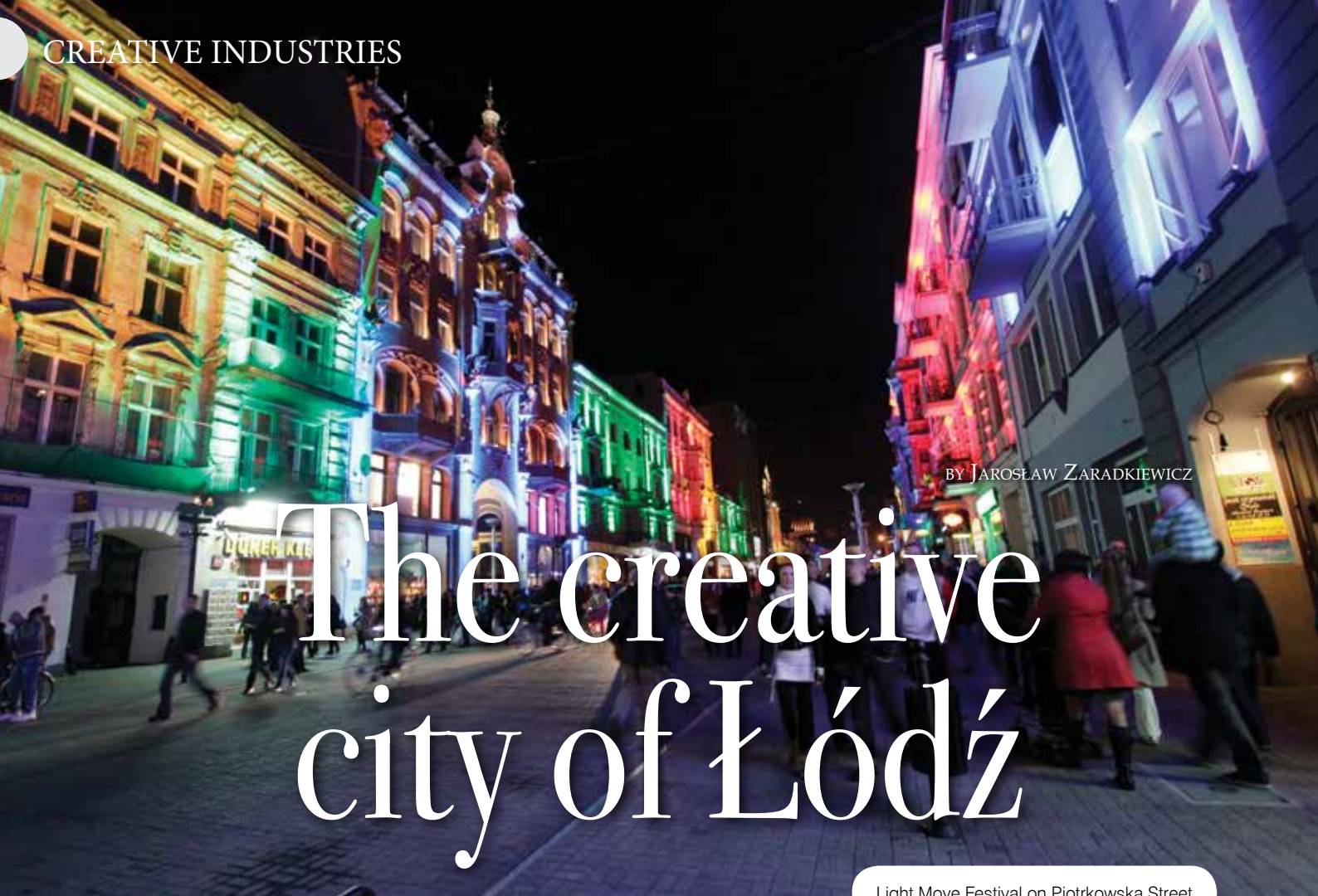
The technologies developed in Łódź will be used throughout the world. Therefore, in addition to engineers, humanists are employed there. The software used in different countries and cultures must be adapted to the needs of users.

In Łódź, software products that cannot be purchased in the shops are created. During the presentation of its new office equipment, Samsung showed the possibilities of future equipment. The presentation included, among others, the technology of wireless transmission to television of the pictures taken with a mobile phone and games for smartphone, displayed on TV monitor.

– Just imagine that, by using a smartphone, the users can do the laundry or check whether the dishwasher has finished washing. In addition, while shopping in a shop, the users can see what is in the fridge. We will work on such solutions here – pondered Director Dae-Hyun Sim.

