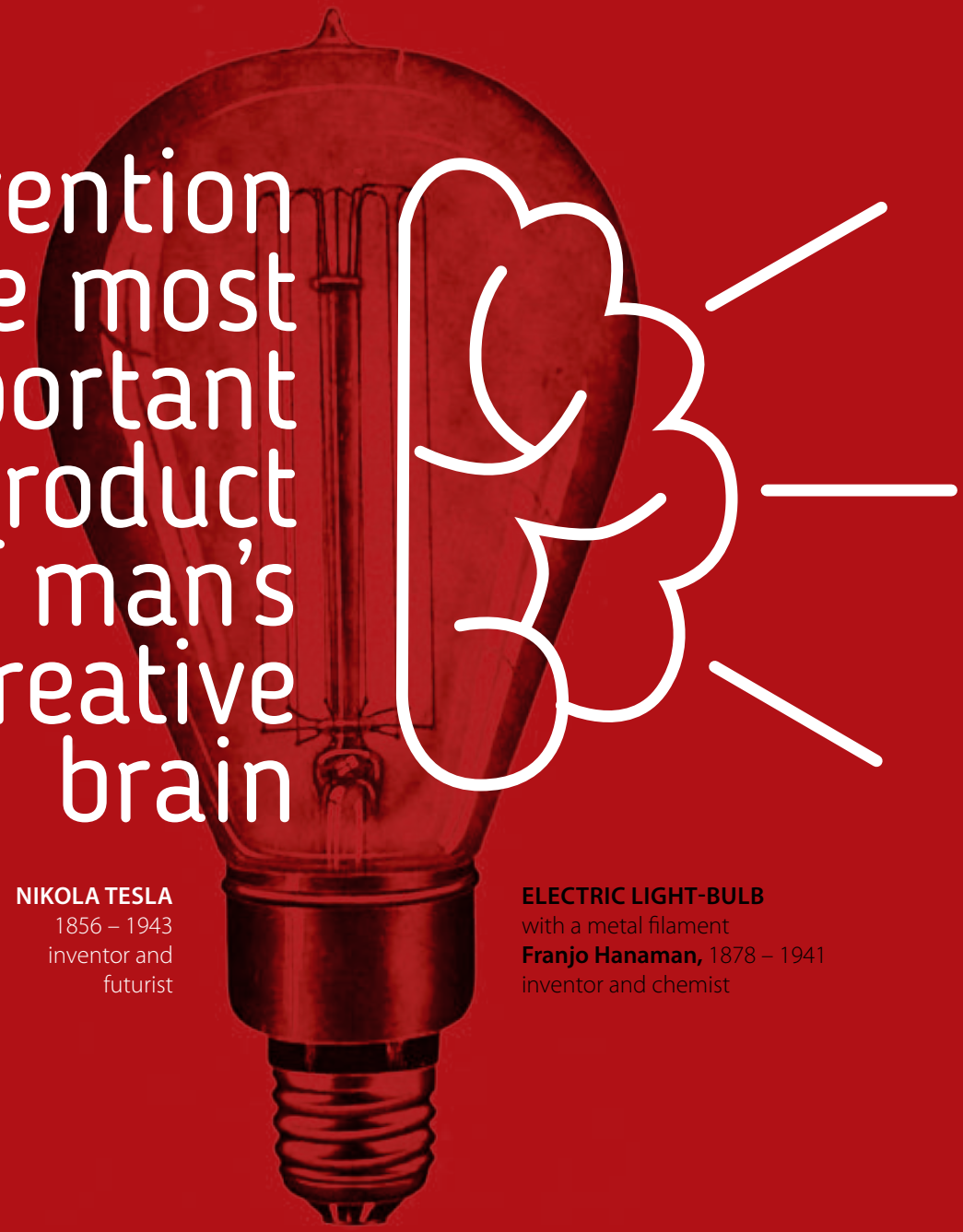
Croatia

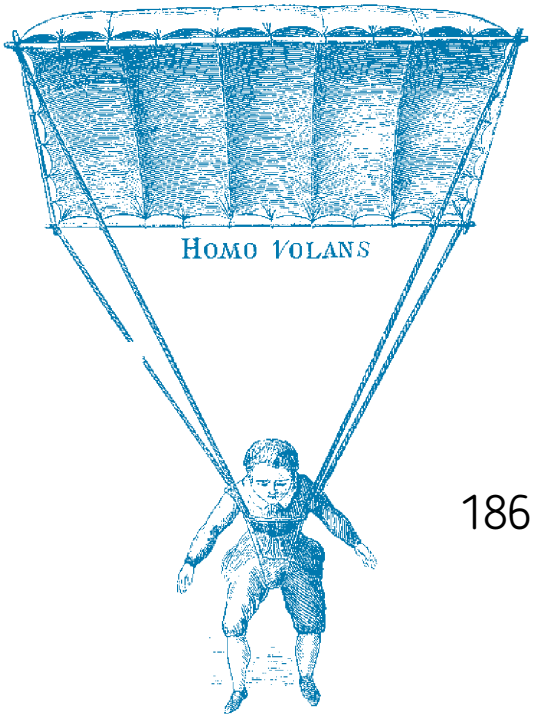
TRADITIONALLY INNOVATIVE

Invention is the most important product of man's creative brain



NIKOLA TESLA
1856 – 1943
inventor and
futurist

ELECTRIC LIGHT-BULB
with a metal filament
Franjo Hanaman, 1878 – 1941
inventor and chemist



1617 **Parachute** – Leonardo da Vinci may have made a sketch of it, but it was the Croatian inventor, Faust Vrančić, who assembled it and performed the very first jump. He jumped with his parachute from a tower in Venice, in 1617. He called it Homo Volans and published it in his book of inventions Machinae Novae, together with the sketches of other advanced machines.

1650 **Cravat** – a neckband, the forerunner of the modern tailored necktie and bow tie, originating from the 17th-century military unit known as the Croats in the Thirty Years' War. Around 1650, during the reign of Louis XIV, it was accepted as a fashion innovation a la croate, an expression that soon entered the root of the French word "cravat".

1860 **Torpedo** – Ivan Vukić (Giovanni Lupis) envisioned a floating device for destroying ships, which would be unmanned and controlled from land, with explosive charges detonating at the moment of impact *(Salvacoste – Coastsaver)*.

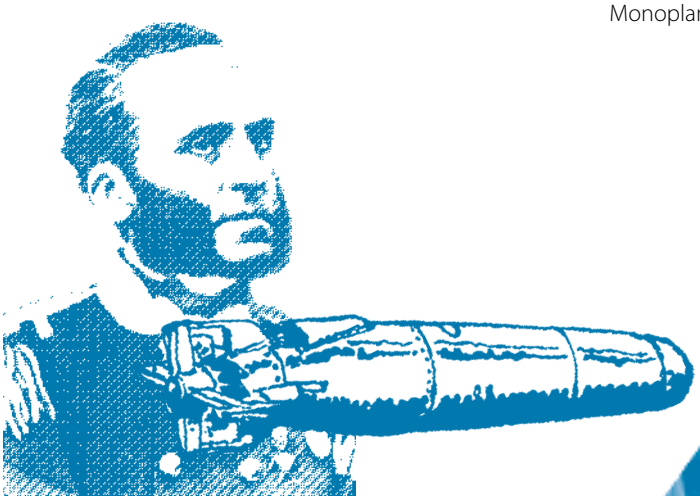
1885 **Alternating current** – the first patent for alternating current system was issued to Nikola Tesla, and he presented it to the scientific community in 1888.

1888 **Speedometer** – invented by Josip Belušić and presented at the World Fair in Paris, in 1889 (known as velocimeter).

1892 **Dactyloscopy** – invented by Ivan Vučetić, a Croatian-born Argentinean anthropologist and police official who pioneered the use of fingerprinting.

1903 **Electric light-bulb with a metal filament**– invented by a Croatian engineer and chemist, Franjo Hanaman, but the patent was bought by the company General Electric Co.

1906 **Mechanical pencil and solid-ink fountain pen (1907)** – invented by an engineer and inventor, Slavoljub Penkala. He also invented the hot water bottle, mechanical toothbrush, anode battery and in 1910, the first Croatian aircraft to fly in the country (Penkala Monoplane).



1910 **Maritime compass** – patented by a Croatian inventor, Marcel Kiepach. This compass points north regardless of the presence of iron or magnetic forces.

1912 **Dynamo** – patented by Marcel Kiepach in France, for vehicle lighting.

1953 **Puretic power block** – invented by Mario Puratić, it is a special kind of mechanised winch used to haul nets on fishing vessels.

1959 **Vegeta** – a condiment, sold worldwide. It is a combination of salt, flavour enhancers, spices and various vegetables. It was invented by a Croatian scientist, Zlata Bartl.

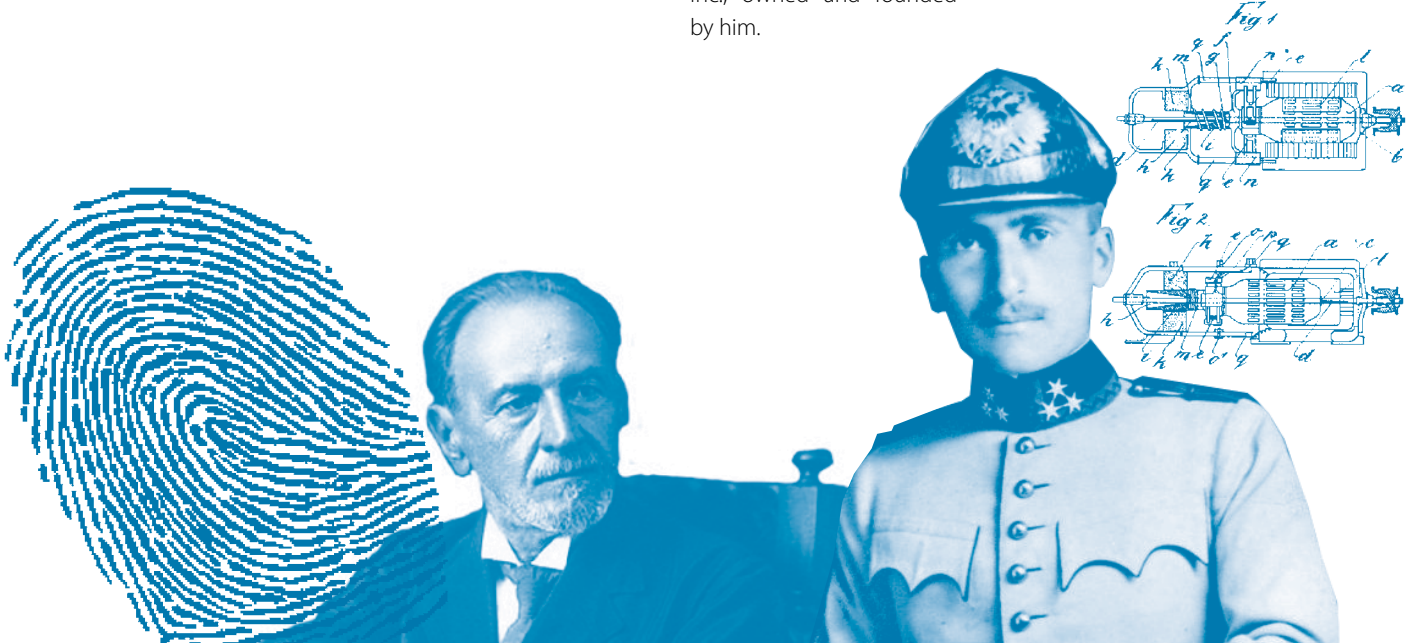
1964 **Apaurin** ("a paure" can be translated as against fear) – today, this drug is known all over the world and it was registered by Franjo Kajfež – a doctor of chemical sciences and the author of 88 patents and 150 scientific papers. He was a member of the New York Academy of Sciences and it is considered as the first among other things, the founder of the vitamin C production technology.

1975 **SOS response** – discovered and named by the Croatian biologist Miroslav Radman. SOS response is a global response to DNA damage, resulting in the cell cycle arrest, DNA repair and mutagenesis.

1979 **Maglite** – invented by Ante Maglica, it is a flashlight brand manufactured in the USA by Mag Instrument Inc., owned and founded by him.

1981 **Azithromycin (Sumamed)** – discovered and patented by a team of researchers at the Croatian pharmaceutical company PLIVA. It was a new kind of antibiotic, completely different from any antibiotics applied until then.

1997 **"AMP" MP3 decoding engine** – invented by a Croatian programmer, Tomislav Uzelac and it is considered the first successful MP3 player. Soon after its launch, two American students, Justin Frankel and Dmitry Boldyrev, took the AMP, added Windows interface and called it "Winamp".



