# HORIZON 2020

## Success Stories in Croatia

January 2020

# Impressum

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Dear readers,

it gives me great pleasure to introduce to you a brochure presenting Croatian Success Stories in the EU Framework Programme for Research and Innovation for the period 2014-2020 - Horizon 2020.

A closer look at the results and project examples illustrated in this brochure clearly shows the existing potential in Croatia for excellent research and innovation.

EU research programmes are very important for small countries like Croatia, allowing us to collaborate and access complementary expertise and infrastructure and to compete at an international level thus demonstrating the quality of our researchers and innovators.

We are delighted to have this opportunity to showcase Croatia's success in Horizon 2020 in all sectors and RDI areas from 2014 until 1st June 2018. In that period, Croatian participants have been successful with 285 projects, ranging from innovative projects at research institutes and Universities up to high-tech companies using Horizon 2020 as an opportunity to increase their capacities and pave the way for new entrepreneurial ventures on global markets. They have won EC funding of €57 million through this extremely competitive Programme, which often means competing with the leading organizations and the most prominent researchers in Europe and beyond. While more than half of Croatian participants are research organizations, I am happy to say that almost a third of them are from the business sector. In addition, a proportion of the funding also benefits government bodies, local authorities and non-profit organizations.

The results of the Croatian participation in Horizon 2020 may be seen as modest on the EU level but they have an important impact on the positive changes in the Croatian research and business community and its visibility throughout Europe.

Accordingly, the Ministry of Science and Education has launched several measures to support Croatian organizations aiming to increase their participation and success rate in Horizon 2020. We thus hope to see even more success stories with clear impact on the development of new innovative products and services but also solutions for the benefit of our society.

I would like to thank the Agency for Mobility and EU Programmes and all the national contact points, Programme Committee members and other experts included in the Horizon 2020 national support system and I am sure that with joint efforts we will be able to achieve even better results in the future.
Yours sincerely,

Blaženka Divjak, PhD, Professor
Minister of Science and Education

Horizon 2020 is the largest EU programme, funding research and innovation with nearly EUR 80 billion available for potential proposers in the period from 2014 to 2020. It was announced as a financial instrument implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness. As a part of Europe's flagship initiative, the programme is supported by European leaders and political structures. In the context of fast-paced rapidly-changing societal and scientific environment, political leaders agreed that investing in research and new innovative solutions is the way to build a better future; one that includes higher economic growth, new jobs and smart, sustainable and inclusive living.

This mission statement is reflected in the organizational structure of Horizon 2020, seeing that it has three major pillars mirroring the priorities of EU development: excellent science, industrial leadership and tackling societal challenges. In addition to putting an emphasis on innovation, commercialization and maximizing the impact of project results in the market, the programme's implementation was intended to reduce barriers to newcomers, especially those coming from the small and middle enterprises. It also significantly simplified procedures and administrative burdens on participants, by simplifying costs, levelling indirect costs for all actions to 25 % and developing better-suited templates.

The first pillar of Horizon 2020, Excellent Science, remains a steady foothold for individual researchers, either through Marie Sklodowska Curie actions or the most prestigious grants of the European Research Council. Areas of Research infrastructure and bold new never-heard-of-before concepts developed in Future and emerging technologies can also be found in the Excellent Science pillar. The second pillar of Horizon 2020, Leadership in enabling and industrial technologies (LEIT) focuses on a strong industrial dimension, where new technology enables and drives innovation in areas such as ICT, Space, SME innovation, Access to Finance, Nanotechnology, Advanced Materials, Advanced Manufacturing and Processing, and Biotechnology. The third pillar tackles societal challenges in Europe and the world, by calling for solutions in the following areas: Health, Demographic Change and Well-being, Food Security, Sustainable Agriculture and Forestry, Marine, Maritime and Inland Water Research and Bioeconomy, Secure, Clean and Efficient Energy, Smart, Green and Integrated Transport, Climate Action, Environment, Resource Efficiency and Raw Materials, Europe in a changing world – Inclusive, innovative and reflective societies and Secure societies – Protecting freedom and security of Europe and its citizens.

The three strong pillars of Horizon 2020 are complemented and highlighted by activities from areas such as Spreading Excellence and Widening Participation, Science with and for Society, Joint Research Centre, EIT, and EURATOM. In the upcoming final biannual Horizon 2020 Work programme, the EU has introduced a pilot area covered by European Innovation Council, with a strong focus on SMEs and innovation, conquering the death valley and bringing European products to market.

In addition to offering a wide range of industrial and scientific topics and fields for European scientists and innovators, Horizon 2020 aims to lower entry barriers for participants – it is open for everyone: research institutions, academia, small companies, industry, private research entities, NGOs and in some cases, even physical entities, for instruments such as fellowships and prizes.

Three of the most prominent financial instruments or types of action in Horizon 2020 are Research and Innovation actions, with 100 % contribution from the European Commission offered to participants, Innovation actions, with funding ranging from 70 to 100 % contribution and Coordination and Support actions, with 100 % contribution.
Research and innovation action includes activities aiming to establish new knowledge and/or to explore the feasibility of a new or improved technology, product, process, service or solution.
Innovation actions aim at producing plans and arrangements or designs for new, altered or improved products, processes or services.

Coordination and Support action focuses on accompanying measures such as standardisation, dissemination, awareness-raising and communication, networking, coordination or support services, policy dialogues, and mutual learning exercises.

By focusing on newcomers and by attempting to bridge the gap between the innovators and their access to the market, through these areas of interests and financial instruments, Horizon 2020 promises more breakthroughs, discoveries, and world-firsts by taking great ideas from the lab to the market.

On the 1st of December 2017, the Council of the European Union adopted conclusions on the transition from the Interim Evaluation of Horizon 2020 towards the FP9. They ask that the European Commission and the Member

States work closely together in order to further develop the European Research Area, and stress the need to ensure coherence with other EU funding programmes.

The Council recognised that Horizon 2020 has made efforts towards simplification and harmonisation and that this simplification should continue in FP9. The Council also recognised the importance of a challenge-driven approach in R&I in the EU and the recommendations of the High-Level Group on mission-oriented, impact-focused approach. Such an approach would bring more effective linkages between the pillars and better transfer of outputs into innovative processes.

The European Commission and the Member States are called upon to establish very early a strategic programming process for the implementation of the future Framework. All of these ambitious goals cannot be done without well-funded and highly performing national R&I systems, according to the Conclusions, so the Council calls on the Member States and the private sector to strive for increasing their investments in R&I to jointly reach the 3 % of GDP per year in R&D investment goal.

## Croatian participations in Horizon 2020 as extracted on the 6th of January 2020

Croatia has been awarded a total of EUR 91.89 million in Net EU financial contribution for 583 participations and 420 projects. 220 organizations were involved in Horizon 2020 projects (several projects have two or more participants from organisations located in Croatia).

It has achieved a success rate in terms of the number of applications – 13,69 % (the average for the EU28 is 15,58 %) and in terms of EU financial contribution to applications – 8.33 % (the average for the EU28 is 14,44 %).
According to the types of participant institutions, 42 higher education institutions successfully participated 159 times, 41 research organizations had 138 participations and 41 public organizations secured 96 participations. 41 HR SMEs participated 76 times in various project.

Regarding the number of grants by type of actions, 146 projects of all funded projects were coordination and support actions (CSA), 119 projects were research and innovation activities (RIA) and 44 projects were innovation action. Further, follow other activities: 5 ERC projects, 30 MSCA, 8 SME Instruments and the rest were others.
The majority of Croatian proposals were submitted to the energy theme followed by food, agriculture, forestry, transport, climate, and environment.

Croatian participants cooperated with partners mostly from Italy (1199), Spain (1185), France (1046) and Germany (952) and acted as project coordinators in 43 projects mainly in coordination and support actions. Most of the awarded participants are located in Zagreb City, 126 organizations with participated 374 times in various projects.

Excellent Science

**General info on Excellent Science**

Excellent Science, as the first pillar of the Horizon 2020 framework programme, aims to boost EU's position as a world leader in science, providing excellent working conditions and attracting the best researchers to Europe and facilitates collaboration between sectors across Europe and beyond. With the budget of approx. 24 billion euros in Horizon 2020, expected impact is increasing the international, interdisciplinary and intersectoral mobility of researchers, strengthen intersectoral and interdisciplinary cooperation between Europe and other countries as well as provide better quality research and innovation. In order to contribute to Europe's competitiveness and growth, and to ensure that best research ideas are implemented, Excellent Science provides four specific objectives and opportunities:

• The European Research Council (ERC) which provides attractive, flexible funding to enable talented researchers to pursue research at the frontiers of knowledge and science. In particular, it encourages proposals of a multi- or interdisciplinary nature which cross the boundaries between different fields of research, pioneering proposals addressing new and emerging fields of research or proposals introducing innovative approaches and scientific inventions.

• Future and emerging technologies (FET) support collaborative research in order to extend Europe's capacity for advanced and paradigm-changing innovation. It aims to establish European leadership in the exploitation of future technologies, identifying future and emerging technological paradigms with the highest potential for Europe's economy and society as well as developing leading-class technology and solutions of the corresponding scientific communities.

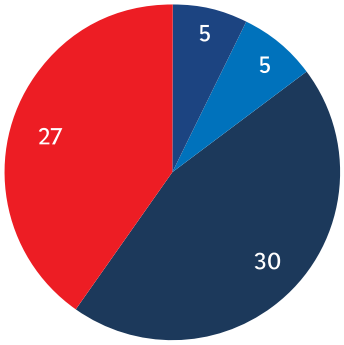
• Marie Skłodowska-Curie Actions (MSCA) provide excellent training through research for most promising young and experienced researchers as well as attractive career and job opportunities. Intersectoral and international mobility, as well as knowledge-exchange opportunity, will prepare researchers to face current and future societal challenges.

• Research infrastructure (RI) (including e-infrastructures) develops European research infrastructure for 2020 and beyond, fosters their innovation potential and human capital, and complements this with the related Union policy and international cooperation. RI gives an opportunity for Europe's researchers to have access to the very latest, state-of-the-art infrastructure – making new and exciting research possible.

By building long-term skills of the researchers, focusing on the next generation of science, technology and innovations, ''bottom-up'' research, Excellent Science will provide strong links between the European Research Area (ERA) and Europe's human capital in R&I as well as increase Europe's attractiveness as a leading research destination.

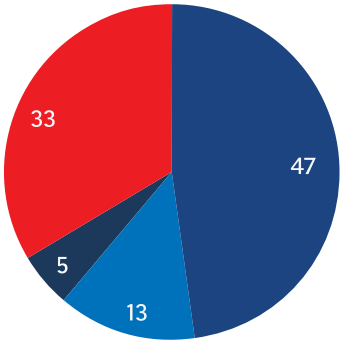
**Number of organizations**

***Type of Area***



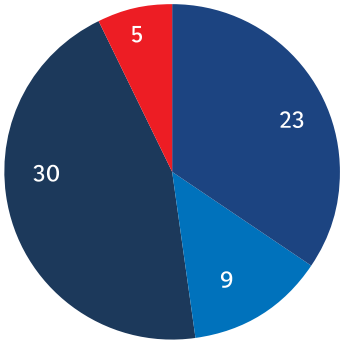

- European Research Council (ERC)
- Future and Emerging Technologies (FET)
- Marie-Sklodowska-Curie Actions (MSCA)
- Research Infrastructures (RI)

***Type of Organization***




- HES - Higher or secondary education
- PRC - Private for profit (excl. education)
- PUB - Public body (excl. research and education)
- REC - Research organisation

***Funding Instrument***




- RIA - Research and Innovation action
- CSA - Coordination & Support Action
- ERC - Support for frontier research / MSCA - Marie Skłodowska-Curie Actions
- OTH - Other

| HORIZON 2020 – European Research Council (ERC) | |
|---|---|
| **Project Name** | **A new class of microtubules in the spindle exerting forces on kinetochores** |
| **Project Acronym** | **NewSpindleForce** |
| **Project ID** | 647077 |
| **Start Day - End Day** | 01/04/15 – 31/03/20 |
| **Instrument Funding** | ERC-COG - Consolidator Grant |
| **Call For Proposal** | ERC-2014-CoG |
| **Topic** | ERC-CoG-2014 - ERC Consolidator Grant |
| **Project Web Site** | http://tolic.irb.hr/erc-project |
| **EC FInancial Contribution** | EUR 2 150 000 |
| **All Participants in Project** | 1 |
| **Croatian Organization** | Ruđer Bošković Institute |
| **Web Site** | https://www.irb.hr/ |
| **EC Financial Contribution to Croatian Partner** | EUR 2 150 000 |
| **Contact Person in Croatia** | Prof. Iva Tolić, PhD |
| **Coordinated in** | Croatia |
| **All Participants in Project** | HR |
| **Project Free Keywords** | *mitotic spindle, microtubules, kinetochores, motor proteins, forces, live-cell imaging, laser microsurgery, modelling* |

**Project Summary**

At the onset of division, the cell forms a spindle, a micro-machine made of microtubules, which divide the chromosomes by pulling on kinetochores, protein complexes on the chromosome. The central question in the field is how accurate chromosome segregation results from the interactions between kinetochores, microtubules and the associated proteins. According to the current paradigm, the forces on kinetochores are produced by k-fibers, bundles of microtubules extending between the spindle pole and the kinetochore. The proposed project is built upon a ground-breaking hypothesis that a new class of microtubules, which we term bridging microtubules, bridge sister kinetochores. Our preliminary results show that bridging microtubules are responsible for the positioning of kinetochores in HeLa and PtK1 cells. Bridging microtubules have not been studied before because this requires cutting-edge microscopy and laser microsurgery techniques. By applying these methods, with which I have extensive expertise, we will determine the organization of these microtubules, identify the proteins that link them with k-fibers, and uncover where and how the forces for kinetochore positioning and movement are generated. My strength is in taking an interdisciplinary approach, which I will use in this project by combining laser microsurgery with genetic perturbations, quantitative measurements of the responses and comparison with theoretical models. Understanding the role of bridging microtubules in force generation and chromosome movements will not only shed light on the mechanism of chromosome segregation, but may also increase the potential of mitotic anticancer strategies, as the spindle is a major target for chemotherapy. The proposed ERC funding is essential for the success of these timely and ambitious experiments, allowing me to strengthen my position as an international leader in research on cell division, thereby increasing Europe's foremost position in this field.

**Role of Croatian organization**

**Ruđer Bošković Institute**

Iva Tolić, the Principal investigator of this project is working at the Ruđer Bošković Institute in Zagreb. The strength of Iva Tolić's research lies in an interdisciplinary approach, by combining laser microsurgery with genetic perturbations, quantitative measurements, and comparison with theoretical models.

The impact of this project lies in strengthening cell biology and biophysics expertise in Croatia and has already made Ruđer Bošković Institute a place of excellence in these fields. This project is enabling a whole group of young PhD students to work in interdisciplinary teams and learn state-of-the art methods, and they are already producing world-class results published in prestigious scientific journals. Another great benefit for the Institute is the 3 million HRK worth state-of-the art spinning disk microscope with a laser microsurgery add-on, acquired by this project, which further strengthens the infrastructure of the Institute, enabling exciting new discoveries to be made.

1_Mitotic spindle in metaphase, NewSpindleForce project; 2_Prof. Iva Tolić, PhD, NewSpindleForce project; 3_Project members, Zagreb, Croatia, NewSpindleForce project; 4_Project member working on the multipoint confocal microscope, NewSpindleForce project

| HORIZON 2020 – European Research Council (ERC) | |
|---|---|
| **Project Name** | **The Janus-face of the localized carrier in cuprates: Generating the pseudogap and high temperature superconductivity** |
| **Project Acronym** | **TheONE** |
| **Project ID** | 725521 |
| **Start Day - End Day** | 01/09/17 – 31/08/22 |
| **Instrument Funding** | ERC-COG - Consolidator Grant |
| **Call For Proposal** | ERC-2016-COG |
| **Topic** | ERC-2016-COG - ERC Consolidator Grant |
| **Project Web Site** | / |
| **EC FInancial Contribution** | EUR 2 133 950 |
| **All Participants in Project** | 2 |
| **Croatian Organization** | University of Zagreb, Faculty of Science |
| **Web Site** | https://www.pmf.unizg.hr/en |
| **EC Financial Contribution to Croatian Partner** | EUR 399 575 |
| **Contact Person in Croatia** | Prof. Neven Barišić, PhD |
| **Coordinated in** | Austria |
| **All Participants in Project** | AT, HR |
| **Project Free Keywords** | *High-Tc Cuprates, Pseudogap, (Mott) Localization, Fermi-liquid, Excitonic superconductivity, Uniaxial pressure, Local probes, Optical conductivity, Transport, Quantum oscillations* |

**Project Summary**

The phenomenon of high-temperature (high-$T_c$) superconductivity (SC) is one of the most exciting, thoroughly investigated yet still unresolved problems in physics. A major difficulty in understanding high-$T_c$ systems lies in the complexity of the materials and phase diagram. The delicate balance between material specific properties, disorder and the number of electronic phases superimpose makes it hard to identify the leading interactions. Consequently, theoretical models attempting to describe the high-$T_c$ SC are significantly disparate and identifying the mechanism of SC at elevated temperatures is full of hardship. Due to the proximity of the antiferromagnetic phase, the strong electronic interactions, the appearance of a pseudogap etc., the electronic phase is considered to be exotic, a non-Fermi Liquid and the coupling mechanism for Cooper pairs strange. Based on my recent experiments, here I propose a change of paradigm:

• that the charge carriers which couple to give high temperature superconductivity follow the well-known Fermi-liquid behavior

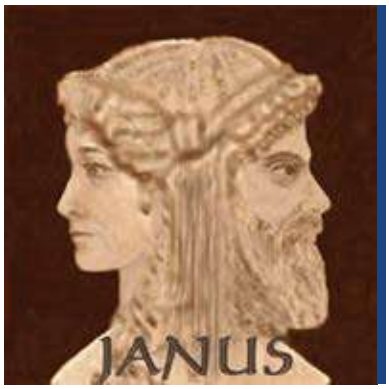
• that the pseudogap phenomenon corresponds to a gradual (Mott-like) localization of exactly ONE charge carrier per unit cell

• the "Glue" for pairing stems from a bosonic excitation of ONE localized carrier leading to a novel excitonic mechanism for SC. These hypotheses will be tested primarily on the model compound Hg1201, which features a simple tetragonal structure, minimal disorder effects, and the highest $T_c$ in its class of single-layer compounds. Fermi-liquid aspects will be probed by novel approaches to (magneto) transport, optical conductivity. The relation between SC and The ONE will be explored by unique experimental setups that combine uniaxial-pressure with local/structural probes. If the above conjectures are indeed confirmed it would give an enormous boost to this field. Beyond finding the solution of a 30-year-old enigma, it would enable an educated search for new materials with potentially even higher $T_c$'s.

**Role of Croatian organization**

**University of Zagreb, Faculty of Science**

Superconductivity is a state of matter in which electrical current flows without any resistance. Some materials, like cuprates, exhibit this state for yet unknown reasons at surprisingly high temperatures (≈150 Kelvin). Solving the high-temperature superconductivity enigma presents one of the most challenging and conceptually interesting experimental, theoretical and technological problems of our time. Through financing the consolidator project TheONE the ERC enabled me to propose an original solution to this riddle and supported my investigations along these proposed lines. In essence, the entire complexity of cuprates lies in a gradual localization of exactly one hole per CuO2 unit that shows, depending on temperature and doping, either its itinerant („Fermi-liquid“) or its („Mott„) localized face. The interplay of this Janus-faced charge results in the superconducting state. In addition, thanks to the ERC funding I will not only try to prove those premises but also build a material synthesis laboratory, which is in many respects of strategical interest for the development of experimental solid-state physics in Zagreb. Hopefully the planted seed will grow with time and be of use for the whole neighbouring mid-European region.




1_TheONE project

| HORIZON 2020 – European Research Council | | |
|---|---|---|
| **Project Name** | **Estimating contribution of sub-hourly sea level oscillations to overall sea level extremes in changing climate** | |
| **Project Acronym** | **SHExtreme** | |
| **Project ID** | ERC-2019-StG 853045 | |
| **Start Day - End Day** | 1 September 2020 – 31 August 2025 | |
| **Instrument Funding** | ERC Starting Grand 2019 | |
| **Call For Proposal** | ERC-2019-StG | |
| **Topic** | Physical Sciences and Engineering, Earth System Science, Oceanography | |
| **Project Web Site** | not yet available | |
| **EC FInancial Contribution** | EUR 806,250.00 | |
| **All Participants in Project** | 1, Croatia | |
| **Croatian Organization** | University of Split, Faculty of Science | |
| **Web Site** | https://www.pmfst.unist.hr/ | |
| **EC Financial Contribution to Croatian Partner** | EUR 806,250.00 | |
| **Contact Person in Croatia** | Jadranka Šepić | |
| **Coordinated in** | Croatia, University of Split, Faculty of Science | |
| **All Participants in Project** | University of Split, Faculty of Science | |
| **Project Free Keywords** | *sea level extremes, climate changes* | |

**Project Summary**

Coping with a sea level rise, induced by climate change processes, is one of the most important challenges of modern society. It has been projected that, by the end of the 21st century, mean sea level (MSL) will rise between 40 and 60 cm worldwide. Higher MSLs imply that flood risks associated to extreme sea levels (ESLs) will also increase, with the 100-year return levels of extreme events along European coasts projected to increase between 50 and 90 cm by the 2100. ESLs occur due to a superposition of numerous oceanic phenomena which act over different temporal (from seconds to millennia) and spatial scales (from bays to oceans). Within SHExtreme project, contribution of under-researched sub-hourly sea level oscillations to the ESLs along the European coast will be studied. High resolution 1-min sea level data measured at more than 100 tide gauge stations, as well as reanalysis, hindcast and future simulations, will be analyzed to achieve project goals: (i) assessing present day distribution of sub-hourly sea level oscillations and estimating their contribution to the overall ESLs; (ii) linking sub-hourly ESLs to typical synoptic conditions; (iii) estimating future strength and distribution of ESLs related to sub-hourly sea level oscillations. Project SHExtremes will result with the first comprehensive estimate of intensity, frequency, and spatial and temporal distribution of present and future-day sub-hourly ESLs along the European coasts.