Photo: Paweł Lawreszuk

BY JAROSŁAW ZARADKIEWICZ



The creative city of Łódź

Light Move Festival on Piotrkowska Street

CREATIVE INDUSTRY IS THE YOUNGEST AND FASTEST GROWING BRANCH OF THE ECONOMY. IN TERMS OF EUROPEAN CREATIVE INDUSTRY, IT IS ONE OF THE LARGEST EMPLOYERS, AND ITS TURNOVER SURPASSES THE TURNOVER OF THE AUTOMOTIVE INDUSTRY.

Creative industry is a young branch of the economy. As a scientific term, it appeared in the late 90's of the twentieth century. It began to develop at the turn of the last and present century for good. It is created, above all by the people who work conceptually, not imitatively, who need in their daily work to solve problems and develop innovative solutions. Many of the actions of the creative industry are interdisciplinary and require simultaneous cooperation between such groups as humanists, engineers and artists.

The creative industry is considered as a creative activity based on ingenuity, talent and skills of individuals. The purpose of this activity is to develop the economy and create more jobs by providing new works

and exploiting intellectual property. It is estimated that the value of the creative market in the European Union amounts to 500 billion euros, equivalent to four per cent of the EU GDP. In Poland, it amounts to only 1.2% of GDP; in comparison in China, it exceeds 20% of GDP.

The creative industries include, among others, film, photography, advertising, music, architecture, design, art, publishing market, software and computer games.

ŁÓDŹ CAPITAL

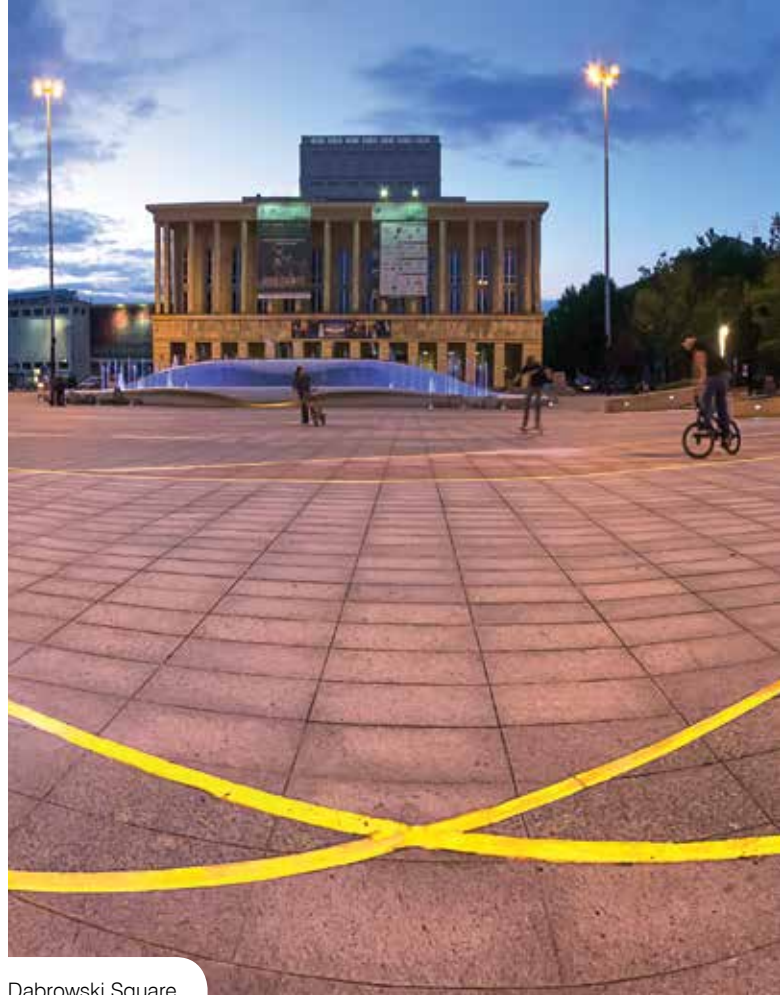
In Łódź – the capital of Polish textile film industry – a creative industry has been present for decades. Łódź was creative, even when the business activity conducted in the city was not defined as a branch of the creative

economy. There the new designs of clothing were created. Also, the filmmakers recognized around the world and the films gaining valuable awards come from there.

The highest value that weighs in favour of Łódź is a large number of art schools. For such higher education institutions, the best pride is graduates having in their portfolio a number of prestigious awards, valued in the creative world – whether in a film or designer business.