Contents

KEY FACTS ABOUT CROATIA

Official name:	Republic of Croatia
Area:	55,594 km2
Population:	4,190,700
Capital:	Zagreb
Language:	Croatian is the official language and it became the 24th official language of the European Union upon Croatia's accession in 2013.
GDP per capita (PPP):	20,429.99 US dollars in 2015
National currency:	National currency is the Croatian Kuna (HRK). HRK 7.5 ~ EUR 1
Corporate tax:	20%
Employment rate:	57.40%
Time zone:	CET (UTC+1) CEST (UTC+2)

Innovation is the Driving Force

Throughout the history, Croatia has invented a number of innovations that have achieved great market success for the benefit of other world economies. Now is the time for Croatia to finally use this innovative and creative potential for its own economic development.

WHAT IS INNOVATION?

The term "innovation" is used to describe a variety of phenomena, from scientific discoveries to simply "thinking outside the box", which are accomplished by applying creative solutions. Innovation entails implementation of a new or significantly improved product, service, process, marketing or organizational method within an existing business process, work organization or other type of contractual relationship. OECD (Oslo Manual, third edition) identifies four types of innovation in companies: product innovation, process innovation (technological innovation), marketing innovation and organizational innovation (non-technological innovation). It should be noted that innovations can have different degrees of novelty. An innovation may not be new to the world, but it can be new on the market, in a certain sector or just new to the company/institution.

CREATIVITY vs. INNOVATION

Over the last decades, innovation and creativity have become critical skills for achieving success in developed economies. The need for creative problem-solving has arisen as more and more management problems require creative insights in order to find suitable solutions.

Even though every creative idea does not become an innovation, there is no innovation without creativity. Without the right steps to implement innovation, creativity itself is not enough for a new idea to be successful.

Creativity can be a tool for making a change, but creativity alone is not enough if there are no ambitious and proactive individuals to give the final touch to the idea, i.e. to come up with its applicability and relevance in everyday life.

Four tips to support creative environment in a company:

1. Create an environment where mistakes are tolerated and free of punitive measures
2. Provide regular feedback and keep the lines of communication open
3. Hold ideation sessions with diverse and highly charged creative people in your organization
4. Delegate responsibility and encourage ownership

RESEARCH AND DEVELOPMENT

Research and development comprise systematic creative work directed towards increasing knowledge of nature, man, culture and society and towards practically applying such knowledge. It covers basic research, applied research and experimental development (according to the Frascati Manual), where the latter may include the realization of technological demonstrators, i.e., devices that demonstrate the performance of a new concept or a new technology in a relevant or representative environment.

ECONOMY AND POLITICS

The European Union launched the Research and Innovation Strategies for Smart Specialization, a new approach to economic development, anchored on targeted support for research and innovation. Member States focus on creating a new economic growth model that will increase the EU's overall competitiveness and reduce the heterogeneity among its 28 economies.

Croatia's Smart Specialization Strategy (S3) presents a comprehensive assessment of the country's governance structure, innovation facilitating instruments and key innovation assets – research and human capital.

The main purpose of Smart Specialization is to increase Croatia's competitiveness by concentrating knowledge resources and linking them to a limited number of priorities, which are defined based on strengths and R&D and innovation development with export potential.

S3 provides sectoral analysis of five priority sectors of the economy and their innovation potential.

Thematic Priority Areas

HEALTH AND QUALITY OF LIFE

ENERGY AND SUSTAINABLE ENVIRONMENT

TRANSPORT AND MOBILITY

SECURITY

FOOD AND BIO-ECONOMY

Cross-cutting themes: KETs & ICT

Success Stories in Croatia

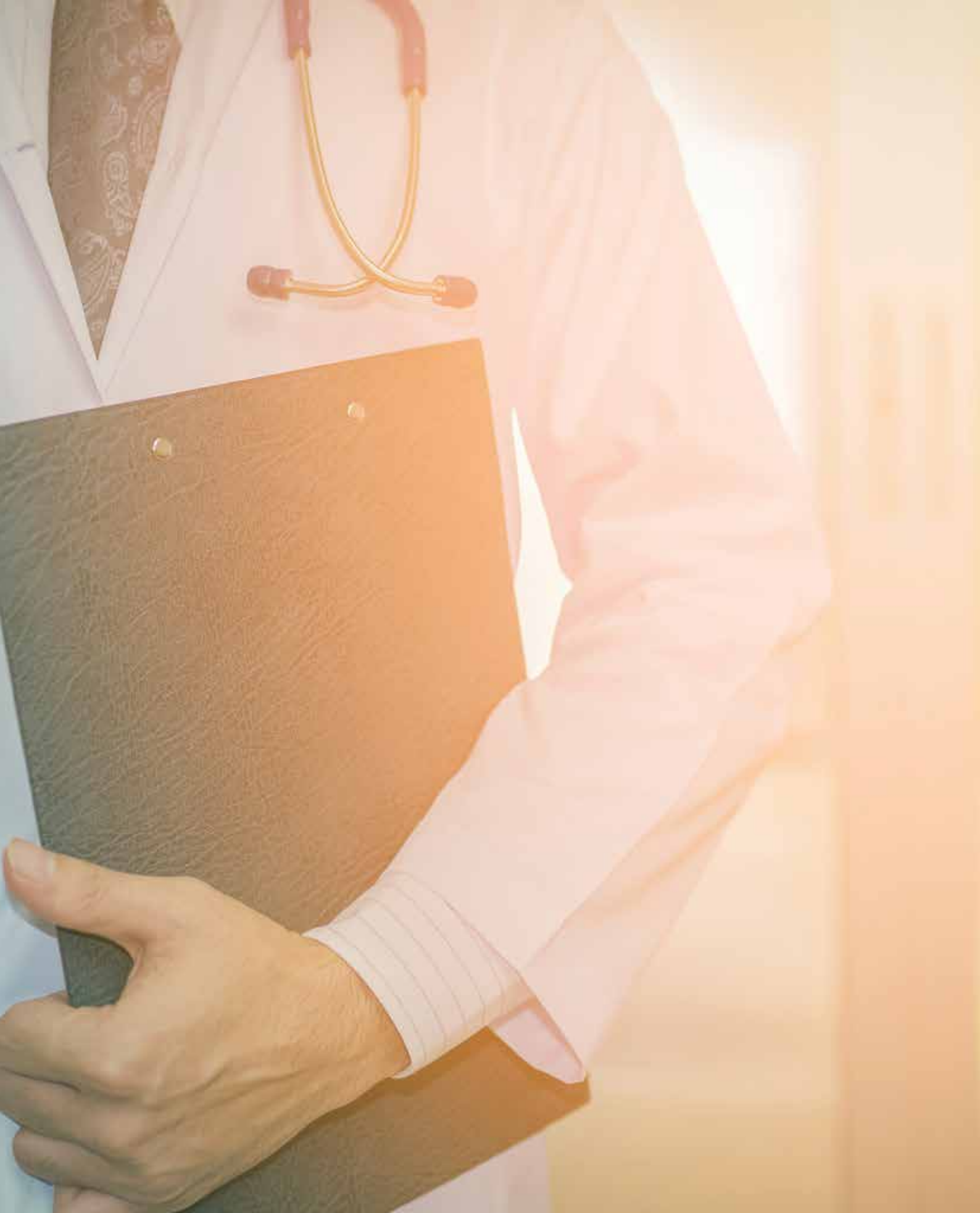
HEALTH AND QUALITY OF LIFE

ENERGY AND SUSTAINABLE ENVIRONMENT

TRANSPORT AND MOBILITY

SECURITY

FOOD AND BIO-ECONOMY



Health and Quality of Life

RONNA

MARINALAB OPUS

GLYCANAGE®

SENSE

The European Commission recognized healthcare sector as one of the hotspots for development of technologies that are essential for Croatia's economic growth. Furthermore, this thematic priority area contributes to the establishment of a network that connects companies and public research laboratories as an excellent base for further investment in the TPA.

"Innovations in Croatia are best applied through programs that encourage cooperation between scientific institutions and the private sector."

B. Jerbić, PhD

RONNA – Robotic Neuronavigation

Project RONNA – robotic neuronavigation was initiated by a group of enthusiasts within the Department of Robotics and Production System Automation at the Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb. Bojan Jerbić, Gojko Nikolić and Darko Chudy discussed the applicability of robotics in neurosurgery. That resulted in the decision to start the project RONNA - robotic neuronavigation. This innovative and commercially competitive robotic system for applications in neurosurgery has been developed as a project based in Zagreb, Croatia. In its first stage of development, the RONNA project was funded by the HAMAG-BICRO within the TEST program. In addition, the EU funded the project "RONNA – Robotic Neuronavigation" from the Regional Development Fund, contributing through the "Regional Competitiveness" Operational Programme for the 2007-2013 programming period.

The new system is composed of a master robot, for pre-planned navigation, and an assistant robot, for handling complex medical instruments, enabling it to perform specific and complex actions that require incredible precision and accuracy.

Benefits of using the RONNA system in neurosurgery:

- Better and faster performance of surgical procedures
- Less invasive procedures
- Faster recovery of the patient (shorter hospital stay, reduced costs)
- Better utilization of operational resources of the hospital
- Mastering new skills within a clinical team
- Introduction of new technologies in medical practice

FACULTY NAME
Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb

NAME OF INNOVATION
RONNA – robotic neuronavigation

INNOVATOR
Prof. Bojan Jerbić, PhD
Prof. Gojko Nikolić, PhD
Assist. Prof. Darko Chudy, PhD

STAGE OF DEVELOPMENT
Active clinical testing of the commercial version of the robot system for neurosurgical application. Preparation phase for the CE and FDA approval.

IPR STATUS
Industrial design of the RONNA system was protected. The design of an innovative medical robotic platform for which a Hague registration was made within WIPO.

PARTNERS
Clinical Hospital Dubrava

ronna-eu.fsb.hr

Within the spin-off, it is planned to establish a continuation of the R&D activities which will help boost the RONNA system to the global market after experimental testing. The spin-off is planned as a strong collaboration with the University and the industrial partner from the RONNA project to ensure the stability of activities. Further research and new applications are also planned to be carried out within the Clinical trials, which will potentially attract new joint project proposals between the RONNA team and Clinical centres. These projects will have mutual benefits, both for the RONNA research and technical team and for the Clinicians providing them with state-of-the-art robotic neurosurgery methods, all for the sake of patients and their better clinical treatment.

Acidosalus

MarinaLab Opus Ltd is a family-owned company that produces medical products, cosmetics, special purpose cosmetics and food supplements. Their business is focused on the production of high quality, safe and effective products, in line with the legislation and international standards. Constant customer satisfaction is of the utmost importance to them.

The company's objective is to improve all aspects of business through implementation of quality assurance system, through constant improvement of knowledge, methodology and products and through ensuring open communication with their employers, customers and suppliers. The most famous company brand is Acidosalus – a line of products (18 of them) with probiotic bacteria, recognized at the international level. The products have won a number of awards and are clinically tested. We would like to present three of them in more detail.

COMPANY NAME
MarinaLab Opus Ltd

DIRECTOR AND INNOVATOR
Rosa Ferinčević

COMPANY'S MISSION
Production of innovative food supplements, medical products and cosmetics based on natural raw materials that are truly effective for maintaining health and beauty.

NAME OF INNOVATION
Acidosalus

IPR STATUS
ISO 9001:2008 and ISO 13485:2003

acidosalus.com/en/

"We want to improve all aspects of our business through implementation of quality assurance system, and through constant improvement of our knowledge, methodology and products with ensured open communication with our employers, customers, and suppliers."

R. Ferinčević

ACIDOSALUS®
nose and mouth spray
Alleviates symptoms of allergies, cold, and flu; protects the nose, mouth and throat mucosa from bacterial, viral, and fungal infections.

ACIDOSALUS® Plus
Fortified formulation of the basic Acidosalus for enhancing the immune system. Helps with treatment of bacterial, viral, and fungal infections.

ACIDOSALUS® Baby
Used for enhancing the immune system. New and unique probiotic product, Acidosalus® Baby was produced based on the concept that already proved its efficacy both in Croatia and abroad. Intended for use in children. Enhances the immune system, regenerates intestinal flora after an antibiotic treatment and helps with various gastrointestinal disorders and diarrhoea. Effectively helps as an adjuvant in the treatment of bacterial, fungal, and viral infections.

ACIDOSALUS® toothpaste 3-in-1
For intensive hygiene of teeth and oral cavity. Does not contain fluorides or artificial fragrances. Helps to wean from smoking. For maintenance of normal bacterial flora in oral cavity, thus providing protection against caries and other bacterial and fungal infections. Ensures healthy gingiva and prevents its bleeding.

GlycanAge® – the Most Reliable Marker of Biological Age

COMPANY NAME
GENOS LTD

FOUNDER AND INNOVATOR
Gordan Lauc

COMPANY'S MISSION
To enable scientists to include glycomics into their clinical trials and enable the development of supreme scientifically based products and services in order to reduce the risks of illnesses and improve quality of life.

NAME OF INNOVATION
GlycanAge® - the most reliable marker of biological age.