**Role of Croatian organization**

Croatian organizations, Faculty of Science, University of Split is leading (and only) organization of the project SHExtreme. Project team members will be scientist from the Faculty of Science, University of Split, including at least two persons (PhD students and/or postdocs) to be employed on the project. Nonetheless, within the project course strong collaboration with Croatian and international experts on sea level extremes and climate change is expected.

| HORIZON 2020 – European Research Council | | |
|---|---|---|
| **Project Name** | **Molecular origins of aneuploidies in healthy and diseased human tissues** | |
| **Project Acronym** | **Aneuploidy** | |
| **Project ID** | 855158 | |
| **Start Day - End Day** | 01/04/20 – 31/03/25 | |
| **Instrument Funding** | ERC Synergy Grants 2019 | |
| **Call For Proposal** | ERC-2019-SyG | |
| **Topic** | ERC-2019-SyG - ERC Synergy Grants 2019 | |
| **Project Web Site** | http://tolic.irb.hr/erc-synergy | |
| **EC FInancial Contribution** | EUR 10 000 000 | |
| **All Participants in Project** | 4 Primary Investigators from Croatia, Netherlands and USA | |
| **Croatian Organization** | Ruđer Bošković Institute, Zagreb<br>University of Zagreb, Zagreb | |
| **Web Site** | www.irb.hr; www.pmf.unizg.hr | |
| **EC Financial Contribution to Croatian Partner** | Ruđer Bošković Institute EUR 3 833 375<br>University of Zagreb (Faculty of science) EUR 1 499 625 | |
| **Contact Person in Croatia** | Prof Iva Tolić, Prof Nenad Pavin | |
| **Coordinated in** | Croatia | |
| **All Participants in Project** | HR, NL, USA | |
| **Project Free Keywords** | *chromosome segregation, aneuploidy, mitotic spindle, organoids, laser microsurgery, theory, modeling* | |

**Project Summary**
Chromosome segregation errors cause aneuploidy, a state of karyotype imbalance that is devastating to embryonic development and accelerates tumor formation. Although much is known about the many mechanisms that ensure high-fidelity chromosome segregation, little is known about molecular causes of karyotype aberrations in diseases and how errors are propagated and impact genome integrity over time. The main goal of this project is to uncover the molecular origins of mitotic errors and their contribution to karyotype aberrations in healthy and diseased tissues. In the long run, the concepts and approaches developed in this project will be also useful to study the causes and effects of mitotic errors in other contexts including infertility and embryonic development.
This project requires a combined effort of experts in molecular and cell biology, cell biophysics, cancer biology, and theoretical physics. An interdisciplinary team consisting of four leading scientists has been chosen to embark on this ambitious venture. Prof Tolić is an expert on the biophysics of the mitotic spindle and high-resolution quantitative imaging; Prof Kops on chromosomal instability in 3D models of cancer and the spindle assembly checkpoint; Prof Amon on aneuploidy and mouse models; and Prof Pavin on theoretical descriptions of spindle dynamics and aneuploidy. The extensive sets of expertise present in this team will be combined and expanded with novel technologies to tackle the big challenge of the origins of aneuploidy in humans.

**Role of Croatian organization**

Iva Tolić, the Corresponding Principal Investigator of this project is a senior scientist at the Ruđer Bošković Institute (RBI) in Zagreb, which is the Corresponding Host Institution. The RBI team will introduce new approaches to study aneuploidy (superresolution microscopy, lattice light sheet microscopy, optogenetics, laser ablation), develop quantitative assays for mitotic errors in cells and tissues, and perform biophysical studies of chromosome segregation. Prof Pavin, one of the four Principal Investigators on the project is a professor at the Physics department of the Faculty of science at the University of Zagreb. His team will develop a theoretical model for aneuploidy, including theory for error correction and theory for error propagation. This project will strengthen biophysics research in Croatia, which will be especially boosted through cooperation with the Hubrecht Institute and MIT. The infrastructure of the RBI will be further developed by the acquisition of a state-of-the art Lattice Light Sheet Microscope.

Disclaimer: It should be noted that the Agreement has not been signed yet, and the data presented herein are still undergoing the agreement negotiation process.

| HORIZON 2020 – Future and Emerging Technologies (FET) | |
|---|---|
| **Project Name** | **Submarine Cultures Perform Long-Term Robotic Exploration Of Unconventional Environmental Niches** |
| **Project Acronym** | **subCULTron** |
| **Project ID** | 640967 |
| **Start Day - End Day** | 01/04/15 – 31/03/19 |
| **Instrument Funding** | RIA - Research and Innovation action |
| **Call For Proposal** | H2020-FETPROACT-2014 |
| **Topic** | FETPROACT-2-2014 - Knowing, doing, being: cognition beyond problem solving |
| **Project Web Site** | http://www.subcultron.eu/ |
| **EC FInancial Contribution** | EUR 3 987 650 |
| **All Participants in Project** | 9 |
| **Croatian Organization** | University of Zagreb, Faculty of Electrical Engineering and Computing |
| **Web Site** | https://www.fer.unizg.hr/en |
| **EC Financial Contribution to Croatian Partner** | EUR 667 080 |
| **Contact Person in Croatia** | Prof. Stjepan Bogdan, PhD |
| **Coordinated in** | Austria |
| **All Participants in Project** | AT, HR, IT, BE, FR, DE |
| **Project Free Keywords** | *underwater cultures, marine technology, energy harvesting, energy sharing, autonomy, electric sense, bio-inspired design, bio-inspired algorithms, long-term learning, collective memory* |

**Project Summary**

SubCULTron aims for achieving long-term autonomy in a learning, self-regulating, self-sustaining underwater society/culture of robots in a high-impact application area: Venice, Italy. Our heterogeneous system consists of 3 different agent types. On the sea-ground, artificial mussels are the collective long-term memory of the system, allowing information to stay beyond the runtime of other agents, thus allowing to continue learning from previously learned states. These mussels monitor the natural habitat, including biological agents like algae, bacterial incrustation, and fish. On the water surface, artificial lily pads interface with the human society, delivering energy and information influx from ship traffic or satellite data. Between those two layers, artificial fish move/monitor/explore the environment and exchange info with the mussels and lily pads. Artificial mussels are a novel class of underwater agents. We aim to push forward the edge of knowledge with novel sensors (electric sense/electro-communication), novel bio-inspired algorithms (underwater hives) and novel energy harvesting in underwater scenarios. We will improve the world's record for swarm-size in autonomous collective underwater robotics by almost one order of magnitude. Our application field is a human- and animal-co-inhabited real-world environment of high impact: Venice canals & lagoon. These habitats are highly dynamic and structured, expected to be reflected by a spatial self-structuring of our mussel population. These sub-populations locally perform memetic/cultural learning algorithms on their specific local data. Thus our cultural evolution algorithms will promote sub-culture development, similar to the human society that does the same above the water level in parallel. Overall, we aim for an artificial society underneath the water-surface to the service of a human society above the water.

**Role of Croatian organization**

**University of Zagreb, Faculty of Electrical Engineering and Computing**

The research team from UNIZG-FER is heavily involved in the development of both hardware and software for use in the subCULTron marine robotic swarm, working primarily on the autonomous surface platform and artificial lily

pad – aPad, and the underwater environmental monitoring- focused artificial mussel robot - aMussel. The team has implemented an acoustic communication network, enabling the many agents in the robotic swarm to exchange information and make decisions underwater. Extensive work has been done on achieving long-term autonomy by developing methods of energy sharing within the swarm, having the robots interact and cooperate by charging each other's batteries. Algorithms, procedures, and equipment developed within the scope of the subCULTron project will continue to benefit the research team and the institution, as will the valuable knowledge and experience acquired by participating in experiments in challenging real-world conditions in the lagoons of Venice.

1_Project members with robots, Venice, Italy, subCULTron project; 2_aPad, subCULTron project

| HORIZON 2020 – Future and Emerging Technologies (FET) | | |
|---|---|---|
| **Project Name** | **Reservoir Computing with Real-time Data for future IT** | |
| **Project Acronym** | **RECORD-IT** | |
| **Project ID** | 664786 | |
| **Start Day - End Day** | 01/09/15 – 31/08/18 | |
| **Instrument Funding** | RIA - Research and Innovation action | |
| **Call For Proposal** | H2020-FETOPEN-2014-2015-RIA | |
| **Topic** | FETOPEN-1-2014 - FET-Open research projects | |
| **Project Web Site** | https://www.chalmers.se/en/projects/Pages/RECORD-IT.aspx | |
| **EC FInancial Contribution** | EUR 4 193 147,25 | |
| **All Participants in Project** | 9 | |
| **Croatian Organization** | Ruđer Bošković Institute | |
| **Web Site** | https://www.irb.hr/ | |
| **EC Financial Contribution to Croatian Partner** | EUR 349 462,50 | |
| **Contact Person in Croatia** | Prof. Željko Crljen, PhD | |
| **Coordinated in** | Sweden | |
| **All Participants in Project** | SE, FR, CH, PL, IL, DE, HR | |
| **Project Free Keywords** | *reservoir computing, pattern recognition, biological scale sensors* | |

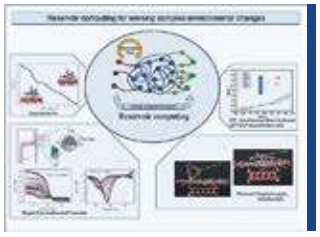
**Project Summary**

The aim of this proposal is to develop an intelligent biocompatible sensing device which detects complex behavioural changes in ion concentrations. The sensor will use wet NOMFETs, coated Si nanowires, self-conjugated polymers, arrays of photocells, flow of lipids. The level of ions will be measured by monitoring changes in the response function of the system. The high sensitivity of the device will be achieved by ensuring a strong coupling between the environment and the device. The key research challenges will be: accessing the feasibility of the idea to use reservoir computing for sensing complex environmental changes, identifying suitable integration strategies for the components, optimizing the sets of input/output pairs (response functions) and the device components for enhanced sensitivity.

**Role of Croatian organization**

**Ruđer Bošković Institute**

The project uses the concept of reservoir computing further developed for sensing applications and envisions applications in various fields of bio-sensing, e.g. an early disease detection by monitoring selected ion concentrations. As a theoretical partner, our team made contributions in the realization of the goals of the project with a number of calculations of structure and dynamics of the sensor units, based on both first principles methods and phenomenological macroscopic models. We point in particular to our work on the organic field effect transistor (OECT) inductive behaviour and the model of multi-component ionic systems with a special molecular type of receptor layer resulting in a new sensing possibility. The benefit of the project is enhanced RBI research capacities in the field of theoretical condensed matter and statistical physics. The project showed the important role of theoretical physics in the multidisciplinary research. The partnership with the leading European institutions boosts RBI to the level of excellence of leading European institutions.



1_RECORD-IT project

| HORIZON 2020 – Future and Emerging Technologies (FET) | | |
|---|---|---|
| **Project Name** | **MANGO: exploring Manycore Architectures for Next-GeneratiOn HPC systems** | |
| **Project Acronym** | **MANGO** | |
| **Project ID** | 671668 | |
| **Start Day - End Day** | 01/10/15 – 31/03/19 | |
| **Instrument Funding** | RIA - Research and Innovation action | |
| **Call For Proposal** | H2020-FETHPC-2014 | |
| **Topic** | FETHPC-1-2014 - HPC Core Technologies, Programming Environments and Algorithms for Extreme Parallelism and Extreme Data Applications | |
| **Project Web Site** | http://www.mango-project.eu/ | |
| **EC FInancial Contribution** | EUR 5 801 820 | |
| **All Participants in Project** | 10 | |
| **Croatian Organization** | University of Zagreb, Faculty of Electrical Engineering and Computing | |
| **Web Site** | https://www.fer.unizg.hr/en | |
| **EC Financial Contribution to Croatian Partner** | EUR 436 000 | |
| **Contact Person in Croatia** | Prof. Mario Kovač, PhD | |
| **Coordinated in** | Spain | |
| **All Participants in Project** | ES, IT, HR, DE, FR, CH, NL | |
| **Project Free Keywords** | *Real-time HPC, power-performance-predictability, capacity computing, partitionability, reconfigurability* | |

**Project Summary**

The performance/power efficiency wall poses the major challenge faced nowadays by HPC (High-Performance Computing). Looking straight at the heart of the problem, the hurdle to the full exploitation of today computing technologies ultimately lies in the gap between the applications' demand and the underlying computing architecture: the closer the computing system matches the structure of the application, the most efficiently the available computing power is exploited. Consequently, enabling deeper customization of architectures to applications is the main pathway towards computation power efficiency. The MANGO project is built on this consideration and is setting inherent architecture-level support for application-based customization as one of its underlying pillars. In addition to mere performance and power-efficiency, it is of paramount importance to meet the new non-functional requirements posed by emerging classes of applications. In particular, a growing number of HPC applications demand some form of time-predictability, or more generally Quality-of-Service (QoS), particularly in those scenarios where correctness depends on both performance and timing requirements and the failure to meet either of them is critical. Examples of such time-critical application include:

• online video transcoding: the server-side on-the-fly conversion of video contents, which involves very computation-intensive operations on huge amounts of data to be performed within near real-time deadlines.

• medical imaging: characterized by both stringent low-latency requirements and massive computational demand.

Time predictability and QoS, unfortunately, are a relatively unexplored area in HPC. While traditional HPC systems are based on a "the faster, the better" principle, real time is a feature typically found in systems used for mission-critical applications, where timing constraints usually prevail over performance requirements. In such scenarios, the most straightforward way of ensuring isolation and time-predictability is through resource overprovisioning, which is in striking contrast to power/performance optimization In fact, predictability, power, and performance (3P) appear to be three inherently diverging perspectives on HPC. We collectively refer to this range of trade-offs, well captured in Figure above, as the 3P space. The combined optimization of 3P figures is made even more challenging by new delivery models, such as outsourced and cloud-based HPC, which are dramatically widening the amount and the type of HPC demand. Cloud enables resource usage and business model flexibility, but it inherently requires

virtualization and large scale capacity computing support, where many unrelated, competing applications with very different workloads are served concurrently. The essential objective of project MANGO is to achieve extreme resource efficiency in future QoS-sensitive HPC through ambitious cross-boundary architecture exploration. The research is investigating the architectural implications of the emerging requirements of HPC applications, aiming at the definition of new-generation high-performance, power-efficient, deeply heterogeneous architectures with native mechanisms for isolation and quality-of-service. To achieve such ambitious objectives, MANGO project is avoiding conservative paths. Instead, its disruptive approach is challenging several basic assumptions, exploring new many-core architectures specifically targeted at HPC. The project is involving many different and deeply interrelated mechanisms at various architectural levels:

- heterogeneous computing cores
- memory architecture
- interconnect
- runtime resource management
- power monitoring and cooling
- programming models

**Role of Croatian organization**

**University of Zagreb, Faculty of Electrical Engineering and Computing**

As Croatia's leading academic and research institution in the field of electrical engineering, computing, and information and communication technology, Faculty of Electrical Engineering and Computing (FER) as a partner in MANGO project will be especially focused on creation of new hardware non-Von Neumann accelerator cores for video transcoding, datapath enlargements of the graphical unit cores and integration of MANGO heterogeneous processing tiles into efficient 3P processing mode. The research is performed at HPC Architecture and Application Research Center (https://hpc.fer.hr) at the Faculty of Electrical Engineering and Computing. Key scientists that are involved in this project are Prof. Mario Kovač, PhD who leads the MANGO FER project and is also HPC Research Center Director, Prof. Hrvoje Mlinarić, PhD Prof. Josip Knezović,PhD, Prof. Vlado Sruk, PhD and Ass. prof. Daniel Hofman, PhD together with several postdoc and doctoral students. The focus of the research group is the design of high-performance, energy-efficient, application-specific computing systems. Throughout research activities in MANGO project, research group addresses the hot-topic challenges for both: embedded and HPC systems such as energy efficiency, architectural and algorithmic optimizations of compute-intensive applications. The results of MANGO will create new knowledge by internationally acknowledged research and by development, to innovatively develop the economy and public services, hence contributing to the overall development of the society and also enable competitive education in European higher and research area; it will create new forms of knowledge transfer to the Croatian and EU industry.

1_Project members, MANGO project; 2_Project members, MANGO project;
3_MANGO Prototype Platform, MANGO project

| HORIZON 2020 – Marie Sklodowska-Curie actions | | |
|---|---|---|
| **Project Name** | **Structured Training and Advanced Research in Marine Active Structures** | |
| **Project Acronym** | **STARMAS** | |
| **Project ID** | 657539 | |
| **Start Day - End Day** | 01/05/16 – 30/04/18 | |
| **Instrument Funding** | MSCA-IF-EF-ST - Standard EF | |
| **Call For Proposal** | H2020-MSCA-IF-2014 | |
| **Topic** | MSCA-IF-2014-EF - Marie Skłodowska-Curie Individual Fellowships (IF-EF) | |
| **Project Web Site** | https://www.fsb.unizg.hr/starmas/ | |
| **EC FInancial Contribution** | EUR 158 010 | |
| **All Participants in Project** | 1 | |
| **Croatian Organization** | University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture | |
| **Web Site** | https://www.fsb.unizg.hr/ | |
| **EC Financial Contribution to Croatian Partner** | EUR 158 010 | |
| **Contact Person in Croatia** | Neven Alujević, MEng, PhD | |
| **Coordinated in** | Croatia | |
| **All Participants in Project** | HR | |
| **Project Free Keywords** | *Marine Engineering, Ship stability, Active/passive vibration absorbers, Active/passive anti-roll tanks, Ship roll control, Active vibration control, Parametric resonance, Energy harvesting* | |

**Project Summary**

In the last 25 years, the total amount of marine trade has nearly doubled. In the same period, the container trade has undergone a tenfold increase, making the container fleet the fastest growing fleet at present. With 80 % of total EU trade being transported by sea, the maritime transport is of the greatest importance to the EU. The increasing demand in container transportation is met by use of more containerships. Such ships with a large bow and stern flares and fine underwater hull are severely hit by an effect known as parametric rolling. Accidents including container loss and vessel structural damage are reported from all around the world. Capsizing could be regarded as a rare event, but the consequences of such an event are fatal (loss of the ship and the crew). Agencies, classification societies, and the public are showing more and more interest in increasing the safety of large container ships. STARMAS is a highly interdisciplinary integrated research and training programme focused on the application of novel active control methods to increase safety, energy efficiency and quality of life at sea of the 21st-century maritime transport. The problem of ship roll on rough seas will be tackled using novel active roll control methodologies. Bi-directional transfer of knowledge and cross-fertilisation between traditionally detached engineering disciplines will be unlocked, utilising a unique research approach to enduring engineering problems related to sea keeping, survival rate, and energy efficiency of marine vessels. The programme will boost the career prospects, increase employability and widen the set of skills of the experienced researcher. The training and research will predominately take place within the academic sector, at the Faculty of Mechanical Engineering and Naval Architecture (FAMENA). The researcher will also benefit from secondments to the non-academic partner Bureau Veritas, Paris, (BV) facilitating an inter-sectoral transfer of knowledge.

**Role of Croatian organization**

**University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture**
I have the role of a Researcher in the project. Benefits for the institution can be expected in terms of scientific publications, PhDs, updated academic curricula in the field of marine structures analysis and strengthened long-term cooperation with both other universities and non-academic sector. Further benefits include steering future classification rules, regulations, and recommendations for the design and operation of ships and offshore structures, particularly large containerships, in accordance with national and international regulatory organisations.

1_Neven Alujević, MEng, PhD,
STARMAS project

| HORIZON 2020 – Marie Sklodowska-Curie actions | | |
|---|---|---|
| **Project Name** | **A training network for the rational design of the next generation of well-defined glycoconjugate vaccines** | |
| **Project Acronym** | **GLYCOVAX** | |
| **Project ID** | 675671 | |
| **Start Day - End Day** | 01/11/15 – 31/10/19 | |
| **Instrument Funding** | MSCA-ITN-ETN - European Training Networks | |
| **Call For Proposal** | H2020-MSCA-ITN-2015 | |
| **Topic** | MSCA-ITN-2015-ETN - Marie Skłodowska-Curie Innovative Training Networks (ITN-ETN) | |
| **Project Web Site** | http://www.glycovax.eu/ | |
| **EC FInancial Contribution** | EUR 3 554 499,69 | |
| **All Participants in Project** | 12 | |
| **Croatian Organization** | University of Rijeka, The Faculty of Medicine | |
| **Web Site** | https://www.medri.uniri.hr/hr/ | |
| **EC Financial Contribution to Croatian Partner** | EUR 247 761 | |
| **Contact Persons in Croatia** | Assoc. prof. Tihana Lenac Roviš, PhD | |
| **Coordinated in** | Italy | |
| **All Participants in Project** | PT, IT, NL, ES, FR, UK, HR, DE | |
| **Project Free Keywords** | *Carbohydrates, Glycoconjugates, Carbohydrate Chemistry, Glycoscience, Automated synthesis, Bioconjugation, Glycan microarrays, Immunology, Biophysics, Vaccines, Structural Vaccinology.* | |

**Project Summary**

GLYCOVAX is a network for the education of promising young scientists who will learn how to rationally design a next generation of well-defined and innovative glycoconjugate vaccines to improve current preventive therapies and to tackle unmet medical needs. Glycoconjugate vaccines represent the key for success of vaccination in children. The covalent linkage to proteins renders carbohydrates able to evoke a T-cell memory response. Current vaccines are prepared from heterogeneous mixtures of sugars linked by unspecific methods to the carrier protein giving complex mixtures of products. Due to this intricate structure, it has not been possible to apply a medicinal chemistry approach in the development of glycoconjugate vaccines and to fully understand their mechanism of action. Combination of novel approaches for glycan synthesis and site-selective conjugation methods now gives access to conjugates defined in sugar component and attachment site, thus leading to robust structure-immunogenicity relationship. Advancements in structural biophysics can be applied to select the optimal glycan antigen. By combining the beneficiaries' expertise in carbohydrate synthesis, bioconjugation, high throughput screening, structural glycobiology, vaccinology and immunology, together with the experience in project management, GLYCOVAX will create a multidisciplinary environment where 14 young researchers will contribute to develop a novel route towards improved, safer and better characterized glycoconjugate vaccines, and contemporarily acquire transferable skills which will lead them to become the new leaders of academic or industrial research. The network will involve 9 academic groups and 2 industrial partners as Beneficiaries, and one SME as Partner Organization. The profound interaction between academy and industry will aid the students to get new concepts and visions for translating their ideas from the bench to the manufacturing of the next generation of glycoconjugate vaccines.