Strzemiński Academy of Fine Arts Łódź (formerly known as the State Higher School of Fine Arts) was established after World War II. It was then regarded as innovative and avant-garde institution to the extent that the Stalinist authorities inhibited its modern aspirations. Currently, the academy attaches great importance to the industrial design and the training of personnel for the creative industry. The students are trained in the Faculties of Textile and Fashion, Graphics and Painting, Industrial Design and Interior Design, as well as Visual Arts. Among the graduates of the Łódź Academy of Fine Arts is a duo of designers, Paprocki and Brzozowski. Also, Magdalena Kieruzal, a jewellery designer, graduated from the Academy.

In addition to the State Academy of Łódź, the Higher School of Art and Design exists in Łódź. The school educates the graduates of architecture, design, as well as film, television and photography image production.



Dąbrowski Square



Piotrkowska Street

However, when it comes to the film and television production, Łódź is associated mainly with the local Film School. The Polish National Film, Television and Theatre School in Łódź – that is its official name – is one of the oldest film schools... in the world. It was established in 1948, and it puts the greatest emphasis on practical work. The school educates directors and actors, camera operators as well as photographers, screenwriters and editors. The catalogue of its success constitutes entirely separate topic.

THE CREATIVITY OF ŁÓDŹ

Łódź has a huge potential for the development of the creative sector. It has always been viewed as a city of four cultures: Russian, German, Jewish and Polish. This cultural diversity is one of the factors that develop the city's creativity. An important distinguishing feature of Łódź's cultural sphere is its renowned film, photography and fashion festivals.

Since 2010, the city has supported the development of creative industries through the programme called 'Łódź creates'. Thanks to this programme, the right conditions are created for the implementation of creative ideas that will help to build the brand of the city. The actions relate to the four pillars of activity: culture, economy, education as well as tourism and sport.

It is clear that culture clearly affects the development of the creative sector. That is why the city is committed



Łódź University of Technology, Faculty of Material Technologies and Textile Design

to the promotion of cultural projects, cultural sites and its products. In economic area, efforts are made to re-define the industry, moving away from manufacturing to creation. In Łódź, entrepreneurship begins to coexist with creativity. The entrepreneurs increasingly combine business with creative and cultural sector.

In the urban programme, Łódź creative education plays an important function. The graduates of higher education institutions in Łódź represent innovative human capital that will help to develop the creative sector of the city in the future.

Touristically, Łódź creates a new quality in recreation and leisure activities. The city supports the organisation of festivals, outdoor events and concerts. The intrinsic value is represented by the historic architecture of post-industrial Łódź, which stimulates imagination through visual impressions.

THE FUTURE OF ŁÓDŹ

The companies operating in the arts, media and entertainment sector, and offering creative business servi-

ces, are constantly growing. Currently, their number amounts to 3500 in Łódź. While the total number of companies is decreasing, the entities working in the creative sector are formed at a rapid pace. In the period 2000–2010, the city recorded a growth of such companies by 160%. Only in 2010, about 450 new creative companies were established in Łódź. While, in previous years, the annual growth amounted to about 100 companies per year. Despite the dynamic growth of creative enterprises, this industry constitutes less than 4% of all enterprises. It may suggest that young creative individuals have not said their last sentence in Łódź yet. The local companies operate creatively mainly on the artistic and cultural market, but also conduct advertising, design, architecture and film businesses.

In the shadow of big companies, the companies from the SME sector are established, because they decide about the potential of the creative industry. Small advertising agencies, design studios, designers and developers – the fate of the creative industry lies in their hands.

Photo: Urząd Miasta Łodzi



Light in a box

BY JAROSŁAW ZARADKIEWICZ

'I CAME UP WITH THE IDEA OF LIGHTBOXES DURING THE IMPLEMENTATION OF ONE OF MY ORDERS: MY TASK WAS TO INVENT AN UNUSUAL, ORIGINAL, COMPELLING FORM THAT WOULD PRESENT PHOTOGRAPHS,' SAYS BARTŁOMIEJ TALAGA, WINNER OF THE 'I HAVE AN IDEA FOR BUSINESS' COMPETITION AND THE OWNER OF BACKLIGHT COMPANY, WHICH DESIGNS ORIGINAL OBJECTS FOR INFORMATION AND ADVERTISING PURPOSES.

Talaga's idea was to apply the images in the curved Plexiglas using the UV printing technique, and then illuminate it from within. The idea was very easy. It's just that no one had done it before. This innovative way of presenting the photographs or advertising content has become a hallmark of the Backlight company.