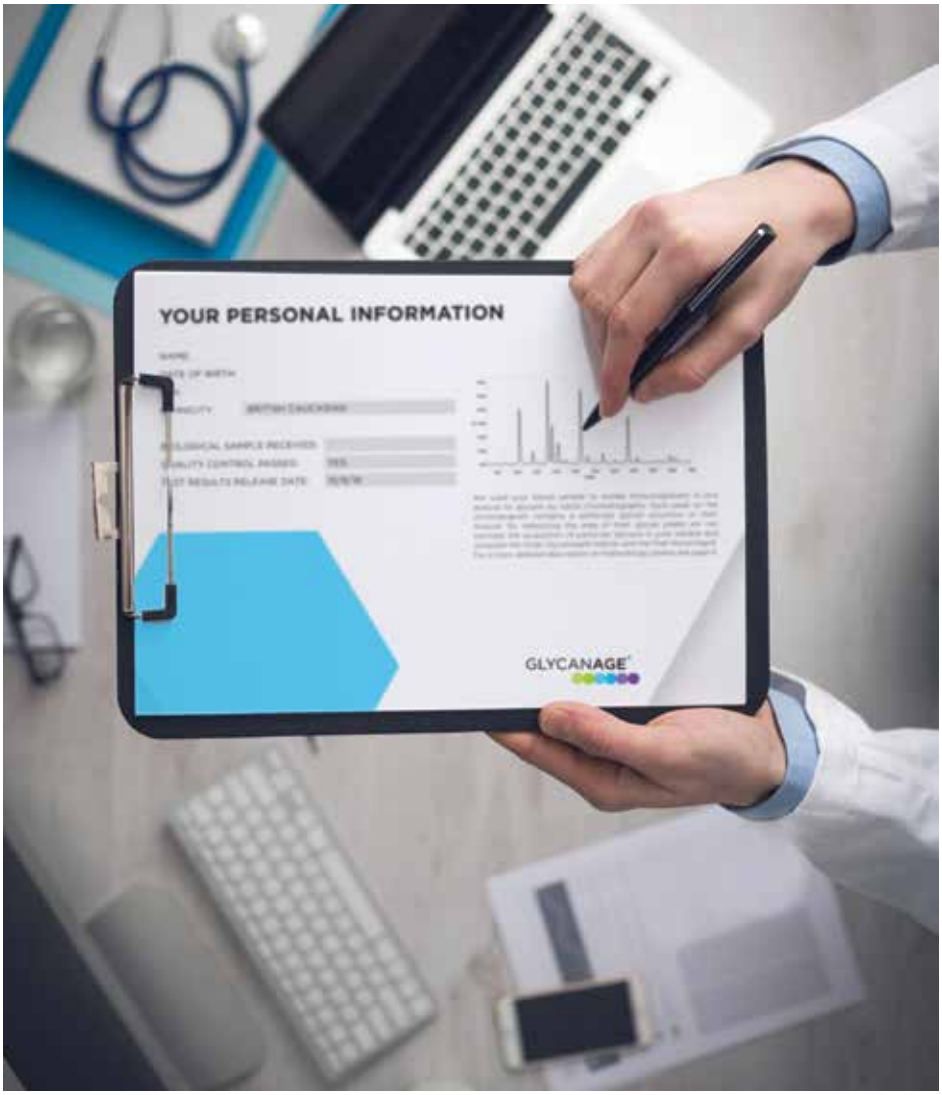
IPR STATUS
Under patent protection in Croatia as the GlycanAge® test. National patent applications in the EU and the USA are pending.

genos-glyco.com

Genos scientists have recognized the opportunity for translating these research results into an innovative product for the global healthcare market. Financial means obtained through the HAMAG-BICRO POC 5 program were used to co-finance the testing of validity of the GlycanAge Index on a large population (1,000 individuals) and to obtain proof of concept for a new - simpler, more efficient, more robust and more cost-effective - blood sampling method.

Genos is a research-intensive SME located in Croatia. It was established by Prof. Gordan Lauc as an academic startup in 2007, with two main areas of interest – genetics and glycobiology. Today, Genos DNA Laboratory is one of Croatia's leading scientific institutions in the field of DNA analysis. Genos Glycoscience Research Laboratory is the world's leading institution in the field of high-throughput glycan analysis. It is also the home of the Croatian Centre of Research excellence for Personalized Healthcare. Genos is currently a partner in six FP7 and three H2020 projects.

The extensive research performed in Genos within these and other collaborations included over 40.000 individuals worldwide. Its results revealed immunoglobulin G glycans to be an excellent biomarker for estimating biological age. Glycan age shows information on our hidden biochemical age and is therefore a far better indicator of overall health and ageing process than chronological age. This discovery is under international patent and trademark protection as the GlycanAge® Index.



The project was successfully completed in 2014, and it was the basis for development of the commercial product GlycanAge®. GlycanAge® test is the most reliable biological age marker on the market, providing more predictive information than any other single biological age marker (such as telomere length or gene methylation). GlycanAge® test will be launched in the UK in the spring of 2017, and become available worldwide soon after (www.glycanage.com).

"Research projects we are working on are challenging, innovative and recognized at a global level. Pushing the boundaries of scientific knowledge is the thought that keeps us motivated."

G. Lauc

In 2007, Prof. Gordan Lauc established Genos as an institution where young people can develop professionally. In 2013, Genos was ranked as the world's "Best Place to Work" for researchers in industry by the Scientist magazine. Today, this small Croatian scientific institution is one of the best in the world in their area of expertise. Their research projects are innovative and globally recognized as they move forward and push the boundaries of scientific knowledge.

Sense – Smart Temperature Measurement

Researchers at the Faculty of Electrical Engineering, Computer Science and Information Technologies designed an innovative product for measuring body temperature, connected with a smart bracelet for reading of the collected data. The main researchers and authors behind the idea are Tomislav Matić, PhD, Marijan Herceg, PhD and Joseph Job, PhD. According to Mr. Matić, it is an attractive product for the market, with wide applications and a large number of potential consumers. The product allows continuous remote monitoring of body temperature, with the possibility of setting an alarm in case of deviations from the preferred level.

At the global level, the product has received confirmation of innovation and entered the final stage of obtaining the US patent and EU patent in 4 selected countries. The protection procedure is also carried out in Korea and China.

FACULTY NAME
Faculty of Electrical Engineering, Computer Science and Information Technologies

NAME OF INNOVATION
Sense - innovative product for measuring body temperature, connected with a smart bracelet

INNOVATORS
Tomislav Matić, PhD,
Marijan Herceg, PhD,
Josip Job, PhD

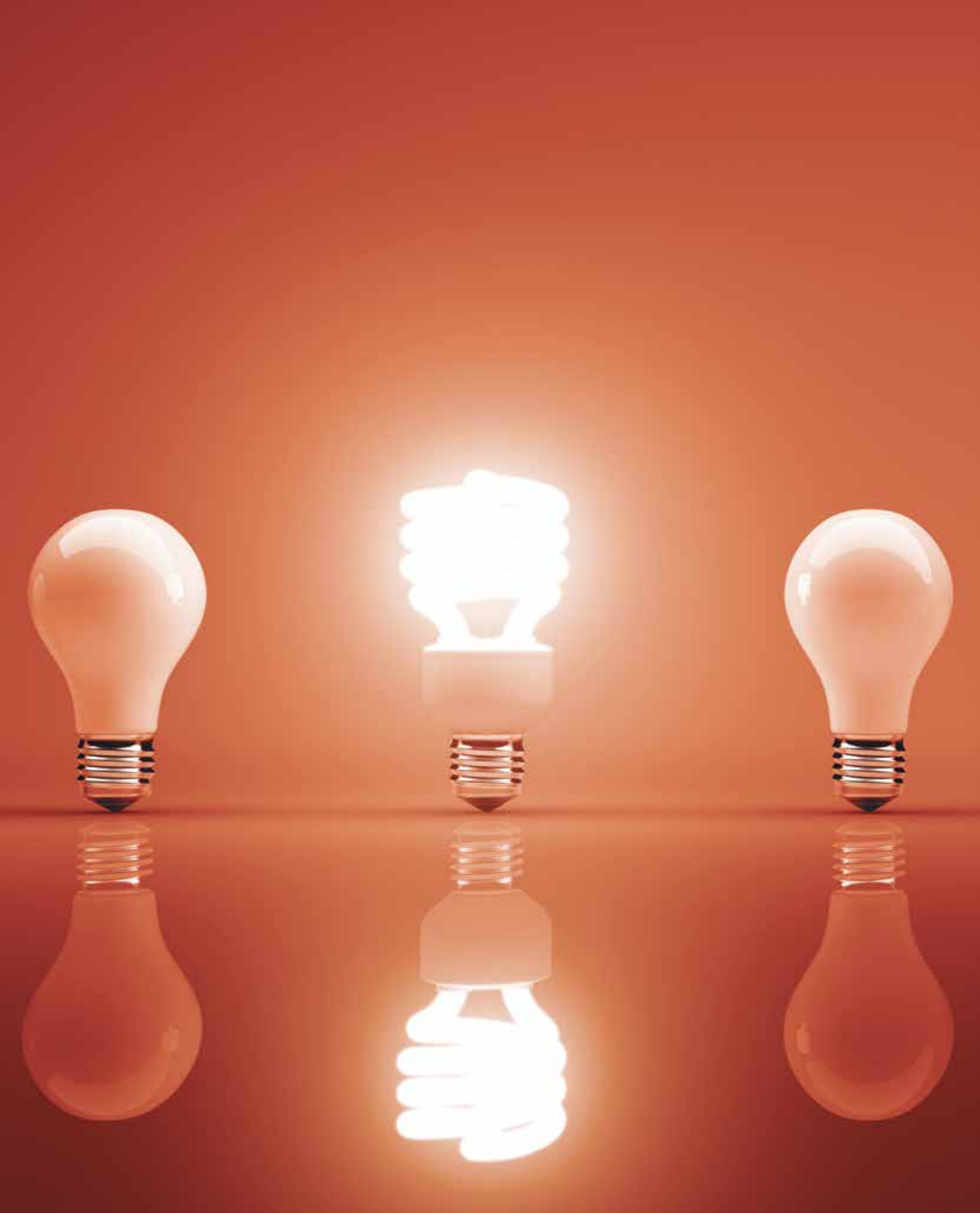
STAGE OF DEVELOPMENT
Making zero-series products

IPR STATUS
US patent received, in the process of gaining the EU patent, in the process of patent protection for the territory of China and Korea

Preparation of the product for the market and its commercialization is managed by TERA Tehnopolis, through TTO program (Technology Transfer Office). The funds are also provided by HAMAG BICRO and are intended for the costs of intellectual property protection, making zero-series products, certification and preparation for entering the market.

Following successful product development in terms of technology, the second step is commercialization in the global market. For the purpose of commercialization, the profile of the product has already been published in database of the Enterprise Europe Network (EEN). In addition, researchers have been engaged in bilateral business meetings (Brokerage Events) organized by the Network.

The idea was originally developed through the application of the innovative concept program, PoC, funded by HAMAG BICRO. PoC financed the development of a prototype system for wireless measuring of biological signals and for the start of international patent protection.



Energy and Sustainable Environment

GEOLUX

TEMA AUTOMATIZACIJA

MEMBRAIN DESIGN

MOBILISIS

Total installed capacity within the Croatian power system is currently made of app. 45% of thermal power plants, 45% of large hydro power plants and 10% of renewables. Croatia has been increasing investments in R&D projects, primarily to develop and increase the capacities of local industry and services directed towards high-tech solutions and applicative innovations.

From its founding in 2007, Geolux has focused on development of advanced radars such as 3D FMCW radar, which was one of the first devices on the market for civilian use without any moving parts, being able to measure the distance, angle and speed of targets in one's visual field. The device combines complex microwave systems and high processing power to enable the robust and small size, operating in harsh environment, very high reliability and features that were almost impossible in civil applications with other technologies. With all the afore-mentioned features, the RSS-3-150CS device can detect and locate a single walking human within a range of up to 150m, vehicles within a range of up to 500m and it can track up to 32 targets simultaneously.

Advantages and innovation:

→ Produces savings in public street lighting (up to 70% of the costs)
→ Reduces carbon dioxide emissions
→ Continuous location of all targets
→ Solid state radars without moving parts
→ Very low power consumption

Smart LED Lighting

Geolux Ltd is a research and development oriented company, with competences in microwave engineering, digital signal processing, embedded systems and electronics development for demanding applications such as high processing power computing and alike. It was started in 2007, as a typical outsourcing company providing research and development services to other companies worldwide, with a few very successful projects in the field of RF and microwave engineering. The idea for development of a simpler and better radar sensor, mainly for traffic applications, was born and realized in the first two years of the company's existence. The sensor became quite successful in the next few years, which resulted in acquiring clients from all over the world. It also triggered further research and development of more complex radar-based sensors and devices.

The radar is attached to an existing street lamp pole, registering movement at a distance of up to 150 meters for pedestrians and up to 500m for car-sized vehicles. The radar then wirelessly sends the location of the detected object to nearby street lamps, so that the lamps closest to the object can light up. As the detected person or car moves, the radar keeps following it and turns on the lights around it. When the street is empty again, the lights gradually dim back to the minimum intensity level.