**Role of Croatian organization**

**University of Rijeka, Faculty of Medicine**
The role of the University of Rijeka, Faculty of Medicine in the project is to develop and characterise monoclonal antibodies which will have the ability to bind to defined polysaccharides: capsular polysaccharide type II from S. agalactiae (GBS II) and N. meningitidis (MenA/X), and at the same time have a protective capacity. The involvement in GLYCOVAX enables the University of Rijeka, Faculty of Medicine to closely collaborate with the top academic and industrial players in Europe in glycoscience, an emerging and promising field that is often not even included in traditional academic programmes. The project coordinator, GlaxoSmithKline Vaccines, is a large international company specialized in the manufacturing of some of the most relevant glycoconjugate vaccines in the market. Through the extensive level of intersectoral and international mobility, the project directly contributes to the innovative capacity and internationalisation of the Croatian scientific sector.

1_Project members, Rijeka, Croatia, GLYCOVAX project; 2_Project members, GLYCOVAX project

| HORIZON 2020 – Marie Sklodowska-Curie actions | |
|---|---|
| **Project Name** | **People for tHe eurOpean bioENergy mIX** |
| **Project Acronym** | **Phoenix** |
| **Project ID** | 690925 |
| **Start Day - End Day** | 01/12/15 – 30/11/19 |
| **Instrument Funding** | MSCA-RISE - Marie Skłodowska-Curie Research and Innovation Staff Exchange (RISE) |
| **Call For Proposal** | H2020-MSCA-RISE-2015 |
| **Topic** | MSCA-RISE-2015 - Marie Skłodowska-Curie Research and Innovation Staff Exchange (RISE) |
| **Project Web Site** | http://www.eseia.eu/files/attachments/10457/551486_Phoenix_PR.pdf |
| **EC FInancial Contribution** | EUR 1 377 000 |
| **All Participants in Project** | 15 |
| **Croatian Organizations** | University of Zagreb, Faculty of Food Technology and Biotechnology<br>University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture |
| **Web Site** | http://www.pbf.unizg.hr/<br>https://www.fsb.unizg.hr/ |
| **EC Financial Contribution to Croatian Partner** | EUR 135 000 |
| **Contact Persons in Croatia** | Prof. Božidar Šantek, PhD; Prof. Goran Krajačić, PhD |
| **Coordinated in** | Austria |
| **All Participants in Projects** | AT, BE, HR, FI, DE, NL, PT, RO, AM, BY |
| **Project Free Keywords** | *bio-resource, bio-energy, bio-economy, value chains, bio-fuels, bio-refineries, grid integration, thermal biomass utilisation, training, inter-sector, renewable, sustainable* |

**Project Summary**

The development and adoption of renewable and sustainable forms of energy has become a major priority for Europe and is an important theme in H2020. Research into new, energy-related technologies to reduce Europe's reliance on non-renewable fossil fuels is a critical need and requires more newly qualified people in areas such as renewable-energy infrastructure management, new energy materials, and methods, as well as smart buildings and transport. Bio-energy is particularly relevant to the Work Programme, because it is at the crossroads of several key European policies – from the Strategic Energy Technology Plan Roadmap on Education and Training (SET-Plan) to the European Bio-economy Strategy for European Food Safety and Nutrition Policy. So far, technological development has concentrated on using crops and wood for fuel, energy and industrial products. These conventional bio-resources are, however, limited, and the use of nonconventional, currently unused or under-utilised bio-resources provides the best possibility for the growth of the bioeconomy. However, European development in this priority field is failing to keep pace with demand due to a lack of qualified personnel, a lack of cohesion and integration among stakeholders, and poorly developed links between professional training and the real needs of industry. Based on seven work packages the Phoenix RISE project will address these issues by exploiting the complementary expertise of its partners and creating synergies between them through the targeted secondments of staff to advance research and innovation knowledge in bio-energy research. Phoenix is an international, interdisciplinary, cross-sectorial project, bringing together a total of 15 partners: 14 from the EU (5 companies and 7 academic organisations) and two Third-Country academic partners to enhance its collective research excellence and create new, post-graduate-level research training in key disciplines that support the provision of bio-energy.

**Role of Croatian organizations**

**University of Zagreb, Faculty of Food Technology and Biotechnology**
The Faculty of Food Technology and Biotechnology (FFTB), University of Zagreb is a partner of the Phoenix project (GA 690925) and it is responsible for research and development in the field of biotechnological utilization of various non-conventional bio-resources and by-products from bio-based industries for biofuels and biochemicals production. FFTB is involved in secondments dealing with biofuels and biochemicals production with leading institutions in these fields from Belarus (Belarussian National Technical University, Minsk) and Armenia (SPC "Armbiotechnology", National Academy of Sciences; Yerevan). Secondments have to improve the common strength of the partners through complementary research and knowledge. The main benefit of Phoenix project is the establishment of an active network between all project consortium members that ensures active scientific cooperation and the possibility for preparation of new European research project in the frame of Horizon 2020 or Horizon Europe.

**University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture**
The University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture (UNIZG FSB) is responsible for the Work Package (WP) dealing with the bioresource-based multi-valent energy technologies. The activities of this WP aim to provide research and the assessment of the interactions between energy technologies based on nonconventional bioresources and heating, electricity and gas distribution grids. This is achieved throughout the secondments between business and research partners. The cross-sectoral cooperation also aims to improve the innovation capacity of the involved research institution. The UNIZG FSB is actively contributing to the project by continuously sending their staff to partner institutions as well as receiving secondees. These activities are expected to have a long-term benefit for the UNIZG FSB due to the increased possibilities of knowledge and know-how transfer during the secondments as well as developing and strengthening partnerships.

| HORIZON 2020 – Research Infrastructures | | |
|---|---|---|
| **Project Name** | **European Cohort Development Project** | |
| **Project Acronym** | **ECDP** | |
| **Project ID** | 777449 | |
| **Start Day - End Day** | 01/01/18 – 30/06/19 | |
| **Instrument Funding** | RIA - Research and Innovation action | |
| **Call For Proposal** | H2020-INFRADEV-2017-1 | |
| **Topic** | INFRADEV-01-2017 - Design Studies | |
| **Project Web Site** | http://www.eurocohort.eu/ | |
| **EC FInancial Contribution** | EUR 2 048 880 | |
| **All Participants in Project** | 17 | |
| **Croatian Organization** | Institute of Social Sciences Ivo Pilar | |
| **Web Site** | https://www.pilar.hr/ | |
| **EC Financial Contribution to Croatian Partner** | EUR 91 861,25 | |
| **Contact Person in Croatia** | Prof. Renata Franc, PhD | |
| **Coordinated in** | United Kingdom | |
| **All Participants in Project** | UK, HR, EE, DE, EL, HU, SK, LV | |
| **Project Free Keywords** | *Child and youth well-being, comparative European longitudinal cohort survey, research infrastructure, evidence based policy making, child and youth transitions to education, employment and beyond* | |

**Project Summary**

The European Cohort Development Project is a Design Study, which aims to create the specification and business case for a European Research Infrastructure that will provide comparative longitudinal survey data on child and young people's well-being from birth until the age of 25 across Europe. The infrastructure developed by ECDP will subsequently coordinate the first Europe wide cohort survey, entitled EuroCohort. In this way, the ECDP aims to provide data to aid policy makers across Europe to make better decisions to foster the well-being of children and young people. The ECDP builds upon the previous FP7 EU project Measuring youth well-being (MYWeB). Thus, MYWeB feasibility study pointed out to a significant demand for a longitudinal survey on well-being of children and young people. MYWeB study also found that this type of survey would be both technically feasible and economically viable. The EuroCohort survey, a comparative longitudinal survey of child well-being in Europe, would offer policy-makers at an European and Member State level a number of new possibilities for policy development. Specifically, longitudinal well-being surveys can help us understand transitions in children and young peoples' lives (for instance the step from education to the labour market), interruptions and trauma (break up the family unit), as well as turning points that might contribute to the understanding of well-being. The ECDP aims to make the EuroCohort, the first Europe-wide cohort survey, a key European Research Infrastructure, which would provide, over the next 25 years, comparative longitudinal survey data on child and young adult well-being. This will be achieved through the following three main objectives:

• Building support from key political policy makers with a brief which covers child well-being as well as national funding agencies tasked with infrastructural spending on science and survey data collection.
• Developing a scientifically excellent research design.
• Establishing a robust operational framework that will ensure the logistic integrity of EuroCohort.

The culmination of ECDP is in the creation of an infrastructural platform with a commitment from key stakeholders across Europe and from which the next stages in finalising EuroCohort can begin. As the respondents to EuroCohort grow up, an increasing body of data will develop, becoming ever richer and informative, able to show the ways in which national policies have made an impact and showing where policy interventions can make significant improvements.

**Role of Croatian organization**

**Institute of Social Sciences Ivo Pilar**
The research team members from the Ivo Pilar Institute of Social Sciences are actively involved in all the WPs as partners. Moreover, the Institute is the co-leading partner of WP6 „Engagement with children, young people, and families“ and WP9 „Pilot Survey Requirements“. This is particularly important because ECDP involves an innovative child-centric approach whereby children and young people directly participate in the development, operation, and dissemination of a European Cohort Survey.

Participation in this project is of great importance to research team members involved, as well as to the Institute. As a participating country we have the opportunity to work in this multidisciplinary and multicultural environment, to communicate with researchers of different background, to publish joint papers and to exchange ideas about the same problems. A well-functioning multicultural work team may be one of the best venues to reach culturally congruent findings and interpretations.

1_ECDP consortium members, 2nd meeting in Zagreb, Croatia, ECDP project;
2_ECDP consortium members, 2nd meeting in Zagreb, Croatia, ECDP project

| HORIZON 2020 – Research Infrastructures | | |
|---|---|---|
| **Project Name** | **SeaDataCloud - Further developing the pan-European infrastructure for marine and ocean data management** | |
| **Project Acronym** | **SeaDataCloud** | |
| **Project ID** | 730960 | |
| **Start Day - End Day** | 01/11/16 – 31/10/20 | |
| **Instrument Funding** | RIA - Research and Innovation action | |
| **Call For Proposal** | H2020-INFRAIA-2016-1 | |
| **Topic** | INFRAIA-01-2016-2017 - Integrating Activities for Advanced Communities | |
| **Project Web Site** | https://www.seadatanet.org/ | |
| **EC FInancial Contribution** | EUR 9 999 737,50 | |
| **All Participants in Project** | 59 | |
| **Croatian Organization** | Institute of Oceanography and Fisheries | |
| **Web Site** | http://www.izor.hr | |
| **EC Financial Contribution to Croatian Partner** | EUR 41 812,50 | |
| **Contact Person in Croatia** | Prof. Vlado Dadić, PhD | |
| **Coordinated in** | France | |
| **All Participants in Project** | FR, NL, DE, SE, EL, IT, RU, TR, BE, NO, DK, PT, FI, EE, HR, BG, RO, LV, GE, SI, PL, IL, UA, UK, CY, ES, IE, IS, MT | |
| **Project Free Keywords** | *Data management, marine and ocean data, standards, Virtual Research Environment, cloud, High Performance Computing, networking, oceanography, marine chemistry, biology, geology, geophysics* | |

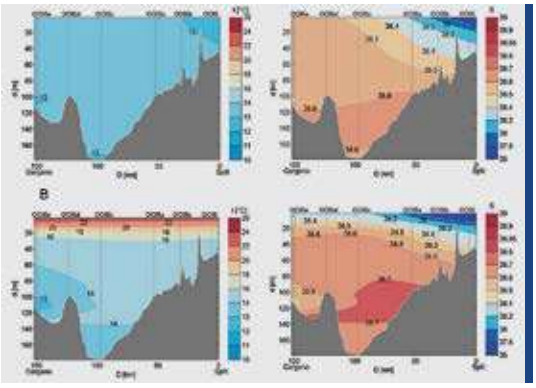
**Project Summary**

The SeaDataNet pan-European infrastructure has been developed by NODCs and major research institutes from 34 countries. Over 100 marine data centres are connected and provide discovery and access to data resources for all European researchers. Moreover, SeaDataNet is a key infrastructure driving several portals of the European Marine Observation and Data network (EMODnet), initiated by EU DG-MARE for Marine Knowledge, MSFD, and Blue Growth. SeaDataNet complements the Copernicus Marine Environmental Monitoring Service (CMEMS), coordinated by EU DG-GROW. However, more effective and convenient access is needed to better support European researchers. The standards, tools, and services developed must be reviewed and upgraded to keep pace with demand, such as developments of new sensors, and international and IT standards. Also, EMODnet and Copernicus pose extra challenges to boost performance and foster INSPIRE compliance. More data from more data providers must be made available, from European and international research projects and observing programmes. SeaDataCloud aims at considerably advancing SeaDataNet services and increasing their usage, adopting cloud and HPC technology for better performance. More users will be engaged and for longer sessions by including advanced services in a Virtual Research Environment. Researchers will be empowered with a collection of services and tools, tailored to their specific needs, supporting marine research and enabling generation of added-value products. Data concern the wide range of in situ observations and remote sensing data. To have access to the latest cloud technology and facilities, SeaDataNet will cooperate with EUDAT, a network of computing infrastructures that develop and operate a common framework for managing scientific data across Europe. SeaDataCloud will improve services to users and data providers, optimise connecting data centres and streams, and interoperate with other European and international networks.

**Role of Croatian organization**

**Institute of Oceanography and Fisheries**

The Institute of oceanography and fisheries (IOF) has been involved in EU SeaDataNet infrastructure for standardised managing the large and diverse marine data sets collected by the oceanographic fleets and the automatic observation systems since 2002 through SeaSearch, SeaDataNet I and II projects. SeaDataCloud (SDC) project (2016-2020), grant agreement 730960, EU H2020 programme, aims at considerably advancing SeaDataNet Services and increasing their usage, adopting cloud and High Performance Computing technology for better performance. Role of the IOF is collating and management of marine data, and their providing to the SDC network mainly from the Adriatic Sea collected by Croatian and other sources. Main expected benefits from SDC project is archiving of all available data from the Adriatic and other European seas in the cloud infrastructure, their downloading by the end users easily through Internet, development, and usage of common EU standards, protocols and procedures for management of marine data using some web software tools developed within the project (ODV and DIVA). So, the biggest benefit for IOF is standardisation of data management process (unique validation, vocabulary, and units at the EU level) using some software tools provided within the project (ODV, DIVA, etc.) through the Internet. Also, within project IOF participates in some data management courses, and through data sharing we raise our awareness of the importance of standardisations and data sharing.



1_Middle Adriatic profile, SeaDataCloud project

| HORIZON 2020 – Research Infrastructures | |
|---|---|
| **Project Name** | **Supercomputing Expertise for SmAll and Medium Enterprise Network** |
| **Project Acronym** | **SESAME NET** |
| **Project ID** | 654416 |
| **Start Day - End Day** | 01/06/15 – 31/05/17 |
| **Instrument Funding** | CSA - Coordination and support action |
| **Call For Proposal** | H2020-EINFRA-2014-2 |
| **Topic** | EINFRA-6-2014 - Network of HPC Competence Centres for SMEs |
| **Project Web Site** | https://sesamenet.eu/ |
| **EC FInancial Contribution** | EUR 1 998 363,75 |
| **All Participants in Project** | 17 |
| **Croatian Organizations** | YOTTA Advanced Computing Ltd.<br>Ruđer Bošković Institute |
| **Web Site** | https://www.yac.hr/<br>https://www.irb.hr/eng |
| **EC Financial Contribution to Croatian Partners** | EUR 93 575<br>EUR 135 950 |
| **Contact Persons in Croatia** | Prof. Karolj Skala, PhD, Tomislav Šubić |
| **Coordinated in** | Slovenia |
| **All Participants in Projects** | SI, IE, DE, PL, EL, ES, CZ, HR, RO, BG, BE, LT, PT, UK |
| **Project Free Keywords** | *HPC* |

**Project Summary**

The vast increase of computational power in the last decades has created exciting opportunities. High-Performance Computing (HPC) has become an indispensable tool for industry and academia to innovate in such domains as computer-aided engineering, simulations, renewable energy, financial services, satellite, earth observation, advanced image analysis, data science, and precision agriculture. Recognized by the EU as a key element for the competitiveness of knowledge-based economies and a major factor in the development of innovative solutions also for small and medium-sized enterprises (SMEs) the project SESAME Net was launched, funded by the EU Horizon 2020 programme. The aim of the project is to create a same-named open and inclusive European network of Competence Centres and Organizations joining forces in order to raise SMEs' awareness on HPC and to demonstrate its features and benefits. The network, on the one hand, enables its members to share experiences, exchange best practices, learn from each other, identify similarities and differences in the circumstances faced in each of the regions, to gain from synergy effects and, on the other hand, builds a significant mean to strengthen the European middle class. By pooling expertise ranging from classical simulation through high-performance data analytics to machine learning, offering consulting services and providing interested SMEs to acquire and build internal expertise SESAME Net aims to become an entry point to HPC for SMEs even for SMEs from countries that do not currently have such centres.

**Role of Croatian organization**

**YOTTA Advanced Computing Ltd.**

Yotta was a technology partner in the consortium, providing expertise in high-performance computing, dealing with SMEs, but also visual effects support to video presentations and interactive tools. As part of the SESAME Net project, a network of supercomputing centers from across Europe has developed a free tool that enables companies to assess their potential to use supercomputers for solving problems. Many companies are not aware of the potential opportunities and that such technologies are reserved for large enterprises with extensive budgets for R&D. But the way of providing HPC services has evolved, enabling SMEs to reap the benefits from relatively expensive HPC hardware and software in a cost-effective manner.

The benefits to Yotta are clear, educating SMEs about HPC technologies and creating demand for such services helps us as a company not only to get new clients but to grow the market in our region.

**Ruđer Bošković Institute**

The role of the Ruđer Bošković Institute, Centre for Informatics and Computing was the awareness rising of the benefits of HPC usage by SMEs with focus on our geographical region including Slovenia, Croatia, Bosnia and Herzegovina, Serbia and Macedonia. With other partners, RBI has developed the roadmap that helps to increase the uptake of HPC by SMEs and organized several national and international (Serbia and Macedonia) awareness raising events aiming at the knowledge transfers from HPC centers, universities and research institutes to the business sector. One of the main outputs of the project was collecting and documenting the best practices in HPC industrial use, particularly for SMEs and creating the Best Practice guide for SME on how to start exploiting HPC. The outcome of the project is an online platform that acts as a technical forum and success stories and best practices exchange. HPC Center of Competence and SESAMENET Network were established.

# Industrial Leadership

**General info on industrial leadership**

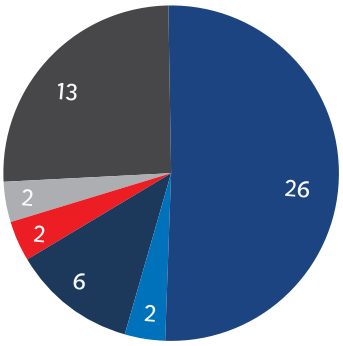
The second pillar of Horizon 2020, Leadership in Enabling and Industrial Technologies (LEIT), focuses on new technologies that should increase competitiveness, create new jobs and support sustainable growth in Europe. Key industrial competences funded through topics in LEIT are ICT, Space, and Key Enabling Technologies – KETs: micro and nanoelectronics, nanotechnology, industrial biotechnology, advanced materials, photonics, and advanced manufacturing technologies. The overall budget for thematic priorities in LEIT is 17 015 million EUR.

In order for Europe to maintain its position globally, with a strong tech base and industrial capacities, there needs to be a systematic increase in strategic investments into R&D in KETs. Such an approach is what helps industrial players overcome the valley of death, which is why the Industrial Leadership pillar in Horizon 2020 puts a strong focus on supporting innovation activities in SMEs and securing access to finance.

This pillar aims to give support to the EU Industrial policy which puts a clear emphasis on a strong and competitive industrial manufacturing value chain, with SMEs being in its focus. Topics in all LEIT areas mirror this in their effort to strengthen Innovation actions and funding activities with a higher Technology Readiness Level (TRL). Higher TRL projects are closer to the market and they involve key industrial players from across several industrial sectors, which still collaborate fruitfully with science and research institutes, RTOs and academia. Thus, the LEIT pillar aims to commercialize and make use of the excellent science developed by maximizing project results and looking for making a longer impact.

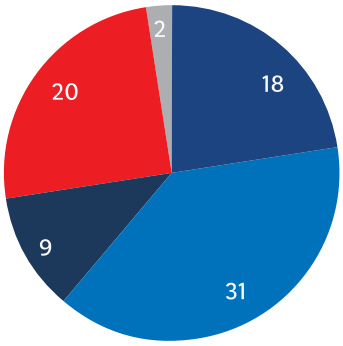
**Number of organizations**

***Type of Area***



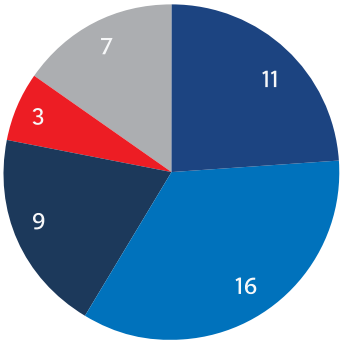

- Information and Communication Technologies
- Advanced materials
- Biotechnology
- Advanced manufacturing and processing
- Space
- Innovation in SMEs

***Type of Organization***




- HES - Higher or secondary education
- PRC - Private for profit (excl. education)
- PUB - Public body (excl. research and education)
- REC- Research organisations
- OTH - Other

***Funding Instrument***




- IA - Innovation action
- RIA - Research and Innovation action
- CSA - Coordination & Support Action
- SME - SME instrument
- OTH - Other

| HORIZON 2020 – Information and Communication Technologies | |
|---|---|
| **Project Name** | **Safe human-robot interaction in logistic applications for highly flexible warehouses** |
| **Project Acronym** | **SafeLog** |
| **Project ID** | 688117 |
| **Start Day - End Day** | 01/01/16 – 31/12/19 |
| **Instrument Funding** | RIA - Research and Innovation action |
| **Call For Proposal** | H2020-ICT-2015 |
| **Topic** | ICT-24-2015 - Robotics |
| **Project Web Site** | http://safelog-project.eu/ |
| **EC FInancial Contribution** | EUR 4 618 462,50 |
| **All Participants in Project** | 6 |
| **Croatian Organizations** | University of Zagreb, Faculty of Electrical Engineering and Computing<br>KONČAR - Electrical Engineering Institute, Inc. |
| **Web Site** | https://www.fer.unizg.hr/<br>https://www.koncar-institut.hr/hr/ |
| **EC Financial Contribution to Croatian Partners** | EUR 565 250<br>EUR 501 150 |
| **Contact Persons in Croatia** | Asst. prof. Ivan Marković, PhD, Prof. Ivan Petrović, PhD, Josip Babić, PhDEE |
| **Coordinated in** | Germany |
| **All Participants in Project** | DE, CZ, HR |
| **Project Free Keywords** | *multi-robot planning, planning of heterogeneous agents, safe human-robot interacton and collaboration, logistics* |

**Project Summary**

The European market for e-commerce is growing rapidly, with more than 16 % just in the year 2014. With the internationalization of distribution chains, the key to success lies within efficient logistics. In such facilities, goods for the end-user or products in the B2B sector are stored, commissioned and shipped. To manage the supply chains, many new warehouses have been erected and more will follow. With the growing markets, the need for larger warehouses and their automation increases. To advance the position of the European trade sector, technical restrictions on the size of warehouses should be avoided and new automation paradigm should be implemented to ensure their efficient operation. Therefore the European robotic and automation companies should be able to provide appropriate solutions, making scalable systems and scalable software mandatory. Current automation solutions based on strict separation of humans and robots cannot provide such efficient operation of large warehouses. SafeLog aims to overcome this issue by enabling much more efficient warehouse concepts joining human and robot workforce. Given that, the overall objective of SafeLog is the conception and implementation of a large-scale flexible warehouse system which enables safe and efficient collaboration of humans and robots in the same area and at the same time. On the way to reach this objective SafeLog will develop, integrate and test:

(1) a holistic and certifiable safety concept based on the safety vest, which allows the collaboration of robots and humans in a flexible warehouse system,

(2) planning and scheduling algorithms for a heterogeneous fleet manager, which allow the ad-hoc reactive planning and scheduling for human and robot workforce in a flexible warehouse system, and

(3) augmented reality-based interaction strategies to support workers in a robotized warehouse system with information about their current task and environment.