CREATOR

Before the lightbox was created, it was necessary to conduct a series of technological tests. They were successful. Such presentation of photographs or adverti-

sing content is modern and light in form and convention. 'I was able to develop a completely new solution, creating large format Plexiglas objects with the direct print. Lightboxes were only the beginning, followed by the ideas implemented in the business,' says Bartłomiej Talaga. He often emphasises that the creation process is happening continuously and incessantly occupies his thoughts. 'When I am working on a new design, I am at work all the time. I think of various technological problems almost constantly. The solutions present themselves suddenly, e.g. in the middle of the night or during breakfast. I am lucky to do what I like and it is

Biography

Bartłomiej Talaga was born in 1987 in Łódź. In 2011 he received the scholarship of the Ministry of Culture and National Heritage. In 2012 he graduated from the National Film School in Łódź, completing the full-time Photography course, where he is currently a lecturer. He teaches the subject of 'Image Post-production'. The goal of the course is not only the workshop learning, but above all making the students sensitive to interdependence of single photographs and such their technical preparation, so they form a coherent wholeness.

He participated in many photographic exhibitions in Poland and abroad. He took part in international photography festivals in Denmark, Cologne, Łódź, and Bydgoszcz, amongst others. He is the author of the album entitled 'The Dimension of Silence'. His works have been placed in the collection of the Center of Propaganda in Łódź.



Privately he is interested in the theory of the relationship between art and the way it influences the recipient. His Master's thesis was on the subject of 'the reality equivalents', as recognised by the little-known in Poland photographer and artist, Minor White.



Celebrations of the unveiling of a commemorative plaque of Julian Tuwim, in the photo Agnieszka Nowak, Deputy Mayor of Łódź

hard for me to separate my day for being at work and outside of work. When I come back home and have so-called free time, I still happen to think about my job, the only difference being that I do not physically do it,' explains the creative entrepreneur.

Bartłomiej Talaga tries to function in a creative way, not imitative. He does not peek and does not copy other ideas. He creates his own, ground-breaking ones. He emphasises that the innovativeness must be original, because for him it means no more or less than shorter and more interesting path to achieve his goals.

'Frequently changing reality requires us to redefine the already known and established routines. All the time, however, we move in a finite set of modes of expression, which are occasionally increased with new technologies. The essence of innovativeness is probably joining these fresh technologies and trends in a new, better way with the existing solutions,' explains the entrepreneur. 'I try to use my creative skills to form new, more interesting – perhaps innovative – solutions for visual identification, advertising and image presentation,' adds Bartłomiej Talaga.

COMPETITION

As pointed out by the owner of Backlight, the competition: 'Young people in Łódź – I have an idea for business' helped him a lot. He had been searching for some time for an idea to institutionalise his activities, be-

Competition

The 6th edition of the Competition of the Mayor of the Łódź City has begun for the best business plan 'Young people in Łódź – I have an idea for business'. The aim of the Competition is to promote the entrepreneurial culture amongst the young people, who we wish to encourage to bind their future with Łódź. Our Competition is an excellent springboard to achieve their business dreams.

We encourage young people at the age of 18–35 to participate in the Competition. We invite anyone in that age group who has an idea for business and wishes to pursue it in Łódź, including students and beginner companies from Łódź (operating for no longer than 12 months).

The Competition is considered in two categories:

I General:

- Natural persons with their own business (max. 1 year) in Łódź
- Persons who declare they will start their own business in Łódź as a result of the participation in the Competition.

II Students:

- Students of the Łódź universities.

Deadline for entries submission is 14th April 2014.



cause he received individual orders before he opened the company. He submitted his business plan, won the competition, and started the enterprise. For almost two years he has been an entrepreneur, who has his own business, implementing his own ideas. He is his own boss and praises this style of work.

Asked how he defines his idea for business, he replies: 'It is developing all activities, in which I thrive. As a human being, entrepreneur, creator... Searching for opportunities so the actions are consistent with me, and for someone willing to pay for them as much as they are worth. Lack of attachment to money. Investing the profits in the next modules, expanding the business and improving the quality of services. The constant search for better answers.'

Bartłomiej Talaga emphasises that the Backlight company was conceived out of passion, but mostly thanks to the competition 'Young people in Łódź'. The money to get the business going, the computer and the accounting support, to a large extent helped him in starting the enterprise.

COMPANY

Currently Backlight offers services within the field of design and production of the original objects for information and advertising purposes. Its objective is to offer innovative solutions for visual identification. From Bartłomiej Talaga's company you can order business cards or websites, but also large format, spatial light installations. All implementations aim for finding the most exciting technologies and aesthetic solutions.

Backlight uses the latest capabilities of the UV print on all flat surfaces, such as: glass, metal, wood, stone or Plexiglas. It's aiming to include the most precise detail, using the newest precision cutting machines, as well as bending, milling and engraving devices. The most significant things in all orders are originality, craftsmanship, and functionality.

Presently, the company's main products are lightboxes and plaques made of thick, precious glass, with the option of back-lighting. The company produced a series of such plaques for the University of Łódź. On them, there are eminent personalities associated with the university.