In the last decade, Geolux has received significant assistance from HAMAG-BICRO for continuous research and development process, especially within the PoC program.

In the following few months, Geolux will introduce a new radar sensor, RSS-4-500, which will bring additional innovative technologies to the market, along with the features almost impossible in civil applications with current technologies.

Based on the same technology, the radar device can also be used for contactless water or mass speed measurement, at a distance of up to 50m from the sensor, with the precision of ±0,02m/s. Combined with ultrasound level meter as an expansion module, the RSS-2-300W sensor is used worldwide for very precise, easily installed and almost no-maintenance river and streams flow measurement, industrial waters flow measurement and control, detecting avalanches, aircraft vertical speed measurements and many more applications.

COMPANY NAME
Geolux Ltd

FOUNDERS AND INNOVATORS
Nikša Orlić / Tomislav Grubeša

COMPANY'S MISSION
Development and manufacturing of high-tech radar sensors

COMPANY'S VISION
Research and development of innovative and complex radar systems for industrial, security and defence applications

NAME OF INNOVATION
Small size 3D radar for smart industrial applications (LED lighting smart control, contactless water and mass flow meter, advanced perimeter control, etc.)

geolux-radars.com

COMPANY NAME
Tema Ltd

YEAR OF ESTABLISHMENT
1989

FOUNDER AND INNOVATOR
Branimir Ružojčić

COMPANY'S MISSION
To supply on-board premium efficiency electric machines

NAME OF INNOVATION
Electric motor with multilayer permanent magnets built into the rotor lamination, profiled for large contribution of reluctance to the total motor torque

tema.hr

PerMarDrive – Your Permanent Power

The company was founded in 1989, with the intention of merging academic and scientific research with practical engineering resources to offer sophisticated industrial automation products to the market. For a long time, the company was orientated towards commercializing their know-how in advance electric motor technology.
The innovative idea is the result of organized and strategically guided R&D efforts, intensive work and financial investment. The result was presented on several conferences and many innovation trade shows, which led to numerous merits and excellence recognitions.

This new technology in electric motor drives has been introduced in the last ten years, following prior R&D work. The advantages pertain mainly to high efficiency and reduction of dimensions. Still, some problems regarding the robustness and increased rotor speed have been critical in mass production and overall usage. The innovative rotor design has eliminated those problems, promoting a robust machine design suitable for heavy industry and demanding marine applications.

Receiving support from HAMAG-BICRO and the Ministry of Entrepreneurship and Crafts was greatly appreciated and helpful at different stages of development, especially in the POC and "commercialization start up" stage.
TEMA now has an established presence on the global market with its high quality products, and its customers receive the very best service.

"Our plan is to find a partner for joint investment in a larger production facility, stronger publicity and reinforcement of our global sales representative network."

B. Ružojčić

Maritime industry is intensively looking for ways to design and operate marine vessels that generate less CO2, as well as the ways to further modify the existing fleet to reduce emissions. Maritime industry accounts for 3% of the global emissions, which will continue to rise to 5% by 2050 if the old propulsion technology does not improve. PerMarDrive is a marine propulsion system being developed to address maritime emission through reducing fuel consumption by 15% and lowering vessel maintenance costs by 50%. PerMarDrive includes our Permanent Magnet AC motor, which offers incomparable speed (2300RPM) within mid-high power range (up to 1000KW) - applications that will be coupled with an innovative integrated clutch drive.

Ekoedar – Sustainable Modular Buildings

COMPANY NAME
Membrain design Ltd

DIRECTOR
Hrvoje Nikola Vučemilo

INNOVATORS
Hrvoje Nikola Vučemilo, Matija Pajić, Matej Peretin, Ivan Vrca and Ivana Krželj

COMPANY'S VISION
Expand the use of renewable energy sources and reduce the negative impact of building construction on the environment. We plan to accomplish our vision through interdisciplinary approach to building design and use of nature materials in construction.

NAME OF INNOVATION
Ekoedar

membrain-projektiranje.hr

Membrain design Ltd was founded by eight young engineers specializing in different fields, whose mission was to design and build sustainable buildings and use renewable energy sources. Having worked for two years on the development of the Concept Membrain, and having participated at the competition Solar Decathlon Europe 2014, they became aware of the fact that the knowledge and innovativeness of the team working on the Membrain was just as good as that of the experts from the world's top universities and technology institutes.

The way the company works is a step forward compared to classic building design – instead of experts from different fields working only on their part of the project, the employees at Membrain design work together on solving all the issues, which makes it easier to integrate technical systems in buildings and give clients a quality product.

Advantages of using Ekoedar: fast and cheap construction, small energy bills and easy upgrade and repurpose of space with minimal environmental impact.

"In the future, we would like to increase the number of sustainable and smart buildings with creative and eco-friendly approach to design and construction."

H. N. Vučemilo

Ekoedar is a building system that uses renewable energy sources and modular building components made from natural materials. With Ekoedar modular building components, users can have a sustainable building suitable for various purposes - tourist accommodation facilities, offices, public toilets, galleries, etc. In addition, users can also choose from a wide range of building envelope designs (timber with crust, saw timber, stone, green facade and roofs, glass, etc.) and technical systems - solar panels, heat pump, water purification, rain water collection, smart house automation, etc.

Participation at the competition Solar Decathlon Europe 2014 was an incentive for them to use the knowledge and experience gained on that project and start a company that would give to its clients a unique interdisciplinary approach to problem solving.

Fully Automated Parking System

COMPANY NAME
Mobilisis Ltd

FOUNDER/S
Goran Kanižaj, Davor Balažinec, Berislav Skupnjak, Krešimir Meštrić

DIRECTOR
Goran Kanižaj

COMPANY'S VISION
Our vision is networking of various items, which will create an intelligent system multiplying the effects of an individual action, while constantly improving the quality of our products and services.

NAME OF INNOVATION
Fully automated parking system

mobilisis.hr

Mobilisis company has developed modern and innovative IT infrastructure for management of industrial and business processes, and for mobile data collection and transmission. The products are advanced hardware and software components with high level of integration, which enable flexible use in the most demanding business processes, as well as the transfer and processing of all kinds of information in the processes essential for real-time consideration.

The "Fully Automated Parking System" solution is the first system that offers a complete, comprehensive, turn-key solution that solves and integrates all the disciplines and necessities of a modern parking system, providing benefits for drivers, authorities and wider public interest.

Benefits of the system are as follows:

1. Enables automated parking in unmarked streets
2. Enforces parking regulation in real time, enables strict time-limit enforcement
3. Provides information on the space occupancy status according to the street address
4. Besides guiding the driver to an empty parking space, it also provides information on whether it is legal to park in the space in that particular zone, and on available time and status of the user
5. Controls the streets in real time and prevents illegal parking in locations such as bus stops, etc.
6. Directs traffic inspection efforts only towards violators - this enables the city to reduce almost 75% of the traffic inspection manpower
7. Enables fully automated hand-free paying parking fees, starting at car arrival and ending at its departure
8. Reduces air pollution by approximately 30% as it prevents drivers from unnecessary cruising while looking for a parking space
9. It is the most user-friendly parking system - it guides the driver to a free space, enables hands-free parking, prevents fines and prevents money loss with meters change and problems with cellular parking termination

"Our plan for the future is to constantly improve our technological leadership, both in terms of quality and reliability, so that we are always able to offer the latest and most efficient solutions available."

G. Kanižaj

Transport and Mobility

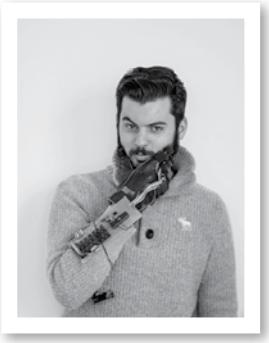
RIMAC AUTOMOBILI

ALTPRO

VISIOBIKE

SPIN CITY

Transport has a direct impact on the expansion of industrial market, consequently resulting in economic growth, improved standard of living, competition among regions and local communities, as well as physical expansion and infrastructure integration. This thematic priority area is characterized by a long tradition in production and comprises export-oriented sectors (metal, plastic, electrical and ICT sector for automotive, rail and maritime applications) and a knowledge-intensive service sector (logistics).



COMPANY NAME
Rimac Automobili Ltd

DIRECTOR AND INNOVATOR
Mate Rimac

COMPANY'S MISSION
The mission is the development and production of high quality electric vehicle battery systems, components and prototypes that continually push the boundaries of what is considered technologically possible, and at the same time contribute to quality of life and the greenplanet, and position Rimac Automobili among global technology companies

GOAL
Producing the most advanced electric sport cars in the world

NAME OF INNOVATION
Concept_One

rimac-automobili.com

Rimac Automobili plans to put an emphasis on mass production and further development of the technology, future mobility and engineering, while the sports cars production is planned to remain in the current production range (limited number of produced cars).

Concept_One – Fastest Electric Supercar

Rimac Automobili is a high-end technology company and car manufacturer. It is disrupting the concept of traditional car manufacturers with an innovative business model, manufacturing philosophy and product diversity. Rimac Automobili has a strong R&D base that enables it to develop entire vehicles in-house.
All added-value systems in Rimac products, such as battery-systems, are designed, engineered and manufactured in-house. The company has an extremely knowledgeable, skillful and motivated young engineering and development team who can tackle incredible technical challenges and deliver high-quality solutions in a short time-frame.

HOW IT ALL STARTED

The groundwork for the company began in 2007, as a garage-housed hobby of the company's founder Mate Rimac. The e-M3 was Rimac Automobili's first test mule. Mate started to convert this car when he was only 19 years old. He owned an old BMW E30 (MY 1984), which he used for drift and circuit races. At one of the races, the gas engine blew up. Then he decided to try to build an EV. After a year, Mate could drive the car, but he was not satisfied with the result. The car was heavy, not very powerful and its range was very limited. Mate then started to form a team of experts to develop their own components, since he believed that the electric propulsion can give much more compared to what was available on the market. At that time, Mate already had a very clear vision of the ultimate goal – building the fastest electric supercars and improving and developing EV technology in the process. Much of the early financing came from selling patents and the company has also received an SME Instrument (Phase 1) for the battery pack implemented in the car Concept_One.

Rimac Automobili business model is based on **four pillars**:

→ **Sportscars:** In-house production and development of innovative sports cars
→ **Future Mobility:** Development of mobility solutions for urban areas
→ **Technology:**
  – Cutting-edge technology solutions and components for various industries
  – "One-stop-shop" for vehicle electrification and hybrid powertrains
  – Market-leading high-performance powertrain and battery systems
→ **Engineering & Prototypes:** Providing design, engineering and production services to other vehicle manufacturers

Concept_One is the world's first electric supercar. Concept One can reach 100 km/h from a standstill in 2.6 seconds and continue to accelerate to the limit of 355 km/h. 92 kWh of energy in the battery modules deliver enough power for the range of up to 500 km.

The story behind the innovation is that the company needed to develop its own systems that will function with 700 volts, while all the other car producers already developed the systems that function with 400 volts. Therefore, Rimac Automobili developed their own systems (air condition, etc.) to be compatible. The company developed its own torque vectoring system that greatly improves vehicle dynamics and handling, thus making the vehicle more agile and responsive. With that system, the vehicle reaches its maximum cornering performance, as well as the optimum acceleration and braking on all road conditions. Furthermore, the company developed the battery management system that enables optimized battery usage through advanced SoC and SoH Algorithms, extremely high measurement accuracy and refresh rate, as well as the ultra-low power consumption.

Finally, Concept_One is the car for which Rimac Automobili has developed one of the most advanced In-Vehicle Infotainment systems, with both the hardware and software manufactured in-house. The main features of the IVI system are its fast implementation, integrated connectivity and advanced features.

ALTPRO– Safety and Signalling Products

COMPANY NAME
Altpro Ltd

DIRECTOR AND INNOVATOR
Zvonimir Viduka

COMPANY'S MISSION
To contribute to the quality, safety and interoperability of railway transport through research, development and production of innovative, safe, reliable and sustainable safety and signalling railway systems.

NAME OF INNOVATION
Railway wheel sensor M1

altpro.hr

Company ALTPRO was established in 1994, based on a vision of several enthusiastic railway engineers who saw the opportunity and had the knowledge to encourage the development of railway systems worldwide. Today, ALTPRO has over 20 years of experience in research, development and production of safety-signalling equipment for rolling stock and infrastructure. Based on the company's know-how, ALTPRO products have been fully developed and produced in Croatia and have proved their competitiveness on the global market. Since the very beginning, ALTPRO has invested in its most valuable resources - its employees. Today, the company employs more than 120 experts in the fields of research, development, engineering, production and maintenance.