**Role of Croatian organizations**

**University of Zagreb, Faculty of Electrical Engineering and Computing**
The overall objective of the SafeLog project is the concept and implementation of safe and efficient collaboration of humans and robots in large-scale flexible warehouse systems. To reach this objective, the University of Zagreb, Faculty of Electrical Engineering and Computing (UNIZG-FER), in collaboration with other project partners, and specifically Končar Electrical Engineering Institute, will develop, integrate, and test a holistic and certifiable safety concept. The concept is based on a Safety Vest worn by human workers that will guarantee safety in the flexible warehouse systems. Specifically, major tasks of UNIZG-FER include developing a cost-effective solution for estimating distances between the human worker and robots, localizing and estimating the intention of human workers based on wearable sensors (such as inertial measurement units, cameras, and augmented reality glasses), and taking this information into account for path planning of warehouse mobile robots.

**KONČAR - Electrical Engineering Institute, Inc.**
Electrical Engineering Institute is a leading Croatian industrial institute involved in R&D of equipment and technologies for efficient and reliable energy conversion and railway. Research related to the SafeLog project is carried out by Control, Renewables & Power Electronics Department which develops embedded systems for highly demanding applications such as rail vehicles and power engineering. Several safety-critical systems for railway applications have been developed at the Department, including systems of the highest safety integrity level (SIL) 4. Institute's main responsibility within the project is the development of the Safety Vest System (SVS) which enables humans to safely enter and work in a flexible warehouse system with automated guided vehicles, i.e. robots. Safety of the system is achieved by adherence to the corresponding European and international standards and is evaluated throughout the project by an independent safety assessor.

1_Project members, Frankfurt, Germany, SafeLog project

| HORIZON 2020 – Information and Communication Technologies | |
|---|---|
| **Project Name** | **Logistics for Manufacturing SMEs** |
| **Project Acronym** | **L4MS** |
| **Project ID** | 767642 |
| **Start Day - End Day** | 01/10/17 – 31/03/21 |
| **Instrument Funding** | IA - Innovation action |
| **Call For Proposal** | H2020-FOF-2017 |
| **Topic** | FOF-12-2017 - ICT Innovation for Manufacturing SMEs (I4MS) |
| **Project Web Site** | https://www.l4ms.eu |
| **EC FInancial Contribution** | EUR 7 996 772,50 |
| **All Participants in Project** | 21 |
| **Croatian Organizations** | ICENT - Innovation Centre Nikola Tesla<br>MURAPLAST Ltd. |
| **Web Site** | http://www.icent.hr/<br>https://muraplast.com/ |
| **EC Financial Contribution to Croatian Partners** | EUR 276 625<br>EUR 27 912,50 |
| **Contact Persons in Croatia** | Prof. Ivan Petrović, PhD, Asst. Prof. Marija Seder, PhD, Davorka Moslavac Forjan, PhD, Davor Ujlaki |
| **Coordinated in** | Finland |
| **All Participants in Project** | RO, ES, EE, CY, EL, IT, PL, FI, HR, DE, LT, DK, HU |
| **Project Free Keywords** | *Intra-factory logistics, Automation* |

**Project Summary**

"L4MS (Logistics For Manufacturing SMEs) will spark incremental (productivity increase of new users by a factor of 4 and system setup time reduction by a factor of 10) and disruptive innovation (batch size one & consumerization) for over 100,000 European Manufacturing SMEs & Mid-Caps, building on their intra-factory logistics challenge (50 % of the production cost of an item) unleashing their digitalization potential by powering new robot systems that are more cost-effective at lower lot sizes.

L4MS relies upon:

• An open industrial IoT platform with enablers for rapid and efficient deployment of customized logistics solutions.
• A suite of "Smartization services" including business modelling, technical support, mentoring, access to skills and to finance.
• The L4MS Marketplace, a one-stop-shop, where European Manufacturing SMEs & Mid-Caps will access the L4MS services.
• A portfolio of 23 cross-border Application Experiments by 50 SMEs selected through 2 competitive Open Calls, that will test more than 40 services & apps leveraging €10m of public funding across 12 established and emerging Digital Innovation Hubs.
• A growing ecosystem that will foster Smart Specialization in every single region linked to L4MS.

L4MS will transform a pan-European ecosystem into a self-sustainable start-up operating an Open Platform for Innovations in Logistics (OPIL) and L4MS marketplace consisting of 21 members. Comprising 6 Competence Centres, 5 technology providers, 4 industry associations, 3 end-users and 3 business developers -currently engaged in I4MS (XS2I4MS, HORSE, and BEinCPPS) and FIWARE- plus 6 Satellites Nodes. L4MS covers 14 EU countries, 15 regions with 8 of them from Eastern Europe.
L4MS will help demonstrate that publicly funded research with a "Smartization" approach (accelerating Industry 4.0) can help manufacturing SMEs & Mid-Caps achieve digital excellence and global competitiveness through logistics automation become "entrepreneurial states and digital industries".

**Role of Croatian organizations**

**ICENT - Innovation Centre Nikola Tesla**

The ambition of L4MS is to enable inexpensive deployment of small and flexible logistics automation solutions, requiring no infrastructure change, no production downtime, and no in-house expertise, in European manufacturing SMEs & Mid-Caps.

The use of mobile robots will not only automate the logistics but also provide unprecedented flexibility on the factory floor for batch production.

Together with partners, Innovation Centre Nikola Tesla (ICENT) will develop an open industrial IoT platform with a 3D simulator to completely virtualize the intra-factory logistics automation and drastically accelerate the innovation process in this area. Croatian company Muraplast Ltd., with a strong support of ICENT, is one of three Pilot Application Experiment that will demonstrate highly autonomous, configurable and hybrid (human-robot) logistics solutions driven by the business needs of the manufacturing SMEs & Mid-Caps. ICENT is also engaged in the implementation of L4MS Open Calls for Application Experiments (AEs), which will validate the cost-effective and rapid deployment of mobile robots in manufacturing SMEs and Mid-Caps through virtualization. In addition, ICENT is involved in the development of L4MS marketplace, one-stop-shop where European manufacturing SMEs & Mid-Caps can access the suite of "Smartization services" including technical support, business mentoring, skills, and finance.

**MURAPLAST Ltd.**

MURAPLAST Ltd. (MP) is the leading and most modern producer of Polyethylene blown film in Croatia and South-eastern European region.

MP may have advanced production processes, but the unsolvable problem is their intern logistics. In project, MP is Pilot manufacturing SME where requirements for the logistics is described and analysed. The final result will be a concept for solving problems with intern logistics. ICENT as CC supporting the Pilot is going to perform pilot Application Experiments (pAE) for the production area at MP. A digital twin will be set up using Visual Components software. The pAE will be performed at a scaled model of a small production area that will be set up at ICENT premises. Experimental tests of the actual motion/interactions of AGV and as well as interactions with OPIL will be tested and presented to MP. In future developments, the target area is the whole production hall. The experiment includes the real product (LDPE film on the roll on a pallet) from MP.

1_L4MS Working Meeting in ICENT, Zagreb, Croatia, L4MS project; 2_L4MS Kick-off meeting, Tampere, Finland, L4MS project; 3_Visit to Muraplast d.o.o. premises, Kotoriba, Croatia, L4MS project; 4_Muraplast-7827 uteco diamond 10, printing machine, L4MS project

| HORIZON 2020 – Information and Communication Technologies | | |
|---|---|---|
| **Project Name** | **Demonstration of a scalable and cost-effective cloud-based digital learning infrastructure through the Certification of digital competences in primary and secondary schools** | |
| **Project Acronym** | **CRISS** | |
| **Project ID** | 732489 | |
| **Start Day - End Day** | 01/01/17 – 31/12/19 | |
| **Instrument Funding** | IA - Innovation action | |
| **Call For Proposal** | H2020-ICT-2016-1 | |
| **Topic** | ICT-22-2016 - Technologies for Learning and Skills | |
| **Project Web Site** | https://www.crissh2020.eu/ | |
| **EC FInancial Contribution** | EUR 4 872 336,25 | |
| **All Participants in Project** | 16 | |
| **Croatian Organizations** | University of Zagreb, Faculty of Organization and Informatics (FOI) The Croatian Academic and Research Network - CARNET | |
| **Web Site** | https://www.foi.unizg.hr/<br>https://www.carnet.hr/ | |
| **EC Financial Contribution to Croatian Partners** | EUR 248 125<br>EUR 200 625 | |
| **Contact Persons in Croatia** | Assoc. prof. Igor Balaban, PhD; Gordana Jugo | |
| **Coordinated in** | The United Kingdom | |
| **All Participants in Project** | UK, ES, TN, DE, FR, HR, SE, EL, IT, RO | |
| **Project Free Keywords** | *Digital competences, Adaptive learning ecosystem, cloud-based, certification, personalised and adaptive learning, big data, gaming, location based, authoring tools, learning analytics, intelligence* | |

**Project Summary**

CRISS is a user-driven, flexible, scalable and cost-effective cloud-based digital learning ecosystem that allows the guided acquisition, evaluation and certification of digital competences in primary and secondary education, and easily scalable to other educational levels. CRISS proposes an innovative adaptive learning solution supported by the most advanced pedagogical methodologies and technologies that will be tested with a very large scale pilot with more than 490 schools including 25.400 students and 2.290 teachers across Europe.

CRISS aims to contribute to the modernisation of the educational and training system at different levels:

• Support schools and educational institutions in the definition and creation of a curricular programming aligned to European and national policies, encouraging the active participation of all teachers and creating an interdisciplinary framework and highly diversified contents, activities and educational experiences for the acquisition and evaluation of digital competences of students.

• Offers teachers and students an adaptive and intelligent environment for personalizing the process of teaching and learning that allows them to easily and dynamically generate and integrate programming a wide variety of new learning experiences and integrate new methodologies, fostering a creative and motivating use of technologies focused on minimizing the distance between digital competences acquired at school and required in the labour market.

• Through its learning analytics module CRISS can generate an innovative and unique student ICT Dynamic Profile, showing strengths and weaknesses, achievements, interests, skills acquired, certification and other recognition, on the one hand facilitating the personalization of teaching/learning, and, on the other, the entry into the labour world.

• Thanks to its evaluation and certification of digital competences it will contribute to the standardization of digital competences at European level.

**Role of Croatian organizations**

**University of Zagreb, Faculty of Organization and Informatics (FOI)**
The main aim of the CRISS project – to adopt the new cloud-based teaching methodologies and services that enable the acquisition of digital competences – will be reached through the development of innovative infrastructure for personalized learning and certification based on scientific and methodological grounds. Being one of three CRISS partners from the Academia, the design of the novel platform is an excellent opportunity for FOI research team members to implement the newest scientific findings in their educational activities and to get valuable research results based on users' activity and experience with such a novel platform. The main activities of FOI team members include the development of a pedagogical and methodological framework for certification that will be supported by CRISS platform, the implementation of Digital Badges, the development of success instrument, the analysis and interpretation of the results of online and on-site pilots and the scientific dissemination of project results.

**The Croatian Academic and Research Network - CARNET**
In January 2017, the CRISS project was launched within the EU framework programme for research and innovation Horizon 2020 with the purpose to develop and pilot the implementation of a digital platform for acquiring, evaluating and certifying digital competences of students in primary and secondary schools. The CRISS platform will be tested through a mass pilot with more than 490 schools, including 25 400 students and 2290 teachers from across Europe. The onsite project component will involve 90 schools, 5400 students and 290 teachers. The Croatian Academic and Research Network - CARNET, responsible for the piloting of the project in Croatia, has been in charge of the school selection process, while in the next year and a half it will manage and support the work of on-site project involving 20 schools with over 1000 students and 60 teachers. It will manage communication with the schools and see that the implementation of the project runs smoothly. It will provide education for teachers and help them with the implementation of digital scenarios and the use of the platform during 2018/2019. Moreover, CARNET will provide each participating school with an initial teacher training, workshops with students, and continuous support along the entire pilot with at least 2 follow-up meetings and a final assessment meeting. Finally, CARNET will also encourage Croatian schools to participate in the online pilot component of the CRISS project.

1_Project members, London, United Kingdom, CRISS project; 2_Project members, Seville, Spain, CRISS project; 3_Workshop for users, Zagreb, Croatia, CRISS project

| HORIZON 2020 – Nanotechnologies, advanced materials and advanced manufacturing and processing | |
|---|---|
| **Project Name** | **Sustainable industrial processes based on a C-C bond-forming enzyme platform** |
| **Project Acronym** | **CARBAZYMES** |
| **Project ID** | 635595 |
| **Start Day - End Day** | 01/04/15 – 31/03/19 |
| **Instrument Funding** | IA - Innovation action |
| **Call For Proposal** | H2020-LEIT-BIO-2014-1 |
| **Topic** | BIOTEC-3-2014 - Widening industrial application of enzymatic processes |
| **Project Web Site** | http://carbazymes.com/ |
| **EC FInancial Contribution** | EUR 8 202 966 |
| **All Participants in Project** | 15 |
| **Croatian Organization** | University of Zagreb, Faculty of Chemical Engineering and Technology |
| **Web Site** | http://www.fkit.unizg.hr/ |
| **EC Financial Contribution to Croatian Partner** | EUR 544 260 |
| **Contact Person in Croatia** | Prof. Zvjezdana Findrik Blažević, PhD |
| **Coordinated in** | Germany |
| **All Participants in Project** | DE, ES, HR, UK, NL, |
| **Project Free Keywords** | *C-C bond forming enzymes, lyases, aldolases, halohydrin dehalogenases, enzyme engineering, enzyme panels, thermostabilization, microreactor, technical scale, cascade reactions, APIs, bulk chemicals* |

**Project Summary**

C-C bond forming reactions are at the heart of industrial organic synthesis but remain largely unexplored due to long development timelines and the lack of broad biocatalytic reaction platforms. CARBAZYMES addresses these challenges by assembling an interdisciplinary and intersectoral consortium as a powerful synergistic tool to promote innovation in the field of biocatalytic C-C bond formation at large scale, and thus the global competitiveness of the European chemical and pharmaceutical industry. The proposed consortium, with 50 % industrial participation, represents academia but also commercial interests in different stages of the research-to-market process. This top-down approach, together with a life-cycle innovation approach ensures an industrial drive to the project. Clearly aligned with the scope of topic BIOTEC3-2014, CARBAZYMES will pursue the biocatalytic synthesis (spanning TRLs 5-7) of 4 APIs and 3 bulk chemicals –corresponding to market needs detected by the industrial partners in the Consortium. This will be accomplished through an interdisciplinary approach which includes:

i) a broad platform of 4 types of unique C-C bond-forming enzymes, mostly lyases;

ii) the capacity to rapidly evolve enzymes to operate under industrial conditions by means of novel enzyme panels and massive screening methods;

iii) application of microreactor technology for bioprocess characterization;

iv) demonstration actions comprising technical (up to 100L) and economic viability studies carried out by industrial partners.

CARBAZYMES unmistakably aims to have a social and economic impact by addressing markets worth billion euros, developing enzyme evolution technologies beyond the state of the art and creating qualified jobs and technical-scale facilities at the industrial partners' sites. CARBAZYMES will also achieve an environmental impact by enforcing that the developed processes replace more energy and resource intensive processes, thus leading to reduced environmental footprints.

**Role of Croatian organization**

**University of Zagreb, Faculty of Chemical Engineering and Technology**

University of Zagreb, Faculty of Chemical Engineering and Technology is a partner in a project Sustainable industrial processes based on a C-C bond forming enzyme platform (CARBAZYMES, GA number 635595, April 1st 2015 - March 30th 2019) financed by the EU on the topic 'Widening of industrial application of enzymatic processes' of the programme Horizon 2020. The total project budget is 8.2 million euros.

Group of biocatalysis of the Faculty of Chemical Engineering and Technology participates in the work packages related to the optimization of the reaction system, the development of bioprocesses, their scale-up and demonstration. In addition, the group leads the work package related to the development of bioprocesses (WP4). Researchers of the group have extensive experience in applied biocatalysis as they deal with the application of the methodology of chemical engineering to biological processes. Their main tasks to be addressed by the project are mathematical modelling and optimization of process conditions for the implementation of the reaction in the various macro- and micro-reactors, immobilization of enzymes, process scale-up etc. The project includes working with multi-enzymatic systems with which the group has a lot of experience.

The work on this project enabled new types of cooperation, which are expected to continue after the project ends, shared experiences and knowledge. It also led to the second joint project application. The added value of the project is the full employment of doctoral students (Figs 2) whose salary is fully financed by the project and a part-time postdoc student.

1_Project members (1st row: Prof. dr. Đurđa Vasić-Rački, PhD student Morana Česnik, Assoc. Prof. Dr. Zvjezdana Findrik Blažević; 2nd row: Assoc. Prof. Dr. Ana Vrsalović Presečki, postdoc Dr. Martina Sudar, PhD student Anera Švarc), Zagreb, Croatia, CARBAZYMES project; 2_PhD student Morana Česnik in the laboratory, CARBAZYMES project

| HORIZON 2020 – Nanotechnologies, advanced materials and advanced manufacturing and processing | | |
|---|---|---|
| **Project Name** | **New Environmental friendly and Durable conCrete, integrating industrial by-products and hybrid systems, for civil, industrial and offshore applications – EnDurCrete** | |
| **Project Acronym** | **EnDurCrete** | |
| **Project ID** | 760639 | |
| **Start Day - End Day** | 01/01/18 – 30/06/21 | |
| **Instrument Funding** | RIA - Research and Innovation action | |
| **Call For Proposal** | H2020-NMBP-2017-two-stage | |
| **Topic** | NMBP-06-2017 - Improved material durability in buildings and infrastructures, including offshore | |
| **Project Web Site** | http://www.endurcrete.eu/ | |
| **EC FInancial Contribution** | EUR 5 912 000 | |
| **All Participants in Project** | 18 | |
| **Croatian Organization** | Infra Plan Consulting | |
| **Web Site** | http://infraplan.hr/ | |
| **EC Financial Contribution to Croatian Partner** | EUR 68 750 | |
| **Contact Person in Croatia** | Prof. Irina Stipanović, PhD, Civ.Eng. | |
| **Coordinated in** | Germany | |
| **All Participants in Project** | DE, PL, IT, FR, ES, NO, CH, SI, BE, CZ, HU, EL, HR | |
| **Project Free Keywords** | *Low-clinker concrete, offshore structures, tunnels, harbors, durability, corrosion inhibitors, self-healing, self-monitoring, modelling, health structural monitoring* | |

**Project Summary**

The main goal of Endurcrete Project is to develop a new cost-effective sustainable reinforced concrete for long lasting and added value applications. The concept is based on the integration of novel low-clinker cement including high-value industrial by-products, new nano and micro technologies and hybrid systems ensuring enhanced durability of sustainable concrete structures with high mechanical properties, self-healing and self-monitoring capacities. Among key technologies, there are nano-enabled smart corrosion inhibitors, self-sensing carbon-based nanofillers, multifunctional coatings with self-healing properties and sensorised non-metallic reinforcement systems. Innovative design concepts will be developed for smart installation, disassembly and re-use of the new green pre-cast and cast in place elements aiming at enabling easy recycling and re-using approaches. The functionality of the developed concrete structures will be proved under severe operating conditions supported by experimental and numerical tools to better understand factors affecting durability and capture the multiscale evolution of damage as well as to enable service life prediction. Demonstrators will be tested in working sites of tunnels, ports and offshore structures, in order to prove the enhanced durability (+40 %, i.e. +30 years) and decreased cost (-35 %) of the new concrete systems in such critical applications. Innovation aspects such as standardization, life cycle assessments, health, and safety and training activities will be performed. Finally, in order to maximize the exploitation of findings and ensure dissemination and impacts beyond the project duration, business models and plans for the proposed solutions will be developed. The Consortium, led by HeidelbergCement and involving 16 partners (6 SMEs), will have a strong economic and social impact (1billion € and 6900 high-quality jobs by 2025), considering concrete markets and related applications. The foreseen project duration is three and a half years.

**Role of Croatian organization**

**Infra Plan Consulting**

Infra Plan is leading a demonstration project in Croatia, which will include prototyping, planning and performance validation of new concrete solutions for bridges in the marine environment. The main task is to organize the test site, which will be located under the Krk bridge. The task includes preparation of the site, arrangements with bridge owner for installation of test columns, performing non-destructive corrosion monitoring and sampling for destructive testing. The contribution will be also provided in the data analysis from monitoring and laboratory measurements.