Photo: Paweł Ławreszuk, Bartłomiej Talaga

BY JAROSLAW ZARADKIEWICZ

Case Study:

Fabulous career

SHE BEGAN HER CAREER SEVEN YEARS AGO, PENNILESS. AGAINST THE BACKGROUND OF THE GARAGE DOOR, SHE PHOTOGRAPHED HER FRIENDS IN THE CLOTHES SHE THEN SOLD ON THE NETWORK. NOW SHE HAS A POWERFUL ONLINE SHOP, HUGE OFFICE BUILDING IN LOS ANGELES, AND HAS RECENTLY BOUGHT A NEW HOUSE AND THE FIRST PORSCHE IN HER LIFE.

Sophia Amoruso, Nasty Gal boss, built her empire on the basis of the simplest trading rule: 'to sell things for a higher price than I bought them.' Although the story of her career may sound like an ugly duckling story, but in reality she has gained her current position through hard work and consistency in action.

THE IDEA FOR THE START

Sophia Amoruso, born into the Greek-American family, has entrepreneurial blood flowing in her veins. Her grandparents ran the motel and the store with pianos. Her father sold mortgages and mother was a real estate broker. When her parents lost their jobs, she helped her father in the delivery of morning newspapers. In the 90's, she was selling

lemonade on her street in Sacramento. Up to the age of 22, she had already performed ten odd jobs as a shop assistant, selling among others footwear and sandwiches.

She felt equally well working behind the counter and behind the camera viewfinder. She easily got into a higher art school, but was quickly bored there. She had a feeling that she was wasting her youth. She, therefore, quit the school and engaged in the sale of used clothing, which others considered useless.

Luckily, those times were the beginnings of vintage style, fashionable today. The young people were taking the clothes of their parents and grandparents from the wardrobes to infuse in them a second youth. Sophia discovered ads with clothes offers on clearance sales and online. After their pur-



chase, she along with her friends did photo shoots of vintage clothes and put them on eBay. She attached great importance to an attractive presentation of the clothes. Sophia took first pictures against the background of her aunt's garage door. She clothed her friends – models, and she did not have the budget for their salary. It sometimes happened that, as part of their remuneration, she invited her models to... eat burgers.

HYPERDEVELOPMENT

Amoruso has relied only on the Internet. To this day there is no permanent shop. She has also relied on interaction with customers. The company does not spend money on marketing but takes care of the constant contact with fans on social networking sites. When this text is written, Nasty Gal has over one million likes on Facebook, more than one million tracers on Instagram. It is also present on Twitter and Pinterest. However, before the material goes to the recipients, the above data may change dramatically, because there were about 200 thousand fewer likes on Facebook after half a year.

Out of the sale of useless clothes for other people, Sophia Amoruso has built a huge business. Nasty Gal has become a way of life and fashion for many young sexy girls aged 18 to 24. At the time of the biggest company's development, the company owner almost lived in her car

and delivered the products to her customers. It is hard to find in this shop any clearance sale, because as many as 93% of the goods are sold at regular prices. Despite this, customers are crazy about this sale. Perhaps it is because social media accounts are updated five times a day. One of the ways to attract customers is a daily morning dressing. Such practices draw attention. Every fourth of 250 thousand customers watch Nasty Gal webpages at least once a day, devoting a minimum of seven minutes to it. 10% of the customers visiting the website of the shop come back to it at least a hundred times a month. There are also those that refresh the website every twenty minutes.

ATTENTION TO DETAIL

It is widely believed that Nasty Gal is the fastest growing brand. The shop selling secondhand clothes began to introduce its own collections in vintage style. The company has more than half a million customers worldwide and annual profits exceeding 100 million dollars. The goodwill is estimated at over 240 million.

Behind this success is hard work and attention to the smallest details. When Sophia was selling more sandwiches, her father instilled into her the habit of not standing behind the counter and always doing something. – Sweep

Justyna Skorupska

e-commerce expert, Chairman and CEO of Ebusiness Consulting, a member of the Council of the Chamber of Electronic Economy



Internet is the most dynamically developing sector of the economy and therefore the most promising for the young entrepreneurs. A good idea is just as important as finding a niche market. But then the idea must be implemented in a sensible way, with a calculator in hand. The first few (sometimes several) months are challenging, before the business starts to pay for itself. The continuous development on such a highly competitive market 'without borders' is necessary, just to keep up on it.