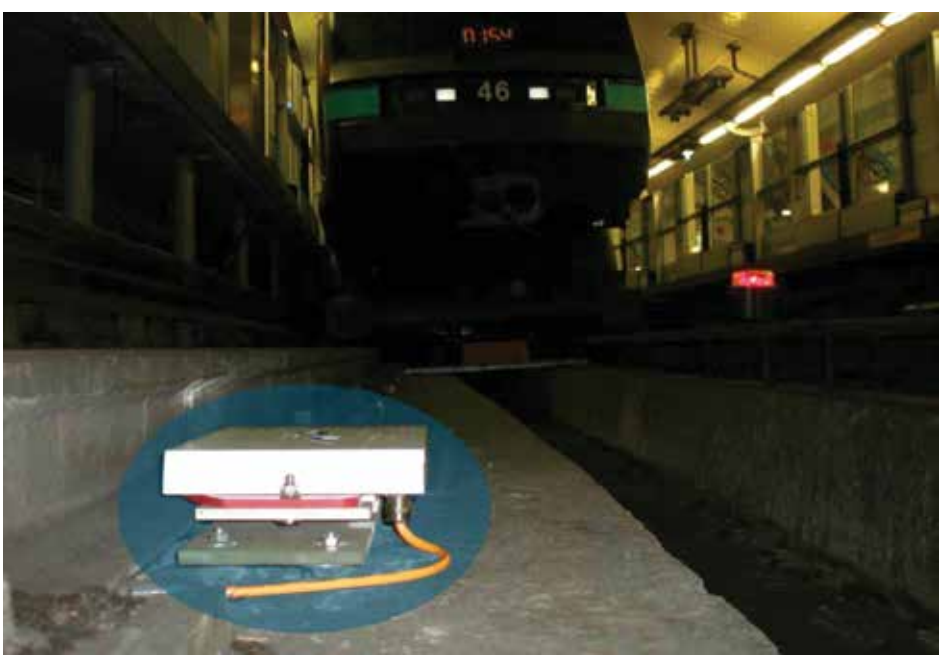
As a market-oriented company, ALTPRO identified the need for specially designed sensors for non-conventional transport systems, such as rubber-tyred metro vehicles, APM (automatic people movers), monorail, etc. After studying the movement trajectories of the afore-mentioned means of transport and the possibilities for application of train detection technology, with financial support received from HAMAG-BICRO for POC (Proof of Concept), the company was able to reach a solution for the detection of these vehicles.

→ Owing to its complete safety and signalling product range for rolling stock and infrastructure, ALTPRO is one of few producers of such equipment in the world

→ Products are available on the markets of more than 45 countries on 6 continents

→ ALTPRO has developed 900 different systems and devices, which it still manufactures

→ All its safety products have been certified by the independent assessment bodies, such as TÜV Rheinland, in accordance with the EU standards



ALTPRO sensor serves as part of the train detection system on the infrastructure of the afore-mentioned means of transport. Since ALTPRO has extensive knowledge in train detection technology, they decided to enter that specific market. Standard train detection technology could not be implemented due to physical restriction and field-of-view restrictions. However, the company's M1 sensor successfully detects passing vehicles and fulfils its role in the whole train detection system.

"Visiobike brings high-tech features, previously available only in cars, to electric bike industry"

M. Matenda

Visiobike

Visiobike Ltd is a high-tech company which develops and manufactures connected electric bicycles and battery packs.

Visiobike started as an idea that electric bicycles should be smart. "I've always been a techno freak, with love for bikes. When I saw that ebike technology was stuck in the 1990s, the only logical thing for me was to combine the smartphone features with an electric bicycle. That's how Visiobike started" – explains Marko Matenda, Visiobike CEO.

Visiobike is the first fully connected electric bicycle available on the market. The company developed a technology that enables users to use their smartphone as a dashboard for their Visiobike in order to control the electric motor, automatic transmission, lights and alarm system. User can track and activate Visiobike alarm in real time through my.visiobike.com website, as well as check all statistical information about the rides. Visiobike firmware can also be updated through the Internet with a simple click of a button. Riders' safety is also enhanced with a HD camera under the seat, which streams real-time view of what is happening behind the rider to a smartphone mounted on the handlebar. In case of an accident, Visiobike will automatically notify emergency services and your next-of-kin, unless the user cancels this action within 60 seconds. It will also automatically record 60 seconds prior to the accident which can be used to reconstruct accident conditions.

Visiobike received a pre-seed grant from the Ministry of Entrepreneurship and Crafts, which helped the company to develop a new model of electric bicycles, commercialize their first model and hire much needed employees.

Visiobike's plans for the future are to continue developing the most technologically advanced electric bicycles in the world and sell them on the EU and the US market.

COMPANY NAME
Visiobike Ltd

DIRECTOR AND INNOVATOR
Marko Matenda

COMPANY'S MISSION
Visiobike provides a solution for daily commuting in the form of a cool, eco-friendly and technologically advanced electric bicycle.

NAME OF INNOVATION
Visiobike

IPR STATUS
Protected design

visiobike.com

COMPANY NAME
Urban Mobility Ltd

DIRECTOR AND INNOVATOR
Matija Krznar

COMPANY'S MISSION
Enrich the quality of urban life and environment by connecting green-tech platforms with people and providing modern mobility lifestyle.

NAME OF INNOVATION
Car sharing CRM

NAME OF INNOVATION
Car sharing CRM

spincity.hr

Car sharing CRM:
Completely customised solution created to support car sharing services. Car sharing CRM allows centralized management of our customer base, while effectively managing the marketing, sales, billing and customer support activities. The CRM platform can be integrated with other systems in order to run businesses, such as booking system, gateway payment, telephone exchange or customer support applications. Car sharing CRM, as a general management system, ensures delivery of functional and high-quality operations.

Spin City- Electric Car Sharing

Urban Mobility Ltd is a startup company, designed as a platform for services based on green-tech solutions that will contribute to innovative user experience and quality of urban life.

Two years ago, the founders of the company, Matija Krznar and Florian Grubišin, started thinking about innovative models of mobility that could suit the modern needs of citizens, especially young people. Insufficiently flexible network of public transport in Zagreb directed them to the area of car sharing.

Spin City service allows flexible and eco-friendly movement around the city. With the use of modern technology, the concept integrates sharing economy with modern green economy. Through such a defined system, Spin City customers are able to rent a vehicle just as often as they need it, without the cost of ownership or maintenance. This improves their quality of life, as well as the quality of life of their fellow citizens.

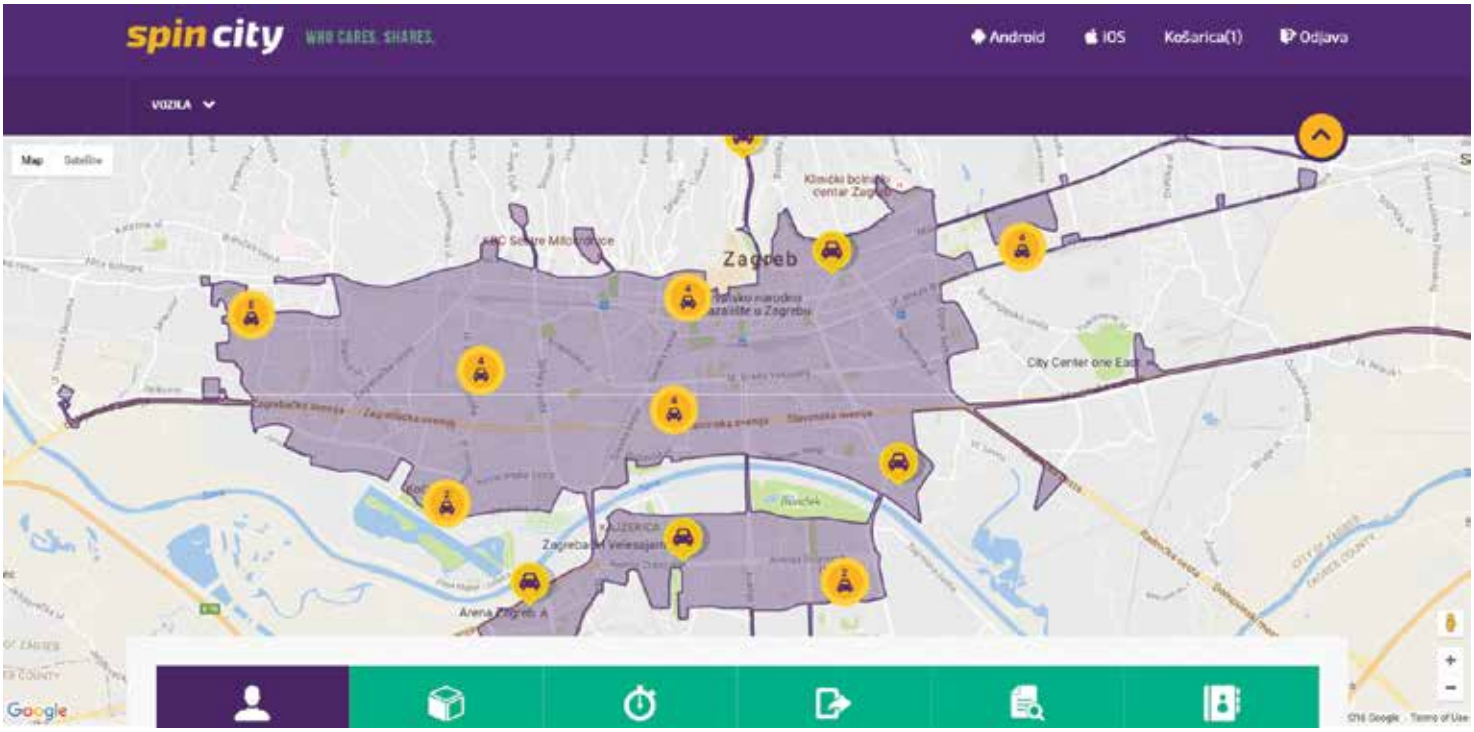
Second part of the CRM is the user dashboard platform, created as a web interface for car sharing customers. Web interface serves for locating/booking a car, buying products, payment, tracking the details of a customer account, such as booking driving history, invoices, etc.

"Our plan is to become the market leader in the SEE region, through creating innovative experiences in order to improve the quality of urban life. People, movement and urban life is what inspires me."

M. Krznar

Support from the institutions

Investment in system development was financed through a special loan program approved by the Croatian Bank for Reconstruction and Development (HBOR), where the guarantee (EUR 100,000) was secured by HAMAG-BICRO. Their understanding and guarantee was one of the crucial elements in the project realization.



In addition to this, the Fund for Environmental Protection and Energy Efficiency also gave a subsidy for co-financing 10 electric vehicles - 40% of their purchase price.

The fleet consists of 30 Volkswagen up! vehicles, including 10 electric cars. These cars are at the disposal of the public and they are located around the city. Users are able to locate the nearest vehicle via their smart phones, which are also used to unlock the vehicles. All a person has to do is register on the Spin City's website moj.spincity.hr (part of the CRM system) to be able to access and use the cars. Before using the service, each customer is validated in the system based on personal documents and his/her own SELFIE for identity check.
Users are charged for the exact amount of time they were using the car. Last but not least - fuel, parking, insurance, maintenance and cleaning are included in the price, as well as one-way trips.

In the first phase, Matija carried out an analysis on local transport network and community in general, which later became the basis for their car sharing concept design.

"After a few months, we created "free-floating" concept based on smart access and completely custom CRM system. Before the final implementation, there was a lot of negotiations with partners/suppliers, city government and financial institutions. After six months on the market, we now have over 1.200 customers and we are working on further improvements in terms of user experience and processes optimization."

M. Krznar

Security

DOK-ING

HIPERSFERA

CITUS

SUPRACONTROL

Its competitiveness is based on the focus to produce and integrate high-tech innovative products and/or associated services of high added value. This orientation results from the very nature of this thematic area, which does not tolerate unreliable products and services for the market.

Emerging new technologies in the aerospace and defence industries significantly contribute to the development of novelty products for civil markets. Despite this fact, there is no clear methodical classification of the Security industry at the EU level, due to the following reasons: security industry as such is not covered by the main statistical nomenclatures (NACE, Prodcom, etc.); production of security-related items is hidden under a wide range of headings; statistics for those headings do not distinguish between security and non-security related activities; there is no statistical data source available at the European level from the industry itself. These reasons apply to Croatia as well.

DOK-ING – Don't send a man to do a machine's job

COMPANY NAME
DOK-ING Ltd

YEAR OF ESTABLISHMENT
1991

FOUNDER AND INNOVATOR
Vjekoslav Majetić

NUMBER OF EMPLOYEES
200

NAME OF INNOVATION
Specialized robotic systems for mine clearance (MV-4 and MV-10), for underground mining (XLP dozer, ULP dozer), for firefighting (MVF-5), small urban electric car (xd, loox), solar charging station, small industrial multipurpose vehicle

dok-ing.hr

"Croats, especially the younger population, have proven to have innovative minds, necessary knowledge, curiosity, imagination and courage. Our innovators are acknowledged all over the world, and they win the most prestigous awards for their inventions at international shows and exhibitions."