1_M6 project meeting in Leimen, Germany,
EnDurCrete project

| HORIZON 2020 – Space | | |
|---|---|---|
| **Project Name** | **Operational sustainable forestry with satellite-based remote sensing** | |
| **Project Acronym** | **MySustainableForest** | |
| **Project ID** | 776045 | |
| **Start Day - End Day** | 01/11/17 – 31/10/20 | |
| **Instrument Funding** | IA - Innovation action | |
| **Call For Proposal** | H2020-EO-2017 | |
| **Topic** | EO-1-2017 - Downstream applications | |
| **Project Web Site** | https://mysustainableforest.com/ | |
| **EC FInancial Contribution** | EUR 1 875 049,63 | |
| **All Participants in Project** | 11 | |
| **Croatian Organization** | Croatian Forest Research Institute | |
| **Web Site** | http://www.sumins.hr/ | |
| **EC Financial Contribution to Croatian Partner** | EUR 144 887,50 | |
| **Contact Person in Croatia** | Ivan Pilaš, PhD; Ivan Balenović, PhD | |
| **Coordinated in** | Spain | |
| **All Participants in Project** | ES, PT, HR, CZ, LT, FR, FI, UK | |
| **Project Free Keywords** | *Earth observation, forestry management decision support service* | |

**Project Summary**

MySustainableForest seeks the provision of geo-information services for integrated forest management, at the pre-commercial stage, through a web service platform. Services combine in-situ data, satellite images from Copernicus satellite missions and other, LIDAR, airborne data and sound wave wood quality data. Services address issues beyond wood production and industrial transformation, such as forest conservation, needs and requirements relative to climate change adaptation measurements, guidelines for national forests plans, national reporting obligations to the EU, biomass and CO2 stock counts, long-lasting drought impacts, rising public awareness with reference to these new technologies in the wood sector. These issues are part of the demonstration cases in Portugal, Spain, France, Croatia, the Czech Republic, and Lithuania, across Atlantic, Mediterranean and continental forest types.

MySustainableForest leverages upon the Copernicus Data and Information Access Services (DIAS), namely on Sentinel Missions data, LIDAR, airborne data, sound wave wood quality data and on heterogeneous local data sets provided by users.

MySustainableForest seeks integrating satellite data significantly further across the silvicultural chain into the wood-industry realm. Deriving meaningful thematic information on forests and wood quality from satellites, Lidar or sound waves is not trivial. MySustainableForest envisages challenging technological, commercial, societal and political objectives:

• Support forest managers with site geoinformation products derived from satellite, Lidar, meteorological and in-situ data, together with customised forestry models.

• Provide the products in an easy-to-access manner through a web-based platform.

• Demonstrate the quality, usability, and cost-benefits of products across the large wood stakeholder's community in Europe.

• Raise up recommendations for policymakers to support EU forest owners and wood transformation industries.

MySustainableForest has analysed the wood sector end-user requirements with reference to EO technologies that will ease management and add value to wood market products. Six geo-information services shall be generated relative to site and wood quality characterization, biomass and CO2 stocking, forest health, vulnerabilities and socioeconomic accounting of forests and wood resources. Services are: 1. Forest Site Characterization 2. Wood Characterization 3. Biomass and CO2 stocking 4. Forest Condition 5. Ecosystem vulnerabilities 6. Socioeconomic Functions and Conditions.

Products are obtained through a web platform that queries modular processing components such as LIDAR models, satellite models, wood quality models, and socio-economic models.
In most cases, the end-user will get a map, printable or interactive, with the processed thematic data requested, for instance, the stands height or the condition of forest infrastructures or the damage caused by a wind storm or the wood quality parameters on fibre stiffness. In other cases, the end-user shall get statistical results and reports.
Who can request MySustainableForest EO based forest Services? Any forest manager or wood transformation stakeholder: forest managers, proprietors, sawmills, plantation managers, pulp producers, industrial timber producers, chemical-wood industries, policy makers, statistical offices.
Forest manager or any other wood stakeholder involved in forest-related subjects can request MySustainableForest Services.

**Role of Croatian organization**

**Croatian Forest Research Institute**
Together with 11 partners from 6 European countries, Croatian Forest Research Institute (CFRI) actively participates in MySuistainableForest project. With its expertise in forest research and management, the CFRI project team of four researchers (Ivan Pilaš, Dijana Vuletić, Ivan Balenović, Luka Jurjević) significantly contributes to all project activities grouped in six work packages (WP). Besides providing support to a project leader (GMV) in project coordination and management (WP1), CFRI participates in the service analysis of stakeholders (end-users) requirements and needs for the South-eastern European region as well as in the field data collection (WP2). In Croatia, there are two pilot cases located in different areas and with a different service focus determined based on stakeholders' needs. The main tree species in both areas is pedunculate oak which is the dominant timber resource in Croatian forest industry and one of the most important and key tree species of European forests. The first pilot case, located in Pokupsko Basin (≈12,300 ha, NW Croatia), is focused on developing service and platform containing more frequent updated information on forest state (e.g. growing stock, biomass) using satellite-based remote sensing data. The second pilot case, located in eastern Croatia, encloses two lowland forest complexes; Našice lowland forests and Spačva Basin with a total area of ≈98,000 ha. This pilot case is focused on developing forest monitoring services as a support to the existing system of groundwater monitoring. Namely, pedunculate oak is a high water demanding tree species and availability of supplementary water supply from the shallow groundwater resources is the main ecological factor of his survival. Therefore, the applicability of various satellite data to detect changes in forest stand and soil water dynamics at the intraseasonal scale will be evaluated. In order to develop the above-mentioned services, CFRI team actively works and contributes to WP3 in technical activities on remote sensing algorithm tailoring and models customization to the specific areas for demonstrations purposes. These activities align perfectly with the previous and current research of CFRI team related to remote sensing application in forestry. Also, it will support the technical forestry workflow integration for the prototyped service and CFRI will be responsible for the demonstrations of the service products in both sites (WP4). Furthermore, CFRI will lead the WP5, Innovation, and Roadmap, which matches with its research profile and concerns about climate change impact on forests. Together with partners, CFRI team will strongly contribute to scientific communications foreseen in WP6 (Outreach, Dissemination, and Exploitation). The benefits from participating in MySuistainableForest project for CFRI team will be multiple, from expanded knowledge, possibilities to work with various remote sensing data and software, to new co-operation with different institutions across Europe. Furthermore, it can be expected that development and implementation of service and platform containing more frequent updated information on forest state obtained from satellite-based data could greatly improve and facilitate forest stakeholders' decision making processes and operations.

1_Project members, MySustainableForest project

| HORIZON 2020 – Space | | |
|---|---|---|
| **Project Name** | **Software, not Hardware: Revolutionising Satellite Data Acquisition** | |
| **Project Acronym** | **Blink** | |
| **Project ID** | 699132 | |
| **Start Day - End Day** | 01/09/15 – 29/02/16 | |
| **Instrument Funding** | SME-1 - SME instrument phase 1 | |
| **Call For Proposal** | H2020-SMEINST-1-2015 | |
| **Topic** | Space-SME-2015-1 - SME Instrument | |
| **Project Web Site** | http://www.amphinicy.com/ | |
| **EC FInancial Contribution** | EUR 50 000 | |
| **All Participants in Project** | 1 | |
| **Croatian Organization** | Amphinicy Technologies | |
| **Web Site** | http://www.amphinicy.com/ | |
| **EC Financial Contribution to Croatian Partner** | EUR 50 000 | |
| **Contact Person in Croatia** | Mirta Medanić | |
| **Coordinated in** | Croatia | |
| **All Participants in Project** | HR | |
| **Project Free Keywords** | *software, hardware, satellite, data acquisition, ground station, performance, flexibility* | |

**Project Summary**
It is widely known that as much as 80 % of key information used in many industries such as meteorology, logistics, navigation, oil and gas, agriculture, ecology, etc. comes from space, or, to more precisely, via satellites. It is almost impossible to imagine how those industries would function without such data. According to statistics, in the last decade, more than 1,000 civilian satellites have been launched into Earth's orbit. Space segment science, and, in particular, hardware in the space segment advances so fast that it is nearly unrecognizable compared to just a decade ago. Lower launch costs and growing demand for the satellite data fosters the exponential increase in satellite launches, not just by space agencies (e.g. ESA, NASA), but also by private companies and even universities. The major challenge in the satellite industry lies in transferring big and growing amounts of information that are coming from satellites onto the ground and processing it in real time and at the same time, at acceptable costs. In comparison to the space segment, the ground segment doesn't seem to be keeping pace with state of the art technology. It is still heavily based on special-purpose hardware, which requires a lot of time and money to build, deliver, configure and use, and is, at the same time, difficult to maintain and slow to fix and modify. After Haiti earthquake in 2010 – from the moment the earthquake stroke it took 40 hours to get a satellite image-based assessment of the disaster impact. This was way too long considering the fact that thousands of human lives were in danger. The toll in human lives, suffering and property loss from these catastrophes can be reduced, with a sufficient number of satellites and fast ground segment processing. This is where Blink comes in!

**Role of Croatian organization**

**Amphinicy Technologies**
Blink is an ultra-fast satellite telemetry acquisition and processing solution entirely built-in software. The aim of Blink is to replace expensive and hard-to-maintain hardware demodulators currently used in the satellite industry and to provide an affordable, scalable and flexible solution for both big and small satellite missions. Within the feasibility study, Amphinicy visited potential customers and interested stakeholders in Italy, Germany, France, Slovenia, and the US, presented the product and gathered feedback. The results helped to approximate expected company growth, as well as to determine guidelines to prepare a business plan and a roadmap for further development in Phase 2. Several companies showed interest in Blink demonstration in their operable environment.

Amphinicy Ltd. was a sole beneficiary and a coordinator of this project.
The company received grants for SMEI Phase 2. The project has started in September 2018, with a duration of 24 months.

1_Project members, Zagreb, Croatia, Blink project

| HORIZON 2020 – Innovation in SMEs | | |
|---|---|---|
| **Project Name** | **COMPA 2GO Composite Repairs for Ships - Service Demonstration, Certification and Market Entry** | |
| **Project Acronym** | **COMPA 2GO** | |
| **Project ID** | 806018 | |
| **Start Day - End Day** | 01/03/18 – 29/02/20 | |
| **Instrument Funding** | SME-2 - SME instrument phase 2 | |
| **Call For Proposal** | H2020-SMEINST-2-2016-2017 | |
| **Topic** | SMEInst-10-2016-2017 - Small business innovation research for Transport and Smart Cities Mobility | |
| **Project Web Site** | www.comparepair.com | |
| **EC FInancial Contribution** | EUR 612 000 | |
| **All Participants in Project** | 1 | |
| **Croatian Organization** | Alveus Ltd. | as2con Engineering & Development Alveus d.o.o. • www.as2con.com |
| **Web Site** | http://www.as2con.com | |
| **EC Financial Contribution to Croatian Partner** | EUR 612 000 | |
| **Contact Person in Croatia** | Natasa GOLIK KLANAC, D.Sc.(Econ.) | |
| **Coordinated in** | Croatia | |
| **All Participants in Project** | HR | |
| **Project Free Keywords** | *Composite repairs, carbon fiber, ships, corrosion, cracks* | |

**About project**

The objective of the overall innovation project COMPA 2GO is to commercialise the service of COMPA repair for damaged or corroded ship pipes and structures. Using carbon fiber reinforced plastic mixed with epoxy resin, COMPA repair offers a cost and time effective alternative to the traditional methods of repair by welding. COMPA minimizes vessel downtime and increases vessel safety by providing a fast and durable repair and eliminating the use of flame. It is applicable to geometrically complex structures and locations difficult to reach. The total market for repair implementation makes up about 90.000 vessels worldwide, operated by about 3.000 companies, while the potential market for future service licensing makes over 15.000 companies in EU only.

As a follow up on the completed SME Instrument Phase 1 project, the specific Phase 2 project objectives are:

1) to complete the development of COMPA repair service in terms of the design and the procedure by successfully completing specimen tests and onboard vessel demonstrations;

2) to demonstrate the quality of the solution and gain quality approval of COMPA application standard from relevant maritime certification organisations;

3) to develop promotion and sales plan and to establish a network of repair application partners for licensing the technology while ensuring IPR protection and quality management.

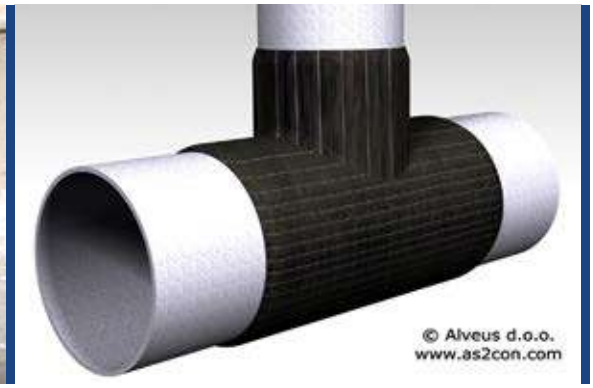
The project is performed by the company as2con – alveus, an expert in design, engineering, and application of carbon fiber based technology in the maritime industry.

as2con – alveus aims to become a leader in composite and carbon fiber solutions in the maritime industry. Opportunities for further developments of carbon fiber solutions for maritime industry business are manifold resulting in benefits for the applicant as well as for Europe.

The project is entirely coordinated and performed by Croatian company Alveus Ltd. The EU grant will help to demonstrate the quality of COMPA technology through laboratory and onboard tests, to receive certificates from major maritime classification societies and finally, to license the technology.

Within the project, the company's team members will define repair cases and determine the efficient and feasible patch design. In order to receive certificates, they will prepare the necessary documentation and produce the tube and tank specimens with applied COMPA patch. Also, the promotion and sales plan will be implemented to position the COMPA technology on the market.

Alveus Ltd. was among 6 % applicants to receive the funding, and is the first Croatian company to receive financing under the highly competitive Horizon 2020 SME Instrument Phase 2 programme. COMPA technology was selected for its innovative nature and the benefits it can bring to the maritime sector.




1_Design, COMPA 2GO project; 2_Application, COMPA 2GO project

| HORIZON 2020 – Innovation in SMEs | | |
|---|---|---|
| **Project Name** | **Integrated PERmanent Magnet Motor-Clutch Drive for Parallel Hybrid Power MARINE Propulsion Systems** | |
| **Project Acronym** | **PerMarDrive** | |
| **Project ID** | 711618 | |
| **Start Day - End Day** | 01/12/15 – 31/05/16 | |
| **Instrument Funding** | SME-1 - SME instrument phase 1 | |
| **Call For Proposal** | H2020-SMEINST-1-2015 | |
| **Topic** | IT-1-2015-1 - Small business innovation research for Transport | |
| **Project Web Site** | http://www.tema.hr / | |
| **EC FInancial Contribution** | EUR 50 000 | |
| **All Participants in Project** | 1 | |
| **Croatian Organization** | TEMA Ltd. | |
| **Web Site** | http://www.tema.hr | |
| **EC Financial Contribution to Croatian Partner** | EUR 50 000 | |
| **Contact Person in Croatia** | Branimir Ružojčić, PhD | |
| **Coordinated in** | Croatia | |
| **All Participants in Project** | HR | |
| **Project Free Keywords** | *Magnet Motor-Clutch Drive, Parallel Hybrid propulsion, Electric motors, Marine Systems* | |

**About project**

The Maritime industry is in a frantic search for ways to design and operate marine vessels that generate less CO2 and further modify the existing fleet to reduce emissions. The Maritime industry accounts for 3 % of 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 innovatively integrated clutch drive. PerMarDrive is envisaged to be sold for 250k€ and 600k€ for the smallest to the largest respectively. Once commercialised, PerMarDrive will enable TEMA to generate cumulative revenues of €69.6 m by 5th year in product commercialisation, from a market expected to grow to €10.9 billion at CAGR of 10 % by 2024. We expect to clinch to 0.14 % of the global Hybrid Marine Propulsion Systems market by the year 2023. In Phase 1 we will validate PerMarDrive prototype, develop Intellectual Property strategy, and carry out a market study, search and recruit partners and draft a business plan. In Phase 2, we will finalise the scale-up, demonstration, design and operability of PerMarDrive to match the requirements of the targeted customers.

1_Ship propulsion electric motor / inboard / permanent magnet LPMR850, PerMarDrive project

| HORIZON 2020 – Innovation in SMEs | | |
|---|---|---|
| **Project Name** | **Steora - next step to a smart city** | |
| **Project Acronym** | **Steora** | |
| **Project ID** | 763168 | |
| **Start Day - End Day** | 01/02/17 – 31/07/17 | |
| **Instrument Funding** | SME-1 - SME instrument phase 1 | |
| **Call For Proposal** | H2020-SMEINST-1-2016-2017 | |
| **Topic** | SMEInst-09-2016-2017 - Stimulating the innovation potential of SMEs for a low carbon and efficient energy system | |
| **Project Web Site** | https://www.include.eu/steora/ | include |
| **EC FInancial Contribution** | EUR 50 000 | |
| **All Participants in Project** | 1 | |
| **Croatian Organization** | INCLUDE Ltd. for the production of electrical equipment | |
| **Web Site** | http://www.include.hr | |
| **EC Financial Contribution to Croatian Partner** | EUR 50 000 | |
| **Contact Person in Croatia** | Ivan Mrvoš | |
| **Coordinated in** | Croatia | |
| **All Participants in Project** | HR | |
| **Project Free Keywords** | *Renewable energy system for cities* | |

**About project**

Steora project envisions future cities as smart social and infrastructural organisms. The aforementioned smartness will be enabled by a number of technologies and devices embedded all around the urban fabric. Street benches, as one of the most common elements of urban space, are one of best devices for implementation of new ICT and energy technologies in cities. Steora aims at becoming a cornerstone of implementation of new technologies in open areas in cities. The proposal is related to the work programme topic "Stimulating the innovation potential of SMEs for a low carbon and efficient energy system". Include Ltd's vision is to become one of the major manufacturers of innovative and useful products worldwide. With global footprint of more than 900 benches on 40 markets around the world, we are involved in major 'Smart city' projects, and have made our presence known in 250 cities and municipalities across 5 continents. Company's mission is to create a product that will solve the various problems through the usage of new technologies mainly reducing energy consumption and carbon footprint by smart and sustainable use (including energy-efficient products and services as well as 'Smart Cities and Communities'). In order to achieve our purpose, we are primarily engaged in the identification of problems encountered by citizens, companies, and institutions as well as the development of solutions that will significantly contribute to the quality of life, lower the CO2 and energy consumption by a smart solution applied to the environment. Steora is a first step towards developing resource-efficient, cost-effective and affordable technology solutions to decarbonise and make more efficient the energy system in a sustainable way by creating modular, independent, integrated and upgradeable devices and technologies applicable in an unlimited number of areas.

1_INCLUDE, group picture, Solin, Croatia, Steora project; 2_Smart benches, Australia-Perth, Steora project; 3_Smart benches, Strasbourg, France, Steora project; 4_Smart benches, Dubrovnik, Croatia, Steora project

| HORIZON 2020 – Innovation in SMEs | | |
|---|---|---|
| **Project Name** | **Hybrid Battery Pack** | |
| **Project Acronym** | **Hybrid Battery Pack** | |
| **Project ID** | 672915 | |
| **Start Day - End Day** | 01/06/15 – 30/11/15 | |
| **Instrument Funding** | SME-1 - SME instrument phase 1 | |
| **Call For Proposal** | H2020-SMEINST-1-2014 | |
| **Topic** | SIE-01-2014-1 - Stimulating the innovation potential of SMEs for a low carbon energy system | |
| **Project Web Site** | http://www.rimac-automobili.com | |
| **EC FInancial Contribution** | EUR 50 000 | |
| **All Participants in Project** | 1 | |
| **Croatian Organization** | Rimac Automobili Ltd. | |
| **Web Site** | http://www.rimac-automobili.com | |
| **EC Financial Contribution to Croatian Partner** | EUR 50 000 | |
| **Contact Person in Croatia** | Ivana Valentić | |
| **Coordinated in** | Croatia | |
| **All Participants in Project** | HR | |
| **Project Free Keywords** | *electric vehicles, battery pack, green energy, SME, feasibility study, development of innovation* | |

**About project**

The Hybrid Battery pack represents a unique electrical power source primarily targeting the global market of electric vehicles but also applicable wherever there is a need to combine strong power surges for relatively short periods of time and lower average power consumption (Electric powered heavy machinery, Electric powered airplanes). The innovation is in comprising two individual packs that mutually complement each other in a way that the first pack (Energy pack) provides high range whereas the other pack (Power Pack) provides huge power. The main advantages of the Hybrid battery pack are significant efficiency increase, reduction in energy consumption and prolonging the life cycle of the cells. The Hybrid Battery Pack combines extensive know-how with cutting-edge technology in the domain of electric vehicle power train. Development of the Hybrid Battery pack represents an introduction of a whole new disruptive technology that will change the direction of the electric power train development. The Hybrid Battery pack is primarily intended for industrial clients in a global electric sports car and supercar market but in the future can be used in electric powered heavy machinery and airplanes. The feasibility study will result with the plan and product development effort estimation (time and cost), required for the product to be ready for the delivery to the customers. It will also assess the technical aspects of the Hybrid Battery pack further development as well as in creating an optimum approach on the market. Total funding requirements for the project, including activities of phase 2, employee efforts, external resources, marketing budget, and HW and SW development and production will be in a range of 1.5 to 2 million euros, during the period of one and a half to two years.

1_Hybrid Battery Pack, Hybrid Battery Pack project

# Societal Challenges

**General info on Societal Challenges**

Societal Challenges is one of the 3 pillars of Horizon 2020, the European Union's Framework Programme for Research and Innovation. With a budget of about 30 billion euros, it addresses key social concerns and EU policy objectives such as health, climate change, environmental issues, energy, and transport.

Horizon 2020 reflects the policy priorities of the Europe 2020 strategy and addresses major concerns shared by citizens in Europe and elsewhere. A challenge-based approach should bring together resources and knowledge across different fields, technologies, and disciplines, including social sciences and the humanities. This should cover activities from research to market with a new focus on innovation-related activities, such as piloting, demonstration, test-beds, and support for public procurement and market uptake. It should include establishing links with the activities of the European Innovation Partnerships (EIP).

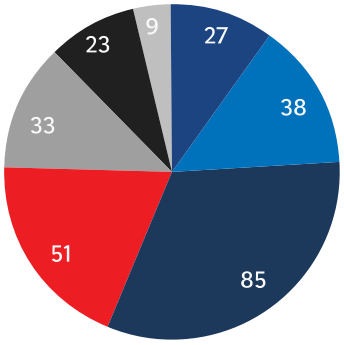
Societal challenges respond directly to the policy priorities identified in the Europe 2020 strategy and aiming to stimulate the critical mass of research and innovation efforts needed to achieve Union's policy goals. All the activities shall take a challenge-based approach focusing on policy priorities without predetermining the precise choice of technologies or solutions that should be developed. The emphasis shall be on bringing together a critical mass of resources and knowledge across different fields, technologies, and scientific disciplines in order to address the challenges.