Competing in the fashion industry on the Internet cannot be based only on the pricing war and cutting the profit margin. There will always be someone who will sell the product cheaper. This is why it is crucial to find a good differentiator for your offer – encourage with a great customer service, and a possibility to try on the product trouble-free, e.g. thanks to extending the period of withdrawal and the chance to return the goods with no charge. At first glance, this may seem pointless – the seller does not make money, but loses it, due to ship-

ment. But in the long run, the store gains the clients' trust, which means more orders and higher profits.

Fashion is constantly changing trends, therefore the assortments constantly transform. In e-shop selling clothes it is essential to continuously monitor clients' behaviour, check which products they are searching for, what they are buying. Here it is much harder to sell the collection from two or three seasons back. The sellers who were not lucky with the order, will be fortunate to sell the goods at their own cost.

Each entrepreneur knows that there is no success without hard work. There are no exceptions from this rule. It seems that on the Internet it is easy and fun to make a career 'from rags to riches'. But it is a myth, although one that emerged with the stories of spectacular successes. Behind the millions in profits, there is always hard work.

The best business is created when we work with passion, because then hard work becomes easier.

the floor, even when no one asks you to do it – he advised her. To this day, she follows his advice. She takes an active part in the operation of the company, which currently employs 280 full-time employees. For example, if only one dress was sold in a week's time and if, in the opinion of the owner, the dress should sell well, she ordered to redo a clothing session. Owing to the alterations and support of the popular model, sales increased four hundred times.

Amoruso attaches great importance to relations with customers. When in times of Myspace, an unfavorable comment appeared under one of the photos: 'This model looks angry', she parted with her and again made a photo session. The philosophy of effective communication with the company customers is to be without taboos. When many years later, someone complained that another model had artificially enlarged lips, the director of the creative company replied: 'No, I touched them – they are real'.

THIS IS NOT THE EPILOGUE

The young stylist moved from the aunt's garage to Los Angeles, where she currently owns her business. Here, the new seat of Nasty Gal is established. It will have an area of 6 thousand square metres. In Kentucky, the company also has a distribution center with an area of about 500 thousand square metres.

Sophia Amoruso has proved that a pretty good deal can be made out of passion as simple as fashion. The online business is constantly developing. In the search for new sources of funding, Amoruso has enlisted the support of investment funds from Silicon Valley. She has the same investor, among others, with Facebook.

In 2013, Sophia Amoruso was chosen by 'Business Insider' magazine as the sexiest president of the world, leaving behind a lot of men.



Statue of textile workers on Piotrowska Street

BY ANNA KRAWCZYK

Learnt optimism

Bad habits can be changed for good in six months – I heard some time ago in one of the radio stations. Was it a coincidence that I was reminded of this at the time of asking questions of the presenter at the conference, while he was talking about learnt optimism? I shall mention right away, repeating after the speaker that learnt optimism leads to psychosis, and by no means such psychosis as the one from the probably most famous Hitchcock movie. Optimism is a particular way of perceiving the world and has little in common with the vision of the ‘rose-coloured glasses’. Wearing those means one does not notice problems, while the optimist is a person, who sees the solution even in the hardest moments. Instead of asking: ‘why has it happened to me again?’, an optimist asks: ‘how can I solve the situation and what have I learnt?’

It is hard to search for an answer even for the simplest question, when we are torn by emotions. The feeling that appears the fastest is fear. As a primary emotion, fear accompanied our ancestors thousands of years ago, often saving their lives. Today we do not have to hide in caves and search for a shelter from wild animals. Fear, however, remains, although many would like it to disappear. Displacement of fear will do nothing, because as with every emotion, it will come back as boomerang, hitting twice as hard. It is better to become

OPTIMISM IS A PARTICULAR WAY OF PERCEIVING THE WORLD AND HAS LITTLE IN COMMON WITH THE VISION OF THE ‘ROSE-COLOURED GLASSES’. WEARING THOSE MEANS ONE DOES NOT NOTICE PROBLEMS, WHILE THE OPTIMIST IS A PERSON, WHO SEES THE SOLUTION EVEN IN THE HARDEST MOMENTS.

aware of it and take action. As my mother’s friend used to say: ‘only peace can save us’. That peace is a challenge of our times, obviously on the way to optimism. How to reach it? There are many ways. For some it will be meditation, for other a walk, sports, favourite song, film, conversation with friends. In the course of evolution we worked out many ways of dealing with stress. We don’t always realise it, however. Why do I talk about this? Because I would like to encourage you to be optimistic, and – by implication – to have a happy life. This life, just as in the book of Beata Pawlikowska, entitled ‘The course of happiness’, awaits just behind the dark

forest. In the life of each of us there is a sunny and safe clearing. And we can change our life very easily... through action. The magazine which you are holding in your hands is an example of this. It is a sign that the dreams come true, that

something beautiful and useful can be created. My contribution was ‘only’ to believe in myself and in adequacy of the project to my abilities. Besides, I love working with creative people. Each person we talk to while crafting this magazine, has in themselves just a pinch of optimism and passion. These persons believed that their life depends on themselves and made changes – a little big achievement. From their innovative solutions we all will benefit. And how can you not be an optimist?