V. Majetić

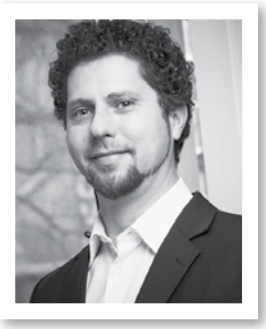
DOK-ING is a 100% privately owned Croatian company, established in the late 1991. It is registered for the production of robotized and special purposes systems and equipment. The headquarters, production facilities and service occupy 15,000 square meters in Zagreb, Croatia. The secondary production facilities are in Slunj, some 100 km south of Zagreb. Along with a branch office in the USA, there is a subsidiary in South Africa, DOK-ING Africa, which supports the program for South African mines.

Company's motto ""Don't send a man to do a machine's job"" definitely says a lot about the person behind it.
"Just as in the beginning, I still have the same dream – to produce machines that would protect human lives and ensure safety for people working in dangerous and life-threatening conditions. If you keep your eyes wide open, you can see a vast number of opportunities, ideas just come up and there is an unlimited space for improvements in every segment of our lives, especially in the area of robotic systems."

During its first years, DOK-ING was actively engaged in demining activities. Consequently, it has gathered vast experience in different types of landmine clearance, on all types of terrains in the Republic of Croatia, as well as in the neighbouring countries. This experience was the basis for designing and manufacturing the first remotely controlled demining systems, constructed exclusively for humanitarian demining. As those were upgraded and improved, the company participated in R&D projects with various international and domestic organizations, including the Croatian Ministry of Science, Education and Sports, as well as the State Maritime Institute, Faculty of Electrical Engineering and Computing of the University of Zagreb and Geneva International Centre for Humanitarian Demining. At the same time, demining systems were sold to more than 30 countries worldwide, to a number of government agencies and humanitarian organizations, and to commercial companies. Altogether, more than 250 light and medium-sized demining systems have been produced so far.

Visit to the platinum mines of South Africa was another challenge – once again, people in hostile and dangerous environment needed a machine that could help them not only raise productivity but also provide a higher level of safety. The design of a remote-controlled ultra-low profile dozer for mineral excavation met those requirements. Almost every new project received an award, which convinced us we were on the right path. Some of the recent innovative and development projects of DOK-ING have been supported by the EU funds such as Horizon 2020.

HiperSfera – Persistent Aerial Positioning as a Service (PAPaaS)



COMPANY NAME
HiperSfera Ltd

DIRECTOR AND INNOVATOR
Bojan Pečnik, PhD

COMPANY'S MISSION
HiperSfera is all about creating, nurturing, and sustaining a globally competitive aerospace research and development team, capable of providing disruptive solutions to local and global challenges based on lighter than air technologies.

NAME OF INNOVATION
HiperSfera

IPR STATUS
EPO and USPTO patents

Hipersfera.hr

HiperSfera is a rapidly expanding aerospace R&D company, with a interdisciplinary technical team composed of twenty engineers from various fields of new and emerging technologies: aerodynamics, composite structures, automation, wireless communications, electronics, power electronics, imaging, and system software programming. The company was started in 2006 as a startup SME, and the idea for innovation developed while doing research on the operating costs of similar planned military systems in the early 2000s.

HiperSfera leverages proprietary unmanned aerial vehicle technology to deliver Persistent Aerial Positioning as a Service (PAPaaS) to service operators through its unique Unmanned Aerial System (UAS). PAPaaS is a turnkey service, allowing payloads to be persistently, accurately, and flexibly positioned anywhere within a non-restricted airspace from low to high altitude, as well as to be operated over extended periods at low operating costs.

While combining Commercial-Off-The-Shelf (COTS), emerging technology payloads and ground systems, HiperSfera enables breakthrough applications based on aerial mission profiles which were previously cost-prohibitive – persistent positioning surveillance missions, continuous remote sensing and all-weather static operations.

In the initial seed stage, HiperSfera raised €1.1 million from the government (HAMAG – BICRO) and other private investors. Since then, HiperSfera has secured additional €2 million, with deals structured through strategic financial partner - ebank.

In the future, HiperSfera will provide disruptive turnkey aerospace solutions to local and global challenges based on proprietary lighter-than-air industrial platform, providing Persistent Aerial Positioning as a Service.

APPLICATIONS:

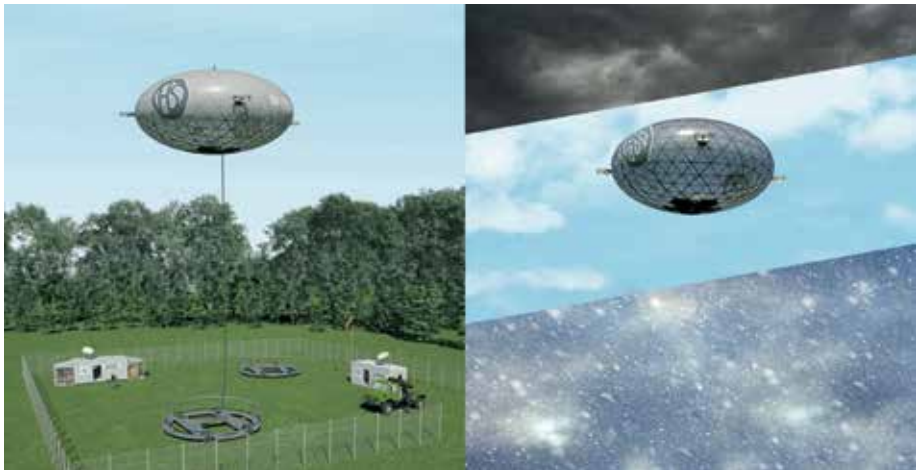
Security Surveillance - the ultimate patrol & station-keeping platform for continuous surveillance

Disaster Management - integrated system comprising of Continuous Remote Sensing, Situational Awareness, Resources Coordination and Mobile Broadband Network

Smart Farming - the most cost-efficient and fully integrated real-time service used to monitor, analyze and optimize efforts of the agricultural industry

Mobile Broadband Services (Telecom TERA) - the ultimate station-keeping platform for broadband telecommunication services

Autonomous Driving - Single System to provide near-real-time optical and LIDAR uHD maps to automotive industry, along with robust and broadband mobile connectivity for autonomous vehicles.



C@N Motion – Interactive Multimedia Solution With Gesture-Controlled User Interface

COMPANY NAME
Citus Ltd

YEAR OF ESTABLISHMENT
1999

FOUNDER AND INNOVATOR
Tomislav Bronzin

IPR STATUS:
Patent: PK20130471A, Trade Mark: Z20130838A

OBJECTIVE
Introduce technology in everyday life to improve quality of life in every aspect

can-motion.com

”To work on an innovation and with innovation is a challenging and demanding process. If the times are not suitable for such new approach or if the economy is not ready to use it, an innovation will remain only a sketch, no matter how good it is. Things are getting better and better, but still there is a lot of space for improvement.”

T. Bronzin

Citus employs highly educated professionals with great experience in development of complex information systems and IT consulting, which can be confirmed by numerous references and prestigious certifications. Quality management system, ISO 9001:2008: (SI-Q-486) has been implemented in all areas of the company since 2002.
Business fields:
1. Design and development of software based solutions
2. Education and consulting - seminars for designers of information systems, architects and developers, and strategic IT consulting; seminars for computer operators
3. System integration of all parts of complex information systems and of existing computer systems

C@N Motion is an award-winning interactive Gesture Controlled Content Management System that allows fun interaction via computer driven content using hand movements. C@N Motion and its advanced technology solution enable innovative, attractive, intuitive and easy-to-use motion control user interface, which does not require any physical contact with the screen or any other device (mouse, keyboard).
It is possible to create a video wall, e-poster or other type of presentation through which one or more users can communicate while being 2-4 feet apart, and it is also possible to store data in the cloud via the web portal.
Set your C@N Motion behind the window or beam it to the big video-wall and allow your potential customers to run it through the glass touch-free.

C@N Motion provides multimedia platform that can be used for:

→ New channel of communication

→ Kiosk-like applications

→ Gamification of business applications

→ Education - learning through games and experience

→ Possibility to create human communication by translating sign language of hearing-impaired people to everyday speech

C@N Motion can be applied in a wide range of industries: education, healthcare, retail, financial and services industry, tourism and hospitality, transportation, public services and administration, culture and arts, sports, conference and trade shows, beauty industry, fashion industry, corporate communications and business centres, theme and amusement parks, entertainment industry, cinemas etc. In the first stage of development, company received support from HAMAG-BICRO through Proof of Concept (PoC) program. In the future, the plan is to commercialize all their products world-wide with the support of their partners and clients.

Supracontrol – ICT Security Solution

COMPANY NAME
Supracontrol Ltd

INNOVATOR
Daniel Majer, Ivan Miličević

COMPANY'S MISSION
To develop fully scalable solutions and offer them on the market for efficient management and control of ICT infrastructure within data centers and server rooms.

NAME OF INNOVATION
Supracontrol

supracontrol.com

Supracontrol Ltd is a company specialized for in-house design and manufacturing of embedded systems as efficient security solutions for physical ICT infrastructure inside data centers, server rooms and server racks located within critical infrastructure facilities.

The idea of Supracontrol came in 2008, within the Supra Net Ltd, as a response to clients' specific needs. Around that period, Supra Net was a solution partner with the leading system for access control and monitoring of server racks operating conditions. Over the years, through the stages of design and implementation, some deficiencies of this solution were detected, and they could not be overcome by other products on the market.

With the aim of developing and launching a comprehensive system that would eliminate the shortcomings of competitive solutions, Supra Net company established a new R&D department and proceeded with the development of the Supracontrol system. After intensive development, in August 2012, the CE certificate was received for the first production series of the Supracontrol devices.

In October 2015, a decision was made to establish an independent company that would continue with the development and commercialize the product.

Supracontrol represents hardware and software solutions that can be adjusted to specific business needs. This is achieved by providing an integrative service that combines access control, environmental monitoring, video surveillance, energy measurement and process automation into a single solution. Products are fully scalable and integrated. They represent the most technologically advanced security solutions for data centers and server rooms that are managed by simple web and mobile apps. Their main purpose is to notify the users on potentially dangerous events inside data centers, server rooms and server racks. The system can deliver over 100 different alarms. In addition, the users can easily manage all Supracontrol devices through web and mobile apps, perform detailed troubleshooting by browsing through the events and generate monthly reports.

Supracontrol's target groups are both SMEs and large enterprises in fields of IT and telecommunications, banking, financial services and insurance (BFSI), public sector, media and entertainment, healthcare, manufacturing, oil & gas and energy & power.

Supracontrol has received numerous awards for this innovative solution. The most prominent award is the Seal of Excellence SME Instrument Phase 2, under the Horizon 2020 program, by the European Commission. The solution won the first place in the "Business and Production" category at the Pioneers of the Balkans Conference, among more than 600 startup companies. The company has also received support from the Croatian Agency for SMEs, Innovations and Investments (HAMAG – BICRO).

The demand for a large variety of sensors is growing steadily and with their competitive prices, Supracontrol solutions will disrupt the current IoT smart sensor market. Company's main objective is to provide services worldwide, as well as to collaborate with enterprises and service providers in order to meet the customers' unique needs.

"In an environment full of challenges, creativity and experience will always result in a solution that is complete, without any real shortcomings, and truly innovative."

D. Majer

Food and Bio-Economy

AGRIVI

GAMMACHEF

PROBIOTECH

BIOCENTRE

Croatia has great natural resources available in this sector: plenty of good quality arable land, the Adriatic Sea, forests and water resources that enable conversion into food, feed, wood and bio-based products.

- Surface area of the Republic Croatia is 87,661 km² and it comprises 56,594 km² (64.5%) of land area and 31,067 km² (35.5%) of territorial sea.
- Total surface area of forests and forestland in Croatia amounts to 2,688,688 ha, accounting for 48% of the total land area.
- Agriculture accounts for 12.4% of total employment, forestry for 1%, and food production and food processing industry for 3.4%

Agrivi's plan is to acquire over 100 million users, i.e. farmers, in the following 5 years, as well as to change the global food production industry in its core.

Agrivi – Smart Farming

Agrivi is a global AgTech company. Its vision is to change the way food is produced, and thus positively impact over 1 billion lives by helping farmers reach sustainable, resource-efficient and profitable production. Since its founding in 2013, the company has managed to position itself as the most complete farm management software on the market. It is also one of the leaders in the farm management software industry. Over 25,000 farmers in 150 countries have recognized the value of Agrivi solutions and started using them to improve their production.

Agrivi addresses various stakeholders in the agricultural industry – farms of all sizes, agricultural cooperatives, food sourcing industry, retail chains, banks, telecoms, NGOs, governments and all other parties interested in achieving sustainable, resource-efficient agricultural production in their network of farmers.

Matija Žulj, an entrepreneur with strong business and ICT educational background, founded Agrivi in 2013 in Kutina, Croatia. He was inspired to create a solution for the frustrations he experienced while running his own blueberry farm. He was able to realize his project with the help of HAMAG-BICRO, the EU project FRACTALS and the Ministry of Entrepreneurship and Crafts, which supported Agrivi in the seed stage of development.