The EU has identified 7 priority challenges where targeted investment in research and innovation can have a real impact benefiting the citizen:

- Health, demographic change and well-being (Funding: 7.472 billion euros).
- Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy (Funding: 3.851 billion euros).
- Secure, clean and efficient energy (Funding: 5.931 billion euros).
- Smart, green and integrated transport (Funding: 6.339 billion euros).
- Climate action, environment, resource efficiency and raw materials (Funding: 3.081 billion euros).
- Europe in a changing world - inclusive, innovative and reflective societies (Funding: 1.310 billion euros).
- Secure societies - protecting freedom and security of Europe and its citizens (Funding: 1.695 billion euros).

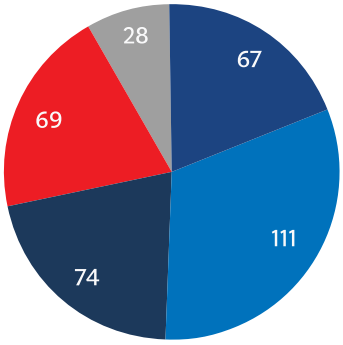
**Number of organizations**

***Type of Area***



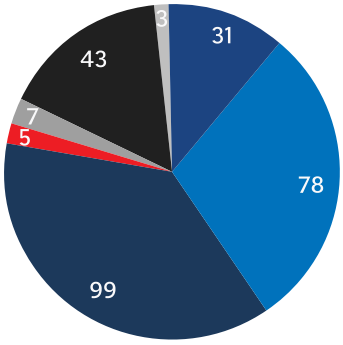

- Health, demographic change and wellbeing
- Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy
- Secure, clean and efficient energy
- Smart, green and integrated transport
- limate action, environment, resource efficiency and raw materials
- Europe in a changing world - inclusive, innovative and reflective Societies
- Secure societies - Protecting freedom and security of Europe and its citizens

***Type of Organization***




- HES - Higher or secondary education
- PRC - Private for profit (excl. education)
- PUB - Public body (excl. research and education)
- REC- Research organisations
- OTH - Other

***Funding Instrument***




- IA - Innovation action
- RIA - Research and Innovation action
- CSA - Coordination & Support Action
- SME - SME instrument
- ERA-NET - European Research Area
- JTI - Joint Technology Initiatives
- OTH - Other

| HORIZON 2020 – Health, demographic change and well-being | |
|---|---|
| **Project Name** | **Novel Bone Regeneration Drug Osteogrow: Therapeutic Solution for Lumbar Back Pain** |
| **Project Acronym** | **OSTEOproSPINE** |
| **Project ID** | 779340 |
| **Start Day - End Day** | 01/01/18 – 31/12/22 |
| **Instrument Funding** | RIA - Research and Innovation action |
| **Call For Proposal** | H2020-SC1-2017-Single-Stage-RTD |
| **Topic** | SC1-PM-11-2016-2017 - Clinical research on regenerative medicine |
| **Project Web Site** | https://osteoprospine.eu/ |
| **EC FInancial Contribution** | EUR 6 004 152,50 |
| **All Participants in Project** | 15 |
| **Croatian Organizations** | University of Zagreb, School of Medicine<br>Genera Research Ltd.<br>SmartMedico Ltd.<br>Triadelta partners Ltd.<br>University of Zagreb, Faculty of Veterinary Medicine |
| **Web Site** | http://mef.unizg.hr/<br>http://www.smart-medico.hr/<br>http://www.triadeltapartners.com/en/hr/<br>http://www.vef.unizg.hr/ |
| **EC Financial Contribution to Croatian Partners** | UZSM: EUR 710 750<br>GEN: EUR 1 138 750<br>SMED: EUR 253 532,50<br>TDLP: EUR 183 107,50<br>UZFVM: EUR 251 250 |
| **Contact Person in Croatia** | Prof. Slobodan Vukičević, PhD |
| **Coordinated in** | Croatia |
| **All Participants in Project** | HR, AT, UK, SI, PL, DE |
| **Project Free Keywords** | *Degenerative spinal diseases, Degenerative disc disease, Spinal fusion, Recombinant protein as regenerative therapy, Phase II clinical trial* |

**Project Summary**

HORIZON 2020 project OSTEOproSPINE "Novel Bone Regeneration Drug Osteogrow: Therapeutic Solution for Lumbar Back Pain" aims to provide a long-term solution for the treatment of degenerative spine disorders through a personalized bone implant translating the patient's peripheral blood into extra-skeletal bone. OSTEOproSPINE, based on an innovative therapeutic system developed in the course of successfully finalized FP7 Health project OSTEOGROW, is a novel bone regeneration therapy composed of OSTEOGROW (recombinant human bone morphogenetic protein 6 [rhBMP6] delivered in autologous peripheral blood coagulum) reinforced with allograft (a compression resistant matrix). OSTEOproSPINE is designed to guide the formation of a new bone at the extra-skeletal site and replace autograft harvested from patient's iliac crest for the fusion of lumbar vertebrae. By generating new bone, OSTEOproSPINE will restore the spine's weight-bearing function, reduce the severity of back pain and improve the success rate of posterolateral spinal fusion surgery. Once physical therapy and drugs against pain become ineffective, more than 2.5 million patients suffering from degenerative disc diseases annually undergo surgery in Europe and worldwide. Since current treatments are not very effective and a large number of patients require reoperation, a permanent solution for fusion of lumbar vertebrae is an urgent unmet medical need. OSTEOproSPINE project results could lead to eliminating any dependence of such surgery on human tissue sources apart from the patient's own blood, which would be a significant innovation in spinal surgery for the benefit of patients and pressured healthcare systems in EU.

OSTEOproSPINE project gathers partners from six countries that have joined forces under the lead of the University of Zagreb, School of Medicine as the coordinating institution. Partners from abroad include the Medical University of Vienna, the Medical University of Graz, the University of Linz and Quality by Experts from Austria, Clinres Farmacija from Slovenia, 2KMM from Poland and Eurice from Germany. Croatian partners include Genera Research, Smart Medico, Triadelta Partners Ltd. and the University of Zagreb, Faculty of Veterinary Medicine, altogether 5 academic institutions and seven SMEs.

**Role of Croatian organizations**

**University of Zagreb, School of Medicine**

The University of Zagreb, School of Medicine (UZSM) has a team with longstanding experience in the implementation and management of regional, national and international multidisciplinary grants, including EU grants, both as a partner and as a coordinator. Tasks in the project include coordination of the project, support of clinical studies in OSTEOproSPINE via managing international activities with principal investigators at clinical partner institutions and in conducting all pre-clinical and mechanism of action studies. UZSM will also conduct analytical assays for new Osteogrow clinical batch related to IMPD update and stability testing. Moreover, UZSM will manage issues related to intellectual property (IP) protection, dissemination of results and transfer of knowledge and IP to potential third parties. Through this project, UZSM will excel as a place for the development of new therapeutic opportunities, which will also be of great importance for the Republic of Croatia as a competitive country in the field of regenerative medicine.

The key associates participating in the project are: Slobodan Vukičević (project coordinator), Lovorka Grgurević, Mihaela Perić, Donatella Verbanac, Sanja Pehar, Tatjana Bordukalo Nikšić, Igor Erjavec, Vera Kufner, Martina Pauk, Jadranka Bubić Špoljar, Ruđer Novak, Smiljka Vikić-Topić, Lucija Kučko, Ivančica Bastalić and a newly hired PhD student.

**Genera Research Ltd.**

SME Genera Research (GEN), a specialist in recombinant protein production, plays an important role in OSTEOproSPINE. Genera Research scientists were responsible for the scientific development of the Osteogrow bone regeneration drug and for the production of the clinical batch of rhBMP6 which has been used for the "first-in-human" clinical trial. Hermann Oppermann, chief of GEN, brings expertise in the production of recombinant proteins and antibodies. He is a world leader in this field, holding 91 patents and experience from prominent industries in the US and Europe. Together with his team (Tamara Božić, Irena Popek) he guarantees continuous and successful production of rhBMP6, available throughout the project. Their tasks include validation of all production processes and characterization of protein's structure, purity, activity, and stability, using a long list of validated chemical and biological assays. They will also participate in the optimization of the next generation of OSTEOproSPINE product formulation and the development of an application kit for clinical use. Work on this project will be of great importance for the company. GEN will expand their workforce, knowledge and will prove their leading role in recombinant protein production in this part of Europe.

**University of Zagreb, Faculty of Veterinary Medicine**

The Faculty of the Veterinary Medicine, University of Zagreb (UZFVM) has a leading role in the region, in the field of animal clinical scientific research and cross-institutional cooperation, characterized by interdisciplinary and multidisciplinary research projects and collaborative centres of excellence. The experts from the UZFVM Dražen Matičić, Dražen Vnuk, and Marko Pećin will be involved in conducting preclinical studies in rabbits and sheep in order to test new formulation for the final delivery of the close system in superbly equipped veterinary premises. Within the project, UZFVM will hire a new PhD student to work on various tasks and to obtain a PhD, which will enrich UZFVM with a highly and specifically educated person. In addition, within the framework of the project, conducted scientific research will improve the medical rating of the Faculty of Veterinary Medicine in Zagreb.

**TRIADELTA PARTNERS LTD.**

Triadelta Partners Ltd. is an SME company dedicated to designing, developing and delivering solutions for R&D projects in biomedicine led by Radan Spaventi and Katarina Orešković. They are providing advice on the clinical development of OSTEOproSPINE, based on their extensive expertise and experience, and catalyse the progression of the project in line with industry standards and expectations. Triadelta's engagement will primarily involve planning and reporting, overseeing the execution of planned activities and advise on risk management activities, if needed. With their long-lasting experience in pharmaceutical industry in leading positions like Chief Scientific Officer and Clinical Project's Manager, they can assure timely and reliable delivery of the committed results, as well as swift replies to the other Consortium members to all questions related to the clinical drug development process.

Partnership in the OSTEOPROSPINE consortium results in a number of benefits for Triadelta Partners Ltd., including an opportunity to gain additional knowledge and experience in the therapeutic area of concern, network expansion within academia and European SME community, as well as overall increase in global visibility and track record of the company.

**SMART MEDICO Ltd.**
SmartMedico Ltd. (SMED) is a Croatian CRO company led by Snježana Martinović. SMED was involved in several bone-related clinical trials particularly osteoporosis, autologous chondrocyte implantation, long bone healing, and rheumatoid arthritis. Experience in an EU funded project Osteogrow and long-time experience in many different clinical trial projects successfully initiated, monitored and closed in last 12 years serve as strong references. SMED activities in the OSTEOproSPINE project include ethics and regulatory approvals for clinical trial preparation and initiation, clinical trial/sites preparation, organization, support and management, Trial Master File management, site initiations and trainings, regular monitoring visits, site closeouts. Through this project, SMED will recruit and train new employees, expand business networks and expertise, which will progress SMED's future business.

1_Core team Mihaela Perić, Ivančica Bastalić, Lucija Kučko, Lovorka Grgurević, Slobodan Vukičević, Donatella Verbanac, Smiljka Vikić-Topić; Zagreb, Croatia, OSTEOproSPINE project; 2_Kick-off meeting, Vienna, Austria, OSTEOproSPINE project

| HORIZON 2020 – Health, demographic change and well-being | |
|---|---|
| **Project Name** | **A Systems medicine approach to chronic inflammatory disease** |
| **Project Acronym** | **SYSCID** |
| **Project ID** | 733100 |
| **Start Day - End Day** | 01/01/17 – 31/03/22 |
| **Instrument Funding** | RIA - Research and Innovation action |
| **Call For Proposal** | H2020-SC1-2016-RTD |
| **Topic** | SC1-PM-01-2016 - Multi omics for personalised therapies addressing diseases of the immune system |
| **Project Web Site** | https://syscid.eu/ |
| **EC FInancial Contribution** | EUR 14 456 236,25 |
| **All Participants in Project** | 15 |
| **Croatian Organizations** | Genos Ltd.<br>University of Zagreb, Faculty of Science |
| **Web Site** | http://www.genos-glyco.com<br>https://www.pmf.unizg.hr/<br>http://zoldos.biol.pmf.hr/ |
| **EC Financial Contribution to Croatian Partners** | EUR 567 525<br>EUR 312 525 |
| **Contact Persons in Croatia** | Marija Pezer, PhD; Prof. Vlatka Zoldoš, PhD; |
| **Coordinated in** | Germany |
| **All Participants in Project** | DE, UK, BE, CH, LU, DK, IT, EL, HR |
| **Project Free Keywords** | *Inflammation, Rheumatology, Gastroenterology, Microbiome* |

**Project Summary**

"The SYSCID consortium aims to develop a systems medicine approach for disease prediction in CID. We will focus on three major CID indications with distinct characteristics, yet a large overlap of their molecular risk map: inflammatory bowel disease, systemic lupus erythematosus, and rheumatoid arthritis. We have joined 15 partners from major cohorts and initiatives in Europe (e.g. IHEC, ICGC, TwinsUK, and Meta-HIT) to investigate human datasets on three major levels of resolution: whole blood signatures, signatures from purified immune cell types (with a focus on CD14 and CD4/CD8) and selected single cell level analyses. Principle data layers will comprise SNP variome, methylome, transcriptome, and gut microbiome. SYSCID employs a dedicated data management infrastructure, strong algorithmic development groups (including an SME for the exploitation of innovative software tools for data deconvolution) and will validate results in independent retrospective and prospective clinical cohorts.

Using this setup we will focus on three fundamental aims :

(i) the identification of shared and unique "core disease signatures" which are associated with the disease state and independent of temporal variation,

(ii) the generation of "predictive models of disease outcome"- builds on previous work that pathways/biomarkers for disease outcome are distinct from initial disease risk and may be shared across diseases to guide therapy decisions on an individual patient basis,

(iii) "reprogramming disease"- will identify and target temporally stable epigenetic alterations in macrophages and lymphocytes in epigenome editing approaches as biological validation and potential novel therapeutic tool.

Thus, SYSCID will foster the development of solid biomarkers and models as stratification in future long-term systems medicine clinical trials but also investigate new causative therapies by editing the epigenome code in specific immune cells, e.g. to alleviate macrophage polarization defects."

**Role of Croatian organizations**

**Genos Ltd.**
The Genos team will contribute to the SYSCID project in our field of expertise, which is high-throughput glycomics. Glycosylation of immunoglobulin G (IgG) is an important modulator of basic mechanisms underlying chronic inflammatory diseases (CID). Within SYSCID we will contribute the data on the composition of IgG glycome in over 5000 individuals suffering from CID to the multi-omic database created by the other members of the consortium. These data will be used to develop a personalized systems medicine approach for prediction, diagnosis, and treatment of CID. This collaboration places Genos at the forefront of translational biomedicine and allows us to expand our network with Europe's best teams in the CID field. Most importantly, however, we hope to contribute to the development of a strategy that will refine and personalize CID management, thus improving the life quality of many individuals affected by these diseases.

**University of Zagreb, Faculty of Science**
Laboratory for epigenetics, led by prof. dr. sc. Vlatka Zoldoš, Division of Molecular Biology, Department of Biology, University of Zagreb, Faculty of Science, was invited to participate in the project H2020 SYSCID (Systems medicine approach to chronic inflammatory disease) due to their most recent achievements in the field of epigenetics. Namely, Zoldos group has designed and constructed a molecular tool, CRISPR/dCas9-DNMT3A, for targeted DNA methylation. Within the framework of the SYSCID project, Zoldos group will use CRISPR/dCas9-based tools for epigenetic manipulations in challenging task of reprogramming the diseased state to a healthy state of the cell. Unlike mutations, epigenetic modifications are reversible, thus CRISPR/Cas9-based molecular tools can be targeted to disease variants, participating in disease development and progression, in order to change their aberrant epigenetic signatures.

1_1st Progress Meeting, Heraklion, Greece, SYSCID project; 2_Kick-off Meeting, Kiel, Germany, SYSCID project

| HORIZON 2020 – Health, demographic change and well-being | | |
|---|---|---|
| **Project Name** | **LaRge-scalE implementation of COmmunity based mental health care for people with seVere and Enduring mental ill health in EuRopE** | |
| **Project Acronym** | **RECOVER-E** | |
| **Project ID** | 779362 | |
| **Start Day - End Day** | 01/01/18 – 30/06/21 | |
| **Instrument Funding** | RIA - Research and Innovation action | |
| **Call For Proposal** | H2020-SC1-2017-Single-Stage-RTD | |
| **Topic** | SC1-HCO-07-2017 - Global Alliance for Chronic Diseases (GACD) prevention and management of mental disorders | |
| **Project Web Site** | http://www.recover-e.eu/ | |
| **EC FInancial Contribution** | EUR 3 355 000 | |
| **All Participants in Project** | 16 | |
| **Croatian Organizations** | Croatian Institute of Public Health<br>University Hospital Centre Zagreb | |
| **Web Site** | https://www.hzjz.hr/ravnateljstvo/hzjz/<br>http://www.kbc-zagreb.hr/ | |
| **EC Financial Contribution to Croatian Partners** | EUR 85 487<br>EUR 387 498 | |
| **Contact Persons in Croatia** | Ivana Pavić Šimetin, MD, PhD, Assoc. prof. Martina Rojnić Kuzman, MD, PhD | |
| **Coordinated in** | Netherlands | |
| **All Participants in Project** | NL, RO, MK, FR, ES, DE, ME, MD, BG, HR, BE | |
| **Project Free Keywords** | *community implementation, community engagement, severe mental illness, patient-centeredness, implementation science, co-creation, iterative learning processes.* | |

**Project Summary**

For nearly 900 million people living in Europe, mental disorders constitute the most significant yet most neglected public health problem: depression affects an estimated 30.3 million Europeans, snf psychotic disorders 5 million Europeans. People with severe and enduring mental ill health want the same things out of life as other citizens but are often placed in a vulnerable position and are hence afforded fewer opportunities to attain their goals and thus experience a lower quality of life, and have a lower life expectancy compared to the general population. For many countries that have undergone mental health services reform or have health systems in transition, efforts to make such comprehensive community-based mental health services available resulted in short-lived outcomes or are still to demonstrate substantial impact. RECOVER-E's aims to ensure well-functioning community mental health teams in 5 countries in Europe (Macedonia, Romania, Bulgaria, Croatia, and Montenegro), which will serve as the central node for coordination and provision of care for people with SMI. Our project narrows the implementation gap by going beyond infrastructure changes and pursuing the development of human resource capacity and care pathways that can be distilled in a comprehensive pathway to scale for regional and national decision-makers for uptake after the project's lifespan. RECOVER-E will:

1) Develop evidence-based care pathways and treatment protocols for transition to scale for regional and national-decision makers in 5 implementation sites;

2) Establish a peer to peer capacity building partnership in community mental health by linking a European expert panel with key stakeholders in 5 implementation sites to co-create community mental health services for people with SMI)

3) Evaluate intervention elements that will enhance sustainable adoption and implementation of community-based mental health care for people with SMI, by carrying out implementation research.

**Role of Croatian organizations**

**Croatian Institute of Public Health**

On the 1st of January 2018, the European Union funded the project RECOVER-E which stands for LaRge-scalE implementation of COmmunity based mental health care for people with seVere and Enduring mental ill health in EuRopE. RECOVER-E aims to ensure well-functioning community mental health teams in 5 countries in Europe which should improve the provision of care for people with SMI. This project pursues the development of human resource capacity and care pathways that could lead to the development of a comprehensive pathway to scale for regional and national decision-makers for uptake after the project's life-span. Croatian Institute of Public Health is partially included in almost all the work packages of the project but the main activities of CIPH involve economic evaluation (cost-effectiveness of the intervention and its implementation strategy). By participation in this project CIPH benefits by promoting health and good practice which is one of the main tasks of this institution. Also, this is a good opportunity for networking with national and international institutions working in the field of mental health and an opportunity for new literature reviews.

**Zagreb University Hospital Centre**

RECOVER-E aims to implement recovery-oriented care by recognizing the value of experiential knowledge through including peer experts as members of the multidisciplinary Community Mental Health Teams (CMHTs). The CMHTs are going to be implemented in five countries, with Croatian partner, the Zagreb University Hospital Centre (ZUHC), being the first one. The implementation process in the ZUHC started with the site visiting and assessment of needs for the formation of CMHTs.

Several locations in Croatia were visited, and the results were then used to tailor CMHT based on specific local realities. Secondly, a team composed by diverse specialists working at the Department of Psychiatry (psychiatrists, psychologists, social workers, nurses) and from peer workers is being formed and trained to deliver this new model of care over the next two years. In order to establish the effectiveness and cost benefits of the new intervention, the interventions are compared to the treatment as usual and evaluated by the team members, patients and by clinical and socioeconomic indicators. The formation of a highly educated team of specialists and the introduction of completely new ways of delivering care by introducing peers as part of the mental health teams is a ground-breaking initiative in the country. If it proves to be efficient and cost-effective, the dissemination through publications and different channels could help spread the practice across the country.

1_Project training, Utrecht, Netherlands,
RECOVER-E project

| HORIZON 2020 – Health, demographic change and well-being | | |
|---|---|---|
| **Project Name** | **Life Science Alliance: Closing Research and Innovation Divide in the EU** | |
| **Project Acronym** | **Alliance4Life** | |
| **Project ID** | 779303 | |
| **Start Day - End Day** | 01/01/18 – 31/12/19 | |
| **Instrument Funding** | CSA - Coordination and support action | |
| **Call For Proposal** | H2020-SC1-2017-Single-Stage-RTD | |
| **Topic** | SC1-HCO-08-2017 - Actions to bridge the divide in European health research and innovation | |
| **Project Web Site** | http://alliance4life.ceitec.cz/ | |
| **EC FInancial Contribution** | EUR 944 652,50 | |
| **All Participants in Project** | 10 | |
| **Croatian Organization** | University of Zagreb, School of Medicine | |
| **Web Site** | http://mef.unizg.hr/ | |
| **EC Financial Contribution to Croatian Partner** | EUR 95 250 | |
| **Contact Person in Croatia** | Smiljka Vikić Topić, MSc | |
| **Coordinated in** | Czech Republic | |
| **All Participants in Project** | CZ, SK, PL, HR, EE, LT, LV, SI, HU | |
| **Project Free Keywords** | *health R&I, less performing countries, bridging the divide, ESIF/H2020 synergies, institutional reform, research policy, R&I gap, structural barriers & enablers, research management* | |

**Project Summary**

The aim of the project is to establish a European Alliance of ten progressive research institutions from nine less performing countries that are committed to work jointly towards closing the EU divide in health R&I. The Alliance represents a remedial action, which builds on the outcomes of the previously performed initiatives analysing health R&I barriers and enabling factors as proposed by e.g. DanuBalt and RegHealth-RI projects. Alliance4Life consortium will concentrate efforts on both

(1) mutual learning and sharing practical experience, and

(2) receiving motivating feedback from high performing research institutions.