Photo: Paweł Ławreszuk



BY JAROSŁAW ZARADKIEWICZ

Warm, warmer, Uniejów!

THE TRAVEL FROM THE CENTER OF ŁÓDŹ TO UNIEJÓW TAKES ONE HOUR. THIS CHARMING TOWN RECEIVED THE STATUS OF A SPA IN 2011. IT IS THE FIRST THERMAL SPA IN THE COUNTRY AND THE ONLY ONE IN ŁÓDŹ VOIVODESHIP. ON COLD DAYS, ONE CAN BASK HERE, AND ON HOT DAYS... COOL.

The pride of the town is the Baths of Uniejów – a unique building, built with the support of EU funds. The place is attractive and well-known throughout the country. Despite this, the town authorities to which the baths belong to plan their further development, also with the support of the European Union.

HEALTHY WATER

The Uniejów thermal waters come from a depth of two thousand meters. These are low-mineralized chloride and sodium waters. They contain sulfur, radon, fluorine, copper and iron chlorides, acid compounds and iodine silicon. The content of this element in the Uniejów waters has the same properties as the water in the Baltic Sea.

The temperature of Uniejów sources is fixed and equals to 68°C. The mineral composition of the local water is beneficial for the human body. The water has soothing, relaxing and relaxing properties. Thanks

to its characteristics, the water may be used in the treatment of orthopedic and trauma disorders, rheumatic, cardiovascular and nervous systems, as well as ENT diseases. The relaxing properties of the water allow it to be used in aesthetic cosmetics and to improve vitality, as well as one's general physical condition.

The water from Uniejów intake is also used in the food industry. The town authorities ensure that it can be used, for example, for pickling low-salt cucumbers or baking bread.

MODERN COMPLEX

In Uniejów, the largest complex of thermal pools has been established. Their area is a total of one and a half thousand square meters of water, and further expansion is planned.

The complex includes recreational and therapeutic outdoor and indoor pools as well as a biological regeneration centre. The outdoor pools are connected to the building including indoor swimming pools and are sup-

HISTORY OF UNIEJÓW THERMAL WATERS

In 1978, the company searching for oil and gas encountered hot water sources in Uniejów. The Polish Geological Institute made a hydrogeological hole. In 1990–1991, two additional geothermal wells were built.

In 1999, 'Uniejow Geothermy' was established. This company supplies hot water for heating residential and commercial buildings. The baths in Uniejów, considered as a recreational complex, were built in 2008.



plied with thermal healing brine. This solution enables the functioning of the pools throughout the year regardless of the weather. In the complex, there are two indoor pools: brine spa with hot water and an independent indoor pool available for all visitors and children. The temperature in the pools varies and depends on the season. During the summer, the water is colder (25–27°C) and warmer in the winter – the temperature reaches up to 36°C.

In the main complex, there are also saunas, graduation tower, snow chamber with a temperature of -10°C, water bar, bowling alley and even a ballroom. Near the pools, there is also drinking water intake.

Within the area of Uniejów baths, there is also Wellness&SPA zone. Here, the visitors can use the solarium or sun bathing, as well as aromatic and king baths, where rose baths in beer or chocolate can be taken.

A VARIETY OF ATTRACTIONS

They are offered by Royal Baths in Knight's Castle – 'On the hot springs'. Here, the visitors can also play the role of a medieval warrior, admire fighting knights and watch the performances of fire theatre.

Nearby, the Mill Farm can be found with five historic buildings transferred from the land of Łódź. There is a manor house, two windmills, livestock building and cottage. Within the complex, a faithful copy of the barn was built. In the pen, the visitors can view and even participate in the production of wheat flour as well as in craft workshops: blacksmithing, wickerworking, pottery and flower arranging.

The greatest attention should be paid to the towering castle. It was built in the years 1360–1365, and at the turn of the fourteenth and fifteenth centuries, it was the main residence of the Archbishops of Gniezno. In the eastern part, there is a massive Gothic tower, from which the visitors can admire the town skyline. The lower part of the tower was used as a prison. The Uniejów castle is considered to be one of the most interesting and most valuable historical monuments in terms of history, architecture and panoramic sights of the land of Łódź.

In the castle and the knight's castle as well as the pen, one can find accommodation at affordable prices.