Agrivi is a knowledge-based farm management platform that offers farmers the most complete farm management solutions on the market. It also provides best practices on how to achieve optimum yields, and provides pest and disease alerts to reduce risk of lower yields through timely crop protection. Furthermore, the platform gives an instant insight into overall farm performance with a single click. The platform is multilingual, which enables farmers to use the software in their local language.

COMPANY NAME
Agrivi Ltd

DIRECTOR AND INNOVATOR
Matija Žulj

COMPANY'S MISSION
Delivering knowledge-based farm management software solutions directly to farmers worldwide and improving their productivity and profitability.

STAGE OF DEVELOPMENT
Growth stage, already delivering solution to farmers in 150 countries.

agrivi.com

"Global AgTech market is evolving rapidly and as we have managed to position ourselves among the key global industry players, market demand for our technology is very strong. In the following period, we will focus on penetrating the markets of key agricultural EU countries and on positioning ourselves as the global leader in the niche industry verticals serving customers worldwide."

M. Žulj

GammaChef – Robotic Chef

COMPANY NAME
Gamma Chef Ltd

FOUNDERS AND INNOVATORS
Dražen Drnas and Đulijano Nola

COMPANY'S MISSION
To be a company whose name is associated with new generation of kitchen devices and good food

NAME OF INNOVATION
GammaChef – robotic chef

IPR STATUS
Industrial design registered at WIPO International Registration Number DM/091 175

gammachef.com

GammaChef is a robotic chef capable of preparing any one-pot meal. It is a pragmatic household appliance that brings the 21th century technology into our kitchens. GammaChef is a story about tasty, healthy and homemade food. It is not only a story about food, but also about families eating together. It is about slowing down a bit. It is about helping mums to take care of their children. It is about helping people eat healthier. It is also a story about you, your health, your free time, as well as your creativity. GammaChef inventors believe that, with a little help, anyone can cook.

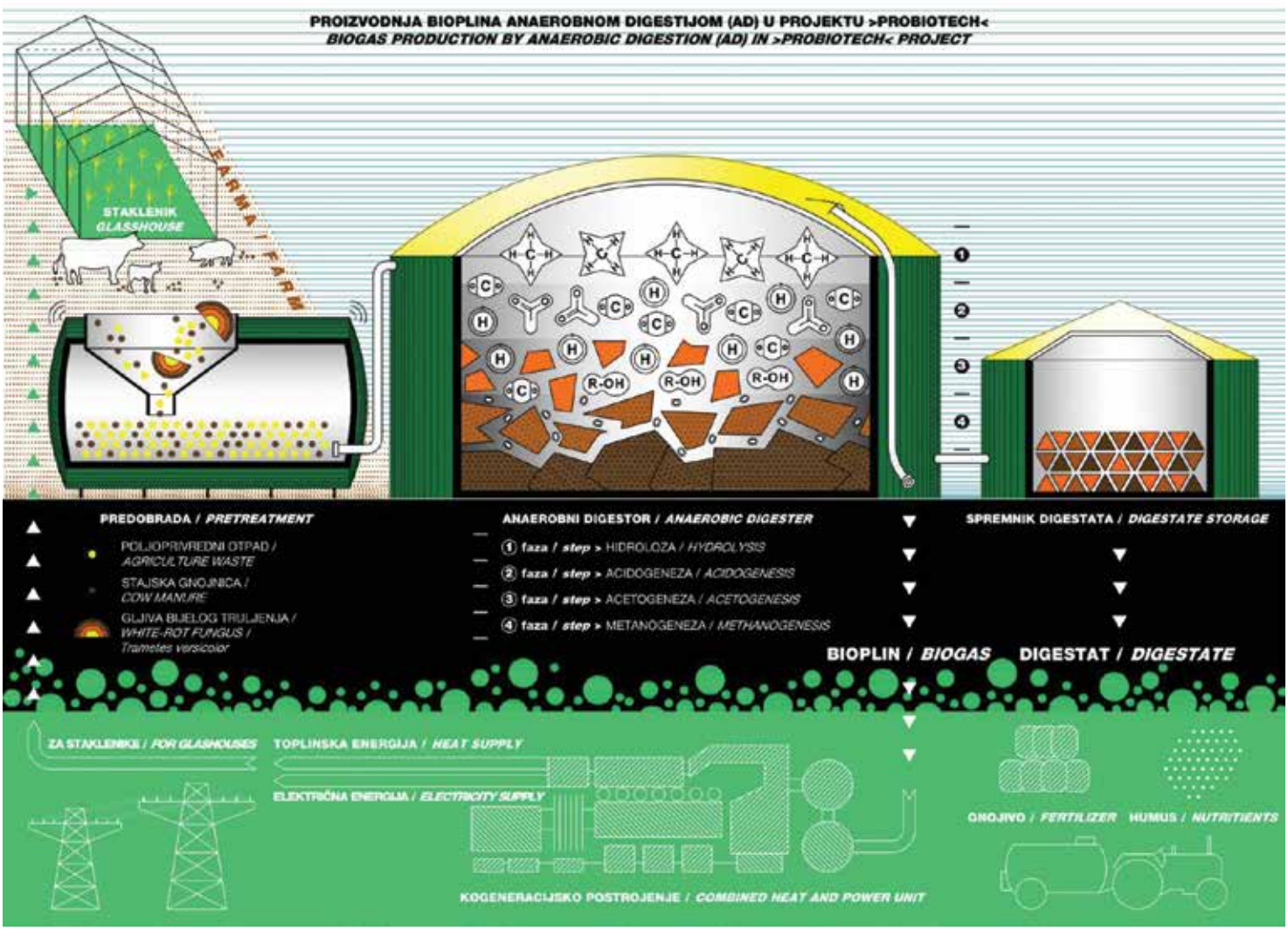
GammaChef is a unique machine because not many machines can cook a really tasty risotto! A digital recipe is at its core. Based on the recipe, GammaChef will prepare you a fresh, homemade and tasty meal at the desired time. It is as easy as this: you just have to use your smartphone, tablet or a built-in touch screen and choose from hundreds of pre-programmed recipes. You can control GammaChef from any location via the Internet. Since it is connected to the Internet, you can also find new recipes online, buy cookbooks, follow diets, adapt existing or create new meals, share content, comment, etc. Once digitalized, you can share digital recipes with your friends who can prepare a meal on their GammaChef following your recipe.

Their strategic partner and investor Podravka d.d., one of the leading food companies in South East, Central and Eastern Europe, actively supports the GammaChef project with their R&D and know-how.

Although a functional prototype of the robotic chef has been created, the project is still in the R&D phase and there are still many challenges left. In the future, inventors hope that GammaChef will be a successful and proven consumer product on the shelves.

"We like to imagine that GammaChef will be cooking thousands of homemade meals on a daily basis. We see families sitting together at the table, with healthy and tasty meal ready when a working mum comes home from work."

D. Drnas and Đ. Nola



The project results are set up and equipped ProBioTech laboratory with bioreactors specially designed for biological agro-industry waste treatment and necessary analytic equipment, enhanced process of anaerobic co-digestion of cow manure and biologically pre-treated agricultural waste, and drawn up technical documentation and feasibility study of the technological process. Additional outcomes of the project are Bachelor and Master thesis, scientific papers, and national and international conference attendance.

ProBioTech

Within this project, scientific research organization J. J. Strossmayer University of Osijek, Faculty of Food Technology as the project leader together with industrial partner Bovis Ltd developed an innovative technology with the aim of increasing the use of renewable energy sources and promoting environment protection.
With regard to the research program, the Faculty of Food Technology Osijek needed an industrial partner that possesses technology required for further research and development, which is anaerobic co-digestion of cow-manure and agricultural waste.

Currently, anaerobic co-digestion of cow manure and corn silage presents a well-established and widely distributed process on dairy farms that generate biogas. When agro-industrial residues or any other lignocellulose materials are used independently or together with manure for biogas production, or when they are used in bioethanol production, they have to be pre-treated due to their recalcitrant structure. There are several different methods of lignocellulose pre-treatments, generally belonging to physical, physiochemical, chemical and biological pre-treatments.
In the recent years, there has been an increase of interest for research in the implementation of biological methods of lignocellulose material pretreatment, but until now, these methods have not been successful on the industrial level. One of the biological methods is the application of white rot fungi. White rot fungi, such as *Trametes versicolor* used in the project, are known as good producers of ligninolytic enzymes. In addition, they are also known to degrade different environmental pollutants, including phenolic compounds from solid and liquid waste. With regard to anaerobic digestion, these compounds can inhibit the process or cause the problems during digestate use.

In this project, the implementation of white rot fungi for lignocellulose waste treatment was investigated in newly-designed solid-state bioreactors. Anaerobic co-digestion process was studied in a mobile pilot plant situated near an industrial biogas plant. Technical documentation and feasibility study of the novel process, including the integration of biological pre-treatment and anaerobic co-digestion, were prepared based on the experimental results.

FACULTY NAME
Josip Juraj Strossmayer University of Osijek
Faculty of Food Technology

PROJECT TITLE
Development of innovative process of agricultural waste biological treatment in biogas production - ProBioTech

PROJECT LEADER
Dr. Marina Tišma, PhD, Assoc. Prof.

PARTNER
Bovis Ltd, Ivankovo, Slatine 13, Vukovar-Srijem County, Croatia

FUNDING SOURCE
ProBioTech project (RC. 2.2.08-0045) is co-financed by the European Regional Development Fund (ERDF) and Ministry of Science, Education and Sport of the Republic of Croatia within Operational Programme Regional Competitiveness 2007-2013.

ptfos.unios.hr/probiotech/hr/

BIOCentre - Home for Biosciences

COMPANY NAME
BIOCentre Ltd

YEAR OF ESTABLISHMENT
2015

FOUNDER/S
HAMAG BICRO, University of Zagreb, City of Zagreb

NUMBER OF EMPLOYEES
10

BOARD OF DIRECTORS
Dubravko Kičić, PhD, EMBA
Sanja Šale, MD, PhD

COMPANY'S MISSION
Supporting and driving the growth and development of early stage biotech companies

biocentre.hr

BIOCentre is Biosciences Technology Commercialization and Incubation Centre, the first of its kind in Croatia and SE Europe. The project was funded through the Regional Competitiveness Operational Programme for the 2007-2013 programming period under the management of HAMAG-BICRO.
The primary goal of BIOCentre is to provide infrastructure and services necessary for growth and development of early stage biotech companies and to facilitate collaboration between academic institutions and the industry. BIOCentre has a state-of-the-art core facility (central lab), where experienced experts provide contract research services.

BIOCentre addresses specialized needs of target groups in the following **5 activity areas:**

- Infrastructure support
- Incubation support
- Technology transfer support
- Education/Training support
- Networking support

"At BIOCentre, we have the opportunity to build an organization that will promote scientific excellence and entrepreneurial spirit, with the goal of fostering the next generation of bioscience innovators in Croatia."

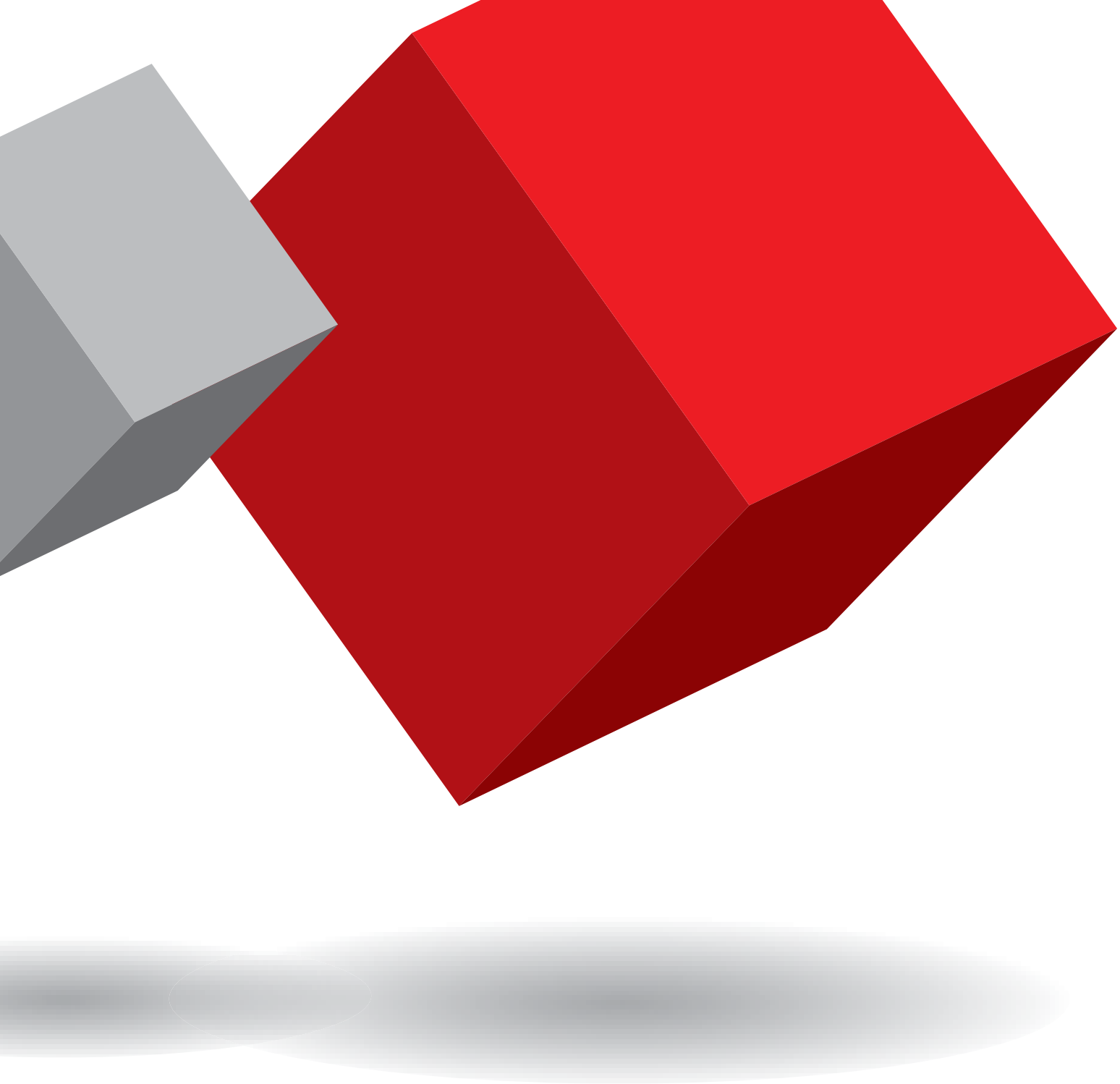
S. Šale

"We are excited to see that BIOCentre's resources are being utilized for development of innovative projects ranging from academic groups to large commercial companies!"