We will establish Focus Groups, open platforms for idea generation and exchange of knowledge, working within eight domains of expertise: science evaluation, HR and recruitment, research funding, core facilities and big data, technology transfer, bio-ethics, science communication, and mobility. In all the domains of expertise, the formation of Alliance4Life enables experience-driven approach focused on best practice cases realized by its members, avoiding actions that failed in the past and promoting those that demonstrated high impact at a reasonable cost. The learning process will contribute to institutional reforms in research management and support increased participation in international consortia. The Alliance will develop progressive strategies including suggestions for exploitation of the potential provided by synergies between ESIF and H2020, which will be coordinated with the health R&I managing authorities of the particular less performing countries. The local stakeholders will be motivated to take up proposed strategies through a series of national roundtables on institutional and research policy reforms. Spill-over effects will be further fuelled by the development of training modules and large-scale dissemination of project results.

**Role of Croatian organization**

**University of Zagreb, School of Medicine**

Within A4L UZSM is participating in the Strategy Board, Steering Committee and all Focus Groups' (FG) activities, working on the identification of the main barriers in health R&I performance in Croatia. Project partners will share best practices and benchmark themselves with high-performing research institutions in EU-15 countries. UZSM

is organizing project meetings in Zagreb. Additionally, UZSM will create and update the strategy of sustainable development and progressive improvement of research performance and participate in the elaboration of Alliance's white paper containing Inventory recommendations of best practices. Other UZSM tasks include co-organization of trainings within FGs engaging scientists from UZSM, participation at a formal establishment of the Alliance and elaboration of Memorandum, participation in dissemination activities, organization of national roundtable on best practice in utilization of R&I funding synergies in Croatia with policy-makers and relevant experts.
Participation in A4L will strengthen the collaboration of UZSM with other advanced EU13 biomedical research institutions and get the opportunity to influence national and EU policies for acceleration of participation in EU framework programmes.

1_Project members, Kick off meeting, Brno, Czech Republic, Alliance4Life project; 2_UZSM Project team: Tea Vukušić Rukavina, Ana Borovečki, Nada Čikeš, Gabrijela Radić, Filip Sedlić and Smiljka Vikić-Topić, 2nd project meeting, Smolenice Castle, Slovakia, Alliance4Life project; 3_Strategy Board members, Kick-off meeting, Brno, Czech Republic, Alliance4Life project

| HORIZON 2020 – Food security, sustainable agriculture, marine and maritime research and the bio-economy | | |
|---|---|---|
| **Project Name** | **Optimised moulded pulp for renewable packaging solutions** | |
| **Project Acronym** | **PULPACKTION** | |
| **Project ID** | 720744 | |
| **Start Day - End Day** | 01/10/16 – 30/09/20 | |
| **Instrument Funding** | BBI-IA-DEMO - Bio-based Industries Innovation action - Demonstration | |
| **Call For Proposal** | H2020-BBI-PPP-2015-2-1 | |
| **Topic** | BBI.VC2.D2-2015 - Innovative cellulose-based composite packaging solutions | |
| **Project Web Site** | http://pulpacktion.eu/ | |
| **EC FInancial Contribution** | EUR 8 303 374,05 | |
| **All Participants in Project** | 14 | |
| **Croatian Organization** | MI-PLAST Ltd. | |
| **Web Site** | https://mi-plast.eu | |
| **EC Financial Contribution to Croatian Partner** | EUR 545 885,38 | |
| **Contact Person in Croatia** | Filip Miketa | |
| **Coordinated in** | Sweden | |
| **All Participants in Project** | SE, NO, NL, IT, DE, HR, ES | |
| **Project Free Keywords** | *Bio-Based Packaging; pulp wet-moulded; cellulose based; rural development* | |

**Project Summary**

The aim of PULPACKTION project is to develop cellulose-based tailored-to-purpose packaging solutions for specific food and electronic packaging applications which need medium and high barrier requirements and that nowadays are packing in polymer fossil based solutions. This innovation will take advantage of the flexibility in the wet-moulding production of wood pulp based materials. Different types of wood pulp will be combined to prepare slurries for wet-moulding applications. These slurries will be additivated with biopolymers and other bio-based compounds in order to tailor the final properties of the resulting wet-moulded materials. By tailoring the composition of the wet mouldable slurry, a wide range of final properties in the resulting dry material will be achieved. This flexible packaging manufacturing system will be combined with 100 % bio-based coatings and films on the cellulose-based substrate. To fulfil the properties required for PULPACKTION's specific packaging applications using a fully bio-based approach, additional barriers will be implemented onto the wet moulded substrate. For this purpose, new bio-based polymer blends will be optimized. These new blends, containing biopolymers such as thermoplastic starch (TPS), poly (lactic acid) (PLA), other bio-additives, and reinforcements such as microfibrillated cellulose (MFC), will be processed into multilayer films, composites and coatings. In this manner, not only coatings for improved barrier properties but also 100 % bio-based films for packages' top lids will be produced. Therefore, a final 100 % bio-based integral packaging solution with similar properties to existing fossil-based packaging solutions will be achieved.

**Role of Croatian organization**

**MI-PLAST Ltd.**

In the frame of Pulpacktion project Mi-Plast is involved in most activities such as project management, communication, and dissemination activities, IPR, LCA, General assembly, Technical committee activities etc. Apart from the abovementioned, Mi-Plast core activities include technical WPs where the focus is on up-scaling of several extrusion processes at TRL7 in order to obtain and transform new developed bioplastic materials into final products and in case of Pulpacktion semi-final products- films. Mi-Plast is responsible for development and up-scaling and production of mono and multilayer films via extrusion, coating and lamination processes at TRL7 with high barrier and adhesive properties which will be used in final wood-pulp base packaging.

| HORIZON 2020 – Health, demographic change and well-being | | |
|---|---|---|
| **Project Name** | **Advanced Tools and Research Strategies for Parasite Control in European farmed fish** | |
| **Project Acronym** | **ParaFishControl** | |
| **Project ID** | 634429 | |
| **Start Day - End Day** | 01/04/15 – 31/03/20 | |
| **Instrument Funding** | RIA - Research and Innovation action | |
| **Call For Proposal** | H2020-SFS-2014-2 | |
| **Topic** | SFS-10a-2014 - Scientific basis and tools for preventing and mitigating parasitic diseases of European farmed fish | |
| **Project Web Site** | http://www.parafishcontrol.eu/ | |
| **EC FInancial Contribution** | EUR 7 800 000 | |
| **All Participants in Project** | 29 | |
| **Croatian Organization** | Institute of Oceanography and Fisheries | |
| **Web Site** | http://www.izor.hr/ | |
| **EC Financial Contribution to Croatian Partner** | EUR 314 780 | |
| **Contact Person in Croatia** | Ivona Mladineo, PhD | |
| **Coordinated in** | Spain | |
| **All Participants in Project** | ES, DK, CZ, UK, EL, HR, HU, IT, NO, NL, FR, IE, DE | |
| **Project Free Keywords** | *Teleostei, Host-Parasite Interactions, Immunology, Food Safety, Vaccination, Protistans, Metazoans, Diagnostic kits, Epidemiology, Integrated Pest Management Strategies, Food security, Sustainability* | |

**Project Summary**

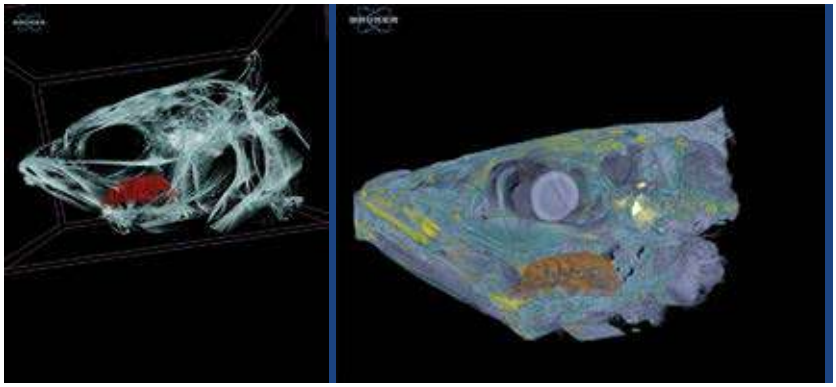
European aquaculture production provides direct employment to 80,000 people and a 3-billion € annual turnover. Parasites cause severe disease outbreaks and high economic losses in finfish aquaculture. The overarching goal of ParaFishControl is to increase the sustainability and competitiveness of European Aquaculture by improving understanding of fish-parasite interactions and by developing innovative solutions and tools for the prevention, control, and mitigation of the major parasites affecting Atlantic salmon, rainbow trout, common carp, European sea bass, gilthead sea bream and turbot. To achieve these objectives, ParaFishControl brings together a multidisciplinary consortium comprising 29 partners possessing world-leading, complementary, cross-cutting expertise and drawn from public and private research organisations, and the aquaculture industry. The consortium has access to excellent research facilities, diverse biological resources including host-parasite models, and state-of-the-art vaccinology, genomic, proteomic and transcriptomic technologies. The project will:

- generate new scientific knowledge on key fish parasites, including genomics, life-cycle, invasion strategy, and host-parasite interaction data, with special emphasis on host immunity, pathogen virulence and immunomodulation, providing a scientific basis for improved prophylaxis;
- determine the transfer of parasites between farmed and wild host populations;
- develop a wide range of novel prophylactic measures, including vaccines and functional feeds;
- provide a range of advanced or alternative treatments for parasitic diseases;
- develop cost-effective, specific and sensitive diagnostic tools for key parasitic diseases;
- assess the risk factors involved in the emergence, transmission, and pathogenesis of parasitic diseases;
- map the zoonotic risks due to fish helminths and;
- provide a catalogue of good husbandry practices to obtain safe and high-quality fish products.

**Role of Croatian organization**

**Institute of Oceanography and Fisheries**

ParaFishControl brings together a multidisciplinary consortium comprising 28 partners possessing world-leading, complementary, cross-cutting expertise, being drawn from public and private research organisations, and the aquaculture industry. Although I am strongly devoted to the management of a work package that evaluates the empirical risk of transfer of parasites from wild to reared fish and vice versa, my team and I are engaged in seven of nine WPs. The benefits are many and far-reaching because as a part of the consortium we have the access to excellent research facilities and professional interactions, diverse biological resources including host-parasite models, and state-of-the-art vaccinology, genomic, proteomic and transcriptomic technologies. However, the generated new scientific knowledge on key fish parasites that will remain as part of the ParaFishControl legacy, is one of the main benefits for all partners.



1_One of the most devastating Mediterranean ectoprasites, isopod Ceratothoa oestroides infecting the buccal cavity of the aquaculture-reared European sea bass, shown using micro computed tomography (μ-CT). Photo by Pantelis Katharios and Kleoniki Keklikoglou, Hellenic Center for Marine Research, Greece, ParaFishControl project

| HORIZON 2020 – Health, demographic change and well-being | | |
|---|---|---|
| **Project Name** | **GRowing Advanced industrial Crops on marginal lands for biorEfineries** | |
| **Project Acronym** | **GRACE** | |
| **Project ID** | 745012 | |
| **Start Day - End Day** | 01/06/17 – 31/05/22 | |
| **Instrument Funding** | BBI-IA-DEMO - Bio-based Industries Innovation action - Demonstration | |
| **Call For Proposal** | H2020-BBI-JTI-2016 | |
| **Topic** | BBI-2016-D02 - Improvement and adaptation of industrial crop varieties and novel sources of biomass to diversify biomass feedstock for biorefineries | |
| **Project Web Site** | https://www.grace-bbi.eu/ | |
| **EC FInancial Contribution** | EUR 12 324 632,86 | |
| **All Participants in Project** | 27 | |
| **Croatian Organizations** | University of Zagreb, Faculty of Agriculture (FAZ)<br>INA-Industrija nafte, d.d. (INA) | |
| **Web Site** | http://www.agr.unizg.hr/<br>https://www.ina.hr/ | |
| **EC Financial Contribution to Croatian Partners** | EUR 302 410<br>EUR 401 590 | |
| **Contact Persons in Croatia** | Assist. Prof. Vanja Jurišić, PhD, Slavica Rukavina, univ.spec. oec.mag.ing.bioteh. | |
| **Coordinated in** | Germany | |
| **All Participants in Project** | DE, NL, FR, UK, IT, HR, CH, AT | |
| **Project Free Keywords** | *Miscanthus, hemp, biomass, bioeconomy, biobased, industry, feedstock, biorefinery, crops, underutilized* | |

**Project Summary**

In the EU-projects OPTIMSC and MultiHemp promising miscanthus and hemp germplasm was identified for crop production suitable for various end-uses. In OPTIMISC also a large number of genotypes were screened for various stress tolerances (e.g. frost, drought, salinity) which are key traits for good performance under marginal conditions. However, both projects worked on small trial plots and identified utilization options only at lab scale. Miscanthus or hemp varieties that are specifically suitable for marginal lands are not yet available. A major bottleneck for the development of such varieties is the lack of information on their large-scale performance. Therefore the next step to develop these biomass crops for the growing bioeconomy is to demonstrate the feasibility of upscaling their production. Cultivars also need to meet the quality requirements of the specific end-uses. Based on knowledge gained by the projects OPTIMISC and MultiHemp, the biomass composition of the germplasm is largely known and can be matched to the specific end-uses. However, the upscaling of these value chains with tailored germplasm is not yet proven and represents a bottleneck for their wider application.

Project GRACE is a 5-year project that will demonstrate and optimize the techno-economic viability of 10 promising miscanthus and hemp biomass-based value chains on marginal, contaminated and unused land at an industry relevant scales. The objective of this project is to demonstrate:

• the upscaling of crop production of miscanthus and hemp genotypes matched to end-use and

• their suitability for marginal, contaminated and unused land. Another aim of the project is to demonstrate the upscaling of the most promising biomass valorisation chains with tailored genotypes. Various valorisation options will be tested by associated partners (industry panel) and a subset will be demonstrated at (pre)commercial scale. The overall aim of the project is to have commercial cultivars, which are suitable for marginal, contaminated or unused land, available at the end of the project with proven feasibility for a set of end-uses. This includes their performance

in the value chain, but also their environmental and economic profile.

**Role of Croatian organizations**

**University of Zagreb, Faculty of Agriculture**
The main role of the University of Zagreb Faculty of Agriculture (FAZ) in the project is to establish a demonstration trial of miscanthus seed based hybrids, to investigate their performance under marginal and contaminated land in WP3, to provide material for analysis in WP2, and use in value chains in WP4. Hence, in spring 2018, FAZ has established a Plot scale (PS) trial (100 m2 x 4 replicates) on its Experimental field Šašinovečki lug, with 13 different *Miscanthus* hybrids (8 *M. sinensis* hybrids, and 5 *M. sacchariflorus* x *M. sinensis* hybrids), and *M. x giganteus* as control. Moreover, along with the trial establishment, FAZ is the leader of Task 3.5 Monitoring invasive potential from potentially fertile *Miscanthus* hybrids, within which FAZ activities involve monitoring of volunteer seedlings around trial edges at all sites. Within the project, FAZ will be involved in the transfer of knowledge related to the new *Miscanthus* hybrids, as well as in publications in peer-reviewed journals.

**INA-Industrija nafte, d.d.**
INA's main task in the project is to demonstrate cultivation of 4 different miscanthus hybrids on marginal land which has not been in use for more than two decades, using improved and adapted ecotypes provided by the project partners.

INA, as a leader of Demonstration case 1, will be responsible for coordinating activities on converting Miscanthus biomass into second generation (2G) sugars, to be fermented into bio-ethanol using one of currently existing technologies. INA Central Testing Laboratory is dedicated as one of referent laboratories to perform soil analysis for all consortium partners. One of important tasks for INA is also creating a network in bio-based industries and sharing of valuable knowledge on advanced technologies application and demonstration.

1_Project members, General Assembley meeting in Versailles, France, GRACE project

| HORIZON 2020 – Secure, clean and efficient energy | |
|---|---|
| **Project Name** | **CROSS BOrder management of variable renewable energies and storage units enabling a transnational Wholesale market** |
| **Project Acronym** | **CROSSBOW** |
| **Project ID** | 773430 |
| **Start Day - End Day** | 01/11/17 – 31/10/21 |
| **Instrument Funding** | IA - Innovation action |
| **Call For Proposal** | H2020-LCE-2017-SGS |
| **Topic** | Demonstration of system integration with smart transmission grid and storage technologies with increasing share of renewables |
| **Project Web Site** | http://crossbowproject.eu/ |
| **EC FInancial Contribution** | EUR 17 287 742,88 |
| **All Participants in Project** | 27 |
| **Croatian Organizations** | Croatian Transmission System Operator Ltd.<br>KONČAR-Power Plant and Electric Traction Engineering Inc.<br>University of Zagreb, Faculty of Electrical Engineering and Computing |
| **Web Site** | www.hops.hr<br>http://www.koncar-ket.hr/<br>www.fer.unizg.hr |
| **EC Financial Contribution to Croatian Partners** | EUR 550 812,50<br>EUR 287 612,50<br>EUR 378 875 |
| **Contact Persons in Croatia** | Tomislav Plavšić (HOPS) Prof. Igor Kuzle, PhD (FER) Stjepan Sučić, PhD (Končar-KET) |
| **Coordinated in** | Spain |
| **All Participants in Project** | ES, RO, EL, DE, BG, RS, BA, UK, HR, SI, ME, MK, AT |
| **Project Free Keywords** | *Cross-border, TSOs, Eastern-Europe, RES, storage, ICT* |

**Project Summary**

CROSSBOW will propose the shared use of resources to foster cross-border management of variable renewable energies and storage units, enabling a higher penetration of clean energies whilst reducing network operational costs and improving economic benefits of RES and storage units. The objective is to demonstrate a number of different, though complementary, technologies, offering Transmission System Operators higher flexibility and robustness through: 1) A better control of exchange power at interconnection points; 2) new storage solutions – distributed and centralized, offering ancillary services to operate Virtual Storage Plants (VSP); 3) better ICT and Communications -e.g. better network observability, enabling flexible generation and Demand Response schemas; 4) the definition of a transnational wholesale market, proposing fair and sustainable remuneration for clean energies through the definition of new business models supporting the participation of new players –i.e. aggregators - and the reduction of costs. The CROSSBOW results will be evaluated by 8 TSOs in Eastern Europe, grouped to form clusters that will validate each of the project's outcomes in at least three different countries, demonstrating in all cases how CROSSBOW tackles the transnational challenges faced by these TSOs.

**Role of Croatian organizations**

**Croatian Transmission System Operator Ltd.**

Integration of renewable energy sources in the Croatian power system is becoming quite challenging for HOPS, especially in the field of system balancing and network congestions. CROSSBOW outcomes

are expected to help HOPS in better management of the intermittent energy from renewable energy sources, thus enabling large-scale integration of renewable energy sources in the future. Expected gains for HOPS are both technical and financial. Technical gains from enabling larger possibilities and resources for system balancing are improved system security and stability. Financial gains from larger competition in balancing market could result in massive financial savings that will have a positive impact on the transmission tariffs. This could enable further investments in the renewable energy sector which can improve the overall economic conditions in Croatia, having a positive impact on the economic growth and creating new job. HOPS will be a leader of Sub-Project 6-Integration and Demonstration, also playing an important role as leader of Work Package 6.2 Large-scale demonstration activities of the integrated CROSSBOW ecosystem.
Furthermore, HOPS will participate in the pilot clusters where HLU demonstrations involve assets in Croatian power system. One example is the demonstration of storage solutions and solutions for cross-border exchange of the balancing energy, both facilitating RES integration.
The project results will contribute to the EU 2020 and 2030 targets for climate and energy. These targets aim to help the EU achieve a more competitive, secure and sustainable energy system and to meet its long-term 2050 greenhouse gas reductions target.

**KONČAR-Power Plant and Electric Traction Engineering Inc.**
The CROSSBOW project proposes cross-border shared management of variable renewable energy sources and storage units in south-east Europe. This paves the way to a higher share of clean energy technologies, while minimizing the grid operational costs. A number of technical developments are required to enable timely and reliable communication between the relevant actors across borders. KONČAR-KET participates as a trusted, longstanding and reliable developer and integration partner to numerous system operators in the region, both in SCADA and in market management systems. KONČAR-KET's solutions will play a crucial role in the CROSSBOW tools that will enable wider-area system disbalances to be compensated with granular contributions across borders, thus increasing the power system stability and resilience. For KONČAR-KET, CROSSBOW continues a line of successful projects dealing with active demand response. KONČAR-KET's solutions will enable and implement the tools to widen the scope of flexibility in power systems.

**University of Zagreb, Faculty of Electrical Engineering and Computing**
CROSSBOW will propose the shared use of resources to foster cross-border management of variable renewable energies and storage units, enabling a higher penetration of clean energies whilst reducing network operational costs and improving economic benefits of renewable energy sources (RES) and storage units. The main role of UNIZG-FER is to demonstrate new storage solutions - distributed and centralized – in our Smart Grid Laboratory (SGLab), providing ancillary services by forming Virtual Storage Plants that offer Transmission System Operators higher flexibility and robustness of the power systems with high penetration of RES. For this purpose, within the project, additional storage units will be installed in the laboratory. The second part of the research is focused on the mathematical modelling of RES in order to explore the possibilities of providing ancillary services in particular virtual inertial response and primary frequency control of wind power plants.