Photo: Termy Uniejów

LEGO EXHIBITION IN PORT ŁÓDŹ

28 FEBRUARY–18 APRIL 2014

C.H. PORT ŁÓDŹ, UL. PABIANICKA 245

WWW.PORTLODZ.PL

DAWID PODSIADŁO'S CONCERT

2 MARCH, 7:00 PM

WYTWÓRNIĄ CLUB, ŁÓDŹ, UL. ŁĄKOWA 29

WWW.WYTWORNIĄ.PL

'KOLOR NON STOP' CHAMBER MUSIC CONCERT: VENETIAN CARNIVAL – DANCING CRAZINESS

4, 11 MARCH, 7:00 PM

THE ARTHUR RUBINSTEIN ŁÓDŹ PHILHARMONIC HALL,

UL. GABRIELA NARUTOWICZA 20/22

WWW.FILHARMONIA.LODZ.PL

17TH ŁÓDŹ EDUCATIONAL FAIR

13–14 MARCH

EXPO-ŁÓDŹ SP. Z O.O., AL. POLITECHNIKI 4

WWW.EXPO-LODZ.PL

20TH INTERNATIONAL FESTIVAL OF PLAYS PLEASANT AND UNPLEASANT

15 MARCH–4 APRIL

TEATR POWSZECHNY IN ŁÓDŹ, UL. LEGIONÓW 21

WWW.POWSZECHNY.PL

RENATA PRZEMYK'S CONCERT – 25TH ANNIVERSARY

23 MARCH, 8:00 PM

THE ARTHUR RUBINSTEIN ŁÓDŹ PHILHARMONIC HALL,

UL. GABRIELA NARUTOWICZA 20/22

WWW.FILHARMONIA.LODZ.PL

WITOLD JANIĄK TRIO CONCERT

23 MARCH, 6:00 PM

MUSEUM OF THE CITY OF ŁÓDŹ, UL. OGRODOWA 15

WWW.MUZEUM-LODZ.PL

17TH FAIR OF PHOTOGRAPHIC, FILM, AUDIO AND VIDEO EQUIPMENT FILM VIDEO FOTO

27–29 MARCH

EXPO-ŁÓDŹ SP. Z O.O., AL. POLITECHNIKI 4

WWW.EXPO-LODZ.PL

ACADEMIC JOB FAIR

2 APRIL

EXPO-ŁÓDŹ SP. Z O.O., AL. POLITECHNIKI 4

WWW.EXPO-LODZ.PL

VETERINARY MEDICINE FAIR VETMEDICA AND THE 4TH VETERINARY PRACTICE CONGRESS VETFORUM, ŁÓDŹ 2014

5–6 APRIL

EXPO-ŁÓDŹ SP. Z O.O., AL. POLITECHNIKI 4

WWW.EXPO-LODZ.PL

4TH ŁÓDŹ MARATHON 'DBAM O ZDROWIE'

11 APRIL

ATLAS ARENA IN ŁÓDŹ,

AL. KS. BISKUPA WŁADYSŁAWA BANDURSKIEGO 7

WWW.ATLASARENA.PL

32ND THEATRE SCHOOLS FESTIVAL IN ŁÓDŹ

6–12 MAY

THE LEON SCHILLER NATIONAL HIGHER SCHOOL OF FILM,

TELEVISION AND THEATRE IN ŁÓDŹ

WWW.FILMSCHOOL.LODZ.PL

FASHIONPHILOSOPHY FASHION WEEK POLAND

6–10 MAY

EXPO-ŁÓDŹ SP. Z O.O., AL. POLITECHNIKI 4

WWW.EXPO-LODZ.PL, WWW.FASHIONWEEK.PL

ANDRÉ RIEU'S CONCERT

9 MAY, 8:00 PM

ATLAS ARENA IN ŁÓDŹ,

AL. KSIĘDZA BISKUPA WŁADYSŁAWA BANDURSKIEGO 7

WWW.ATLASARENA.PL

PETER GABRIEL'S CONCERT

12 MAY

ATLAS ARENA IN ŁÓDŹ,

AL. KSIĘDZA BISKUPA WŁADYSŁAWA BANDURSKIEGO 7

WWW.ATLASARENA.PL

2ND TRADE FAIR OF LOGISTICS UNIFORMED SERVICES

13–14 MAY

EXPO-ŁÓDŹ SP. Z O.O., AL. POLITECHNIKI 4

WWW.EXPO-LODZ.PL

FAMILY FAIR, FAIR – HOUSE FLAT INTERIOR

17–18 MAY

EXPO-ŁÓDŹ SP. Z O.O., AL. POLITECHNIKI 4

WWW.EXPO-LODZ.PL