D. Kičić

Users of the BIOFacility program can rent laboratories, offices and meeting rooms. The BIOIncubation program provides advisory services in business development and consults biotechnology startups during their incubation process. BIOTransfer program provides contract research services necessary for technology transfer and commercialisation. BIOEducation program is developed with the purpose of providing the BIOCentre's tenants and clients with customized training in business and/or technical skills. BIONetwork program facilitates networking between the bioscience community and potential partners from other sectors: investors, public institutions and business partners. The overall objective of BIOCentre is to become a national and regional biotech hub.

BIOCentre target groups include academic researchers, startup companies (i.e. spin-offs from universities and other research institutions), SMEs and existing companies, as well as national and international research institutions and groups involved in the implementation of innovative projects with significant commercial potential.



About HAMAG-BICRO & EEN

In recent years, Croatia has made great efforts to develop institutional frameworks in order to support the innovation process. This led to investment of public funds in innovative SMEs and encouraged companies to invest in research and development.

HAMAG BICRO

hamagbicro.hr

HAMAG-BICRO is the Croatian Agency for SMEs, Innovations and Investments, founded by the Government of the Republic of Croatia with the aim of supporting the development of SMEs, catalysing the innovation process and encouraging investment. The Agency is an independent institution supervised by the Ministry of Economy, SMEs and Crafts.

MAIN OBJECTIVES

- Support the development of small and medium-sized enterprises, improve the innovation process and encourage investments;
- Create a unique system that provides support to entrepreneurs through all development stages of operation - starting from research and development of an idea to its commercialization and placement on the market.

SME innovation support
EEN
SME instrument
Eureka/ Eurostars
STPII*

Pilot projects for system support
PPLight
PPI2Innovate
KISSME
Smart Factory HUB

Financial instruments
ESIF R&D grants
Loan guarantees
Micro credits
Pre-seed / Seed/ VC funds

*Second Science and Technology project – innovation process support programs funded by the World Bank loan, implemented in collaboration with the Ministry of Science and Education (through programs PoC-Proof of Concept Program, RAZUM-Development of Knowledge-based Enterprises Program, IRCRO-Collaborative Research and Development Program and TTO-Technology Transfer Office Support Program)

OTHER AREAS OF SPECIALISATION

- Creation of science, technology and innovation strategies, internalisation of innovation and smart specialization;
- Programme development (program procedures / public call / evaluation / contacting / monitoring);
- Capacity building activities
- Development of adequate technology infrastructure
- Supporting technology transfer in public scientific institutions

EU PROGRAMMES & STRATEGIES IMPLEMENTED BY HAMAG-BICRO:

- Horizon 2020/ COSME
- Operational programme Competitiveness and Cohesion 2014 - 2020
- Smart Specialization Strategy

HAMAG-BICRO INNOVATIONS IN NUMBERS:

386
innovative projects supported by HAMAG-BICRO programmes

370 milion HRK
amount of grants

612 milion HRK
total value of projects

enterprise europe network
Europa pred vratima vaše tvrtke

een.ec.europa.eu

01 Enterprise Europe Network provides free internationalisation and innovation support services to small and medium sized enterprises.

02 Launched in February 2008 by the Commission's DG GROW (previously "Enterprise and Industry" ENTR)

03 Co-financed under the EU's COSME and HORIZON 2020 funding programmes - encouraging competitveness and innovation of European SMEs

04 Total funding of over 180 milion EURO

3000
local experts

600+
locations

60+
countries worldwide

We combine international business expertise with local knowledge to take innovations to new markets.

A broad range of services for growth-oriented SMEs

INTERNATIONAL PARTNERSHIPS

Partnership database

—

Brokerage events

—

Company missions

ADVISORY SUPPORT

Advice on EU laws and standards

—

Market intelligence

—

IPR expertise

INNOVATION SUPPORT

Access to finance and funding

—

Innovation Management Srvices

—

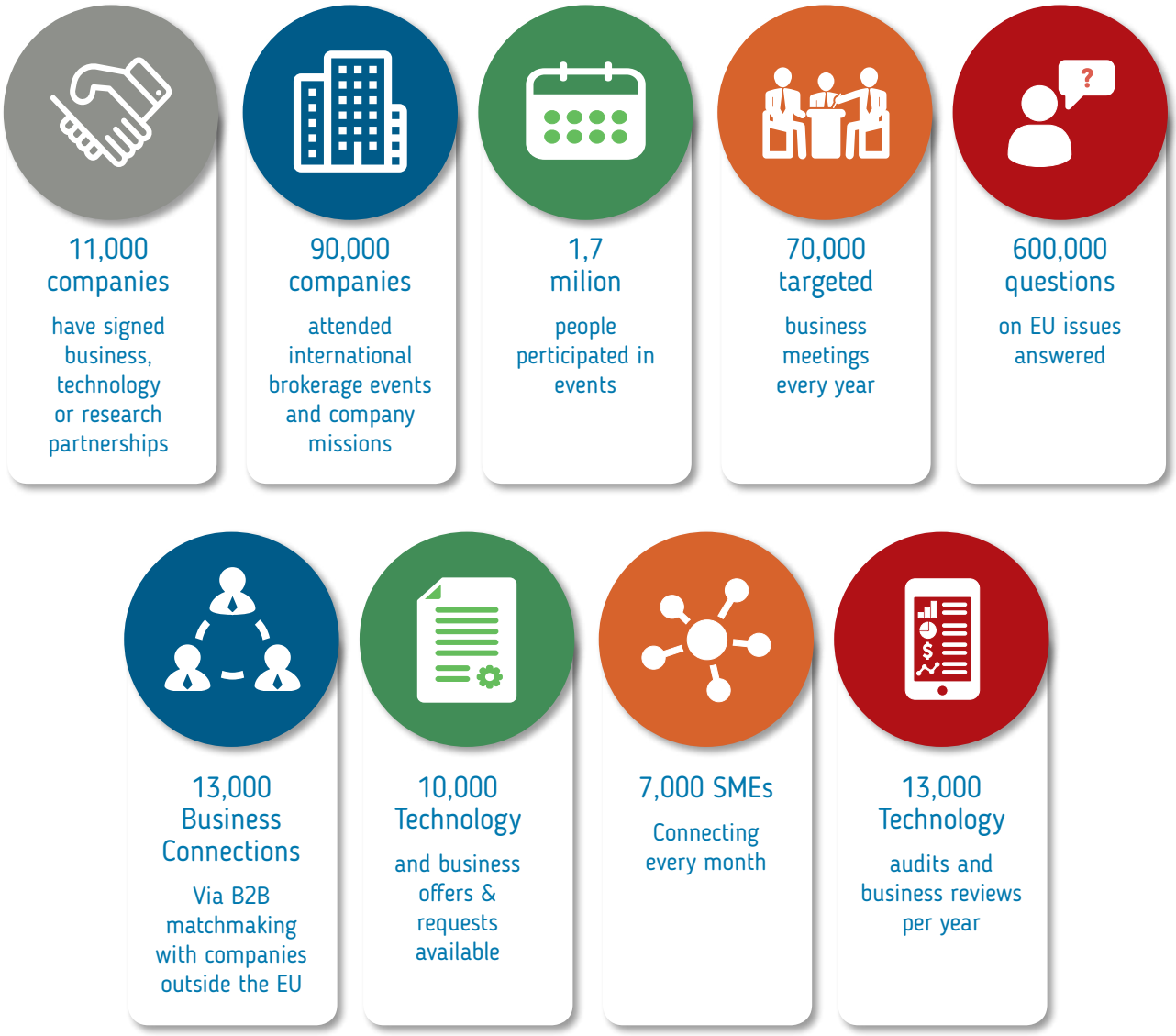
Technology transfer

How it works: international partnerships

The Network's business databases contains thousands of company profiles to find the perfect match. In addition we organise:

- Matchmaking events across Europe where SMEs can meet potential business partners in person.
- Company missions where we set up and prepare you for targeted international meetings with strong bussiness prospects.

Boosting growth and creating jobs in the EU (2008 - 2014)



For any enquiries about the EEN, creation of profiles for the international base, search for possible partnerships, participation in a brokerage event, as well as other necessary information on innovative business internationalization, please contact the EEN partners throughout Croatia:

ZAGREB: een@hamagbicro.hr; een@hgk.hr
VARAŽDIN: een@tp-vz.hr
OSIJEK: een@tera.hr
RIJEKA: step-ri@uniri.hr
SPLIT: een@utt.unist.hr

M-parking (Pay-by-phone parking) - invented by young Croatian innovators and introduced by VIPNET, allows any driver parking in a fare required space the option to divert the expense to a credit card or to a mobile network operator via the use of a mobile phone, mobile application or computer, as opposed to inserting change into a parking meter or pay and display machine. Today pay-by-phone parking is used by millions of people all around the world.

PhotoPay, created by the company Microblink, is a software development kit (SDK) widely used in mobile banking apps for payments. Instead of manual data input simply position a mobile camera on a slip and data is ready in a few seconds, allowing fast payment and significantly improved mobile banking usability.

PhotoMath, Microblinks' other innovative product, is a practical smart mobile application that reads and solves mathematical problems by using the camera of a mobile device in real-time. One of their first innovative products, BlinkID, a mobile scanner application, was used in American elections 2016 for an ID check.

Blink, created by a Croatian company Amphinicy Technologies, is a CCSDS-compatible satellite data acquisition and processing software solution developed primarily for Earth observation missions. Main qualities of this product are its exceptional price competitiveness, short lead times and easy maintenance. The software is currently measured to be at least 20 times faster than its counterpart developed by NASA.

Farmeron is the first cloud-based dairy farm management software platform for tracking, predicting, analysis and improvement, created by Matija Kopić, and brought to more than 650 farms in 14 countries worldwide.

ShoutEm, a service that enabled the user to quickly and cheaply start its own social network without the initial investment, was first independent project in 2009 by the company **Pet minuta**.

The product **Repsly**, created by the company Mobilna informatika, is a mobile data collection and field management tool that has been focused on providing mobile software solutions for enhancing field activity management since its inception in 2010. Setting out to simplify processes for field teams and their managers, Repsly has customers in over 40 countries.

Product **COMPA**, a technology of steel ship structures and tubes repair by means of composite patches, was created by the company **Alveus** – already recognised on the European market.

Steora, the world's best street bench, provides phone charging and internet to users and beautifies the street, as is powered by green solar energy. It was invented by Croatian student Ivan Mrvoš and his startup Include sold almost 100 units in first year.

Nanobit is world-famous for their production of smart phones game applications such as Hollywood Story, Chef Town, Knight Raiders, Bakery Town, Field Commander, Superstar Life, Happy Zoo etc.

Wamster is a synchrophasor measurement and storage system which includes all equipment necessary to create an ad-hoc PMU wide-area network. PMU devices are designed with portability and quick deployment in mind, while the concentrator server provides easy web access, event triggering and data export.

STEMI project provide the opportunity to learn STEM fields (science, technology, engineering and mathematics) through fun projects - which will consist of educational multimedia content on needed subjects and applicable electronic components.

How can we help you?

een.ec.europa.eu

een.hr

HAMAG BIORO

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Business Support on Your Doorstep

European Commission