1_Kick off meeting, Sofia, Bulgaria, CROSSBOW project

| HORIZON 2020 – Secure, clean and efficient energy | |
|---|---|
| **Project Name** | **Multi stakeholder and governance approach for SECAP development and implementation** |
| **Project Acronym** | **PentaHelix** |
| **Project ID** | 784994 |
| **Start Day - End Day** | 01/03/18 – 28/02/21 |
| **Instrument Funding** | CSA - Coordination and support action |
| **Call For Proposal** | H2020-EE-2017-CSA-PPI |
| **Topic** | EE-09-2016-2017 - Engaging and activating public authorities |
| **Project Web Site** | https://pentahelix.eu/ |
| **EC FInancial Contribution** | EUR 1 808 343,75 |
| **All Participants in Project** | 11 |
| **Croatian Organizations** | University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture<br>North-west Croatia Regional Energy Agency |
| **Web Site** | www.fsb.unizg.hr www.regea.org |
| **EC Financial Contribution to Croatian Partners** | EUR 173 375<br>EUR 77 750 |
| **Contact Persons in Croatia** | Prof. Neven Duić, PhD, (UNIZG, FSB), Velimir Šegon, MSc (REGEA) |
| **Coordinated in** | Croatia |
| **All Participants in Project** | HR, NO, BE, LV, ES |
| **Project Free Keywords** | *SECAP, multi-governance, public authorities, stakeholders, planning, energy planning, sustainable energy planning* |

**Project Summary**

The PentaHelix project is focusing on developing and testing a new approach for integrating multi-governance planning for sustainable energy, both horizontal and vertical, together with a close interaction with key stakeholders in energy efficiency and sustainable energy solutions such as the industry and business, building sector, NGO's, academia and individual citizens or relevant associations. The project aims at developing a peer-to-peer online platform for Sustainable Energy and Climate Action Plans (SECAPs) development that can be used for multiple public authorities in joint planning and implementation. This will enable the integration of different administrative levels and geographical planning areas as well as enhance the cost efficiency in the entire planning and implementation process based on economy of scale and closer cooperation and exchange. In addition, regional PentaHelix Task forces will be established, involving key stakeholder and target groups, that will serve as a driver for a wider scope of the SECAPs as well as bringing in valuable insights and identification of potential measures, system solutions and a better understanding of drivers and barriers for a more sustainable society as a whole, in each specific region. This PentaHelix approach will be developed and tested in at least 8 pilot municipalities in Norway, Croatia, Belgium, Spain, and Latvia. Each region is unique in terms of demography, economy, urban development, climate conditions, and industrial/ business structure. Together these pilot areas constitute a large number of inhabitants and potential mitigation of CO2 and energy savings. To further enhance the impact of the project, a broad replication and dissemination strategy and actions will be rolled out in many countries in the EU. This will be mainly carried out towards neighbouring regions as well as the network of ERRIN with its many member organisations. Targeted dissemination actions will be implemented. 11 partners from 5 countries will do this during 36 months.

**Role of Croatian organizations**

**University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture**

UNIZG FSB is the Project Coordinator and is therefore responsible for the overall coordination and management of the PentaHelix project. This implies, amongst others, the supervision of project activities,

financial management, risk management, quality assurance of the project deliverables and reports including their submission to the European Commission (EC) and the communication with the EC representatives. Beside project management UNIZG FSB is leading an additional work package the objective of which is to determine the starting point for the implementation of the PentaHelix methodology, identify and map the key stakeholders as well as the potential barriers and drivers relevant to the direct development and implementation of SECAPs. Additionally, a detailed assessment of the potential impacts related to energy, economy and social issues of relevant measures usually suggested by SECAPs will be performed within this work package. As a Croatian partner, UNIZG FSB is supporting the implementation of the PentaHelix methodology in the Croatian pilots.

**North-west Croatia Regional Energy Agency**

The main objective of the project is to strengthen the capacities of local and regional authorities to find innovative and cost-effective approaches to the development, financing, implementation, and improvement of Sustainable Energy and Climate Action Plans (SECAP). Specifically, the PentaHelix methodology will be developed and tested within at least 8 pilot municipalities in Europe.

REGEA as a project partner is responsible for the implementation of the PentaHelix methodology in Croatian pilot municipalities, which will be achieved through working with specially devised groups of stakeholders divided into Task Force groups for each municipality. Activities implemented by REGEA include organizing Task Force meetings, gathering the information from the stakeholders, performing analysis and finally the development of SECAPs for selected pilot municipalities in Croatia.

1_Project members, PentaHelix project

| HORIZON 2020 – Secure, clean and efficient energy | | |
|---|---|---|
| **Project Name** | **Smart Transition of EU cities towards a new concept of smart Life and Economy** | |
| **Project Acronym** | **mySMARTLife** | |
| **Project ID** | 731297 | |
| **Start Day - End Day** | 01/12/16 – 30/11/21 | |
| **Instrument Funding** | IA - Innovation action | |
| **Call For Proposal** | H2020-SCC-2016 | |
| **Topic** | SCC-1-2016-2017 - Smart Cities and Communities lighthouse projects | |
| **Project Web Site** | www.mysmartlife.eu | |
| **EC FInancial Contribution** | EUR 18 656 102,41 | |
| **All Participants in Project** | 42 | |
| **Croatian Organization** | City of Rijeka | |
| **Web Site** | www.rijeka.hr | |
| **EC Financial Contribution to Croatian Partner** | EUR 140 625 | |
| **Contact Person in Croatia** | Suzana Belošević Romac | |
| **Coordinated in** | Spain | |
| **All Participants in Project** | ES, FR, DE, AT, FI, PL, BG, HR | |
| **Project Free Keywords** | *smart people, smart economy, integrated planning, Urban Transformation Strategy, lighthouse cities, follower cities, demonstration, replication* | |

**Project Summary**

mySMARTLife project aims at the development of an Urban Transformation Strategy to support cities in the definition of transition models, as a suitable path to reach a high level of excellence in its development process, addressing the main city challenges and progressing to the smart people and smart economy concepts. The main instrument to achieve this very ambitious strategy will be the definition of the Advanced Urban Planning, consisting of an integrated approach of the planned city interventions on the basis of a rigorous impact assessment, an active citizen engagement in the decision-making process and a structured business approach, from the city business model perspective, to the economic framework for big companies and local SMEs and Start-Ups. Nantes (France), Hamburg (Germany) and Helsinki (Finland) are the lighthouse cities and Varna (Bulgaria), Bydgoszcz (Poland), Rijeka (Croatia) and Palencia (Spain) the followers. All of them will be involved in the overall project development assuming different and complementary roles. Energy and Climate mitigation plans in the lighthouse cities are completely compliant with the objectives of Covenant of Mayors initiative, as it is reflected; first regarding the early participation of the cities in Covenant of Mayors and second, considering the ambition of their SEAPs, that were submitted, evaluated, approved and are monitored by Covenant of Mayors. Aligned with these objectives, the commitment of the lighthouses is the deployment of a big set of large-scale interventions and at least two years of data collection to make a depth analysis of the results, calculating standard KPIs, evaluating the associated impacts and disseminating the results. Followers will be very close to this demonstration, collaborating in the definition and deployment, analysing the problem from the point of view of their own city challenges and extracting knowledge, best practices and lessons learnt for a further replication.

**Role of Croatian organization**

**City of Rijeka**

mySMARTLife aims to define an advanced urban planning process that will serve as an instrument for achieving ambitious goals laid down by the Urban Transformation Strategy. The advanced urban planning process includes an integrated approach to planning interventions in cities on the basis of rigid evaluations of the impact of each intervention, the approach of active citizen inclusion in the city management process and structured economic approach, from the perspective of an urban business model to an economic framework for large companies and local small and medium-sized firms and start-ups.

Nantes (France), Hamburg (Germany) and Helsinki (Finland) are the so-called "lighthouse" cities, while Bydgoszcz (Poland), Rijeka (Croatia) and Palencia (Spain) are the so-called "followers". All of them will be included in the Renewal of part of the city and smart houses development – Smart district; Smart energy – offer and demand; ICT development and urban platforms.

| HORIZON 2020 – Smart, green and integrated transport | | |
|---|---|---|
| **Project Name** | **HOLIstic optimisation of SHIP design and operation for life cycle** | |
| **Project Acronym** | **HOLISHIP** | |
| **Project ID** | 689074 | |
| **Start Day - End Day** | 01/09/16 – 31/08/20 | |
| **Instrument Funding** | RIA - Research and Innovation action | |
| **Call For Proposal** | H2020-MG-2015_TwoStages | |
| **Topic** | MG-4.3-2015 - System modelling and life-cycle cost optimisation for waterborne assets | |
| **Project Web Site** | http://www.holiship.eu/ | |
| **EC FInancial Contribution** | EUR 11 431 746 | |
| **All Participants in Project** | 45 | |
| **Croatian Organization** | ULJANIK Group | |
| **Web Site** | https://www.uljanik.hr/en | |
| **EC Financial Contribution to Croatian Partner** | EUR 140 875 | |
| **Contact Persons in Croatia** | Gordan Sikic, Igor Lalovic, Josip Andrisic, Vito Radolovic, Obrad Kuzmanovic | |
| **Coordinated in** | Germany | |
| **All Participants in Project** | DE, CY, FR, IT, NL, EL, FI, NL, MT, UK, NO, ES, LR, HR, BE | |
| **Project Free Keywords** | *ship design optimisation, life cycle design, Virtual Vessel Framework, virtual testing* | |

**Project Summary**

Most maritime products are typically associated with large investments and are seldom built in large series. Where other modes of transport benefit from the economy of series production, this is not the case for maritime products which are typically designed to refined customer requirements increasingly determined by the need for high efficiency, flexibility and low environmental impact at a competitive price. Product design is thus subject to global trade-offs among traditional constraints (customer needs, technical requirements, cost) and new requirements (life-cycle, environmental impact, rules). One of the most important design objectives is to minimise total cost over the economic life cycle of the product, taking into account maintenance, refitting, renewal, manning, recycling, environmental footprint, etc. The trade-off among all these requirements must be assessed and evaluated in the first steps of the design process on the basis of customer/owner specifications. Advanced product design needs to adapt to profound, sometimes contradicting requirements and assure a flexible and optimised performance over the entire life-cycle for varying operational conditions. This calls for greatly improved design tools including multi-objective optimisation and finally virtual testing of the overall design and its components. HOLISHIP (HOLIstic optimisation of SHIP design and operation for life-cycle) addresses these urgent industry needs by the development of innovative design methodologies, integrating design requirements (technical constraints, performance indicators, life-cycle cost, environmental impact) at an early design stage and for the entire life-cycle in an integrated design environment. Design integration will be implemented in practice by the development of integrated design s/w platforms and demonstrated by digital mock-ups and industry-led application studies on the design and performance of ships, marine equipment, and maritime assets in general.

**Role of Croatian organization**

**ULJANIK Group**
Work package 16 leaders – Implementation of tools specifically developed for a holistic approach of design loop on large RO-Pax design case. Active participation on actual tools development using our large design experience. Uljanik's RO-Pax design case is selected to be one of the demonstration cases for HOLISHIP project (39 partners). Innovative holistic multi-objective design optimization has one big advantage in comparison to conventional spiral design approach – the designer can analyse more design alternatives in a given timeframe and thus obtain a multi-objective optimized design.

| HORIZON 2020 – Smart, green and integrated transport | | |
|---|---|---|
| **Project Name** | **Low energy passenger comfort systems based on the joule and peltier effects** | |
| **Project Acronym** | **JOSPEL** | |
| **Project ID** | 653851 | |
| **Start Day - End Day** | 01/05/15 – 31/10/18 | |
| **Instrument Funding** | RIA - Research and Innovation action | |
| **Call For Proposal** | H2020-GV-2014 | |
| **Topic** | GV-2-2014 - Optimised and systematic energy management in electric vehicles | |
| **Project Web Site** | http://jospel-project.eu/ | |
| **EC FInancial Contribution** | EUR 6 668 288 | |
| **All Participants in Project** | 15 | |
| **Croatian Organization** | DOK-ING Ltd. | |
| **Web Site** | http://www.dok-ing.hr/ | |
| **EC Financial Contribution to Croatian Partner** | EUR 324 687,50 | |
| **Contact Persons in Croatia** | Mario Popović, Draško Muck | |
| **Coordinated in** | Spain | |
| **All Participants in Project** | ES, HR, IT, UK, LU, FR, PT, DK, DE | |
| **Project Free Keywords** | *Electric vehicles, joule effect, peltier cell, thermal insulation, PMMA, eco-driving* | |

**Project Summary**

The aim of JOSPEL project is the development of a novel energy efficient climate system for the optimization of interior temperature control management in electrical vehicles through an integrated approach that combines the application of the thermoelectric Joule and Peltier effect, the development of an efficient insulation of the vehicle interior, the energy recovery from heat zones, battery life increase duration enhancement as a side effect of thermal management, battery consumption reduction by Peltier cooling integration, innovative automated and eco-driving strategies and the electronic control of power flows. The main objective is the reduction of at least 50 % of the energy used for passenger comfort (<1,250 W) and at least 30 % for component cooling in extreme conditions with reference to the electric vehicles currently on the market.

**Role of Croatian organization**

**DOK-ING Ltd.**

DOK-ING role is preparing the EV (Loox) to be able to receive all developed devices in order to demonstrate the higher efficiency of EV AC and passenger comfort systems in general. Activities include modifying current Loox devices while making them compatible with the devices developed by other partners on the project. DOK-ING obtains a direct benefit due to having new devices with better performance and lighter at a competitive cost.

| HORIZON 2020 – Smart, green and integrated transport | | |
|---|---|---|
| **Project Name** | **Ship Lifecycle Software Solutions** | |
| **Project Acronym** | **SHIPLYS** | |
| **Project ID** | 690770 | |
| **Start Day - End Day** | 01/09/16 – 31/08/19 | |
| **Instrument Funding** | RIA - Research and Innovation action | |
| **Call For Proposal** | H2020-MG-2015_TwoStages | |
| **Topic** | MG-4.3-2015 - System modelling and life-cycle cost optimisation for waterborne assets | |
| **Project Web Site** | http://www.shiplys.com/ | |
| **EC FInancial Contribution** | EUR 6 144 150 | |
| **All Participants in Project** | 14 | |
| **Croatian Organization** | Alveus Ltd. | |
| **Web Site** | http://www.as2con.eu/ | |
| **EC Financial Contribution to Croatian Partner** | EUR 226 250 | |
| **Contact Persons in Croatia** | Darko Frank, Nataša GOLIK KLANAC, D.Sc.(Econ.), Arijana Milat | |
| **Coordinated in** | United Kingdom | |
| **All Participants in Project** | UK, ES, DE, EL, PT, BG, HR | |
| **Project Free Keywords** | *Life Cycle assessments and optimisation of ships; Advance computing tools; Virtual prototyping; Simulation modelling cost analysis; Multi criteria decision support; Improving SME stakeholder viability* | |

**Project Summary**

SHIPLYS has been specified as necessary by our architect, shipbuilder and ship-owner members, who, in order to survive in the world market, need to improve their capability to reduce the cycle time and costs of design and production, to be able to reliably produce better ship concepts through virtual prototyping and to meet the increasing requirements for LCCA (Life Cycle Cost Analysis), environmental assessments, risk assessments and end-of-life considerations as differentiators. Yet, the calculation and modelling to do this is difficult and time consuming, especially for SMEs without a large overhead of trained staff and tools, due to difficulties in integrating data between incompatible tools and formats for different design stages: conceptual hull design; the finite element calculations feeding preliminary and detailed designs; and virtual prototyping simulation models. This is coupled with the lack of an industry-specific lifecycle modelling technique, hindered by the lack of information to support reliable decision-making. SHIPLYS aims to transfer experience from the development of industry modelling coherence schemes e.g. BIM (Building Information Modelling), and use them to produce new techniques for quick, reliable multi-disciplinary modelling capability for the marine industry: Develop standardization aspects of the new paradigm by transferring the key BIM Product Model principles: identify and capture the useful implicit information in existing CAD/CAE data and develop data formats to provide persistence for data reuse between design stages; develop a Virtual Prototyping system to incorporate LCCA, environmental and risk assessment criteria, for fast and cost-effective evaluation of alternatives; add multi-criterion decision analysis techniques to support decision making across the short/long term, based on explicit formulation matrix of 'Buyer Utility;' the key purchasing decision criteria; to build on ISO10303 standards for interoperable data reuse.

**Role of Croatian organization**

**Alveus Ltd.**
Based on their expertise in naval architecture, as2con - Alveus Ltd. provides technical inputs to the SHIPLYS software development, such as for defining relevant parameters and processes and is able to represent a user perspective on the software to ensure functionality and user-friendliness. Also, we are leading the dissemination activities, including business plan and commercialisation activities.

1_Ferguson Marine Shipyard, Glasgow, Scotland, SHIPLYS project

| HORIZON 2020 – Climate action, environment, resource efficiency and raw material | | |
|---|---|---|
| **Project Name** | **productive Green Infrastructure for post-industrial urban regeneration** | |
| **Project Acronym** | **proGIreg** | |
| **Project ID** | 776528 | |
| **Start Day - End Day** | 01/06/18 – 31/05/23 | |
| **Instrument Funding** | IA - Innovation action | |
| **Call For Proposal** | H2020-SCC-NBS-2stage-2017 | |
| **Topic** | SCC-02-2016-2017 - Demonstrating innovative nature-based solutions in cities | |
| **Project Web Site** | http://www.progireg.eu/ | |
| **EC FInancial Contribution** | EUR 10 432 512,01 | |
| **All Participants in Project** | 38 | |
| **Croatian Organizations** | City of Zagreb, Office of Strategic Planning and Development of the City;<br>University of Zagreb, Faculty of Architecture;<br>Bureau for Physical Planning;<br>Komfor Klima Grupa Ltd. for production, trade and services;<br>NGO Green and Blue Sesvete; | |
| **Web Site** | https://www.zagreb.hr/<br>http://www.arhitekt.hr/<br>https://www.zzpugz.hr/<br>http://www.komfor-klima.hr/ | |
| **EC Financial Contribution to Croatian Partners** | EUR 1 119 437,50<br>EUR 119 975<br>EUR 99 201,25<br>EUR 35 790,13<br>EUR 83 577,50 | |
| **Contact Persons in Croatia** | Sanja Jerković mag.ing.arch.; Matija Vuger mag.ing.traff.; Prof. Bojan Baletić, PhD; Ivica Rovis LLM; Anto Damjanović | |
| **Coordinated in** | Germany | |
| **All Participants in Project** | *DE, IT, HR, PT, EL, RO, BA, AT, ES,* | |
| **Project Free Keywords** | *productive Green Infrastructure, natural based solutions, urban commons, co-production, urban agriculture, urban forestry, soil regeneration, post-industrial regeneration, social entrepreneurship, eastern Europe* | |

**Project Summary**

For proGIreg three front-runner cities (Dortmund (DE); Turin (IT); Zagreb (HR)) will create Living Labs in urban areas which face the challenge of a post-industrial regeneration. These areas suffer from social and economic disadvantages, inequality and related crime and security problems. They lack quality greenspaces, have a negative impact on human health and well-being and are more vulnerable to the effects of climate change. Going beyond the current state-of-the-art with Green Infrastructure as a one-off state intervention, the proGIreg Living Labs will develop NBS which are citizen owned and co-developed by state, market and civil society stakeholders. Innovation will take place on the technical level through the NBS deployments, on the social level through co-designing, co-creating and co-implementing NBS with local communities and on the economic level through combining NBS with market-ready business models. Four follower cities in Eastern and Southern Europe (Cascais PT, Cluj-Napoca RO, Piraeus GR, Zenica BA) will be co-steering the research process to assure replicability and adaptability to their local context resulting in urban plans for NBS deployment. The NBS to be tested i.a. include: regenerating industrial soils biotic compounds, creating community-based urban agriculture and aquaponics and making renatured river

corridors accessible for local residents.
Scientific assessment and monitoring results from the Living Labs will be made available on the EU NBS platforms OPPLA and THINKNATURE and will contribute to the European reference framework for NBS. A global impact will be achieved by a training programme for cooperative planning, implementation, and management of NBS. It will be provided by partners from the cities, SMEs and universities involved. Training events will be organised in cooperation with the partner ICLEI. Massive Open Online Courses (MOOCs) will be distributed via EdX, the most renowned MOOCs platform worldwide.

**Role of Croatian organizations**

**City of Zagreb, Office of Strategic Planning and Development of the City**
As the proGIreg front-runner City, City of Zagreb, Office of Strategic Planning and Development of the City will coordinate local activities within local partner (City administrative bodies, Faculty, NGO and private sector) to ensure implementation of planned activities in the City of Zagreb related to associated work packages. The project has the objective of demonstrating the integration of Nature Based Solutions (NBS) into business models which are economically self-sustaining, and which provide multiple benefits for the economic, ecological and social regeneration of deprived urban areas suffering from the consequences of de-industrialization. It aims to develop new NBS oriented economies shared between public authorities, civil society and industry/SMEs. NBS are the ecosystem supported components of Green Infrastructure (GI). The core of the LL will be the brownfield site of the former meat processing factory Sljeme in Sesvete, which is now owned by the City of Zagreb. Zagreb LL is the creation of new public spaces, to ensure spaces for needed public facilities and introduce principles of sustainable urban planning. The GI approach must strengthen initiatives regarding urban resilience (low water table, storm water), well-being programmes (jogging and bicycling paths, recreation areas), community activities (urban gardens, green market) and bioclimatic building principles (eliminate heat islands, natural cooling, green roofs and facades).

**University of Zagreb, Faculty of Architecture**
The University of Zagreb, Faculty of Architecture is a partner in the proGIreg H2020 project and academic support to the front-runner city of Zagreb. The area of interest in Zagreb is Sesvete, a city quarter on the east administrative edge of Zagreb. The quarter has the highest population growth due to immigration and the natural growth of population. On average, it is the youngest community in Zagreb. As Sesvete grew, in the past decades, it never developed a clear urban form and identity. But recently it has developed, through the activity of the local NGO and with the help of experts from the Faculty of Architecture, an urban self-consciousness that demands bike lanes, public spaces, a public park, more public facilities, a better road network, a secure crossing of the railway, a new music school, a hub for small spin-off firms and makers culture, etc. and a new urban identity. These aspirations have been articulated in the study "The Green and Blue Sesvete" (2016). The ideal starting point for this new Sesvete downtown development is a 125.000m2 abandoned brownfield plot of the former meat industry Sljeme, now owned by the City of Zagreb. The experts from the University of Zagreb, by taking part in the project, look forward to implementing new design and planning principles based on Nature-based solutions (NBS) that will help develop the area as a healthy environment and satisfy the aspirations of the local citizens.

**Bureau for Physical Planning**
In the project, Bureau for Physical Planning has an active role to support City Office of Strategic Planning and City Development in Work package 2 Planning, design and participation processes for NBS, in preparing new guidelines to integrate NBS in the new generation of urban and space planning documents. The key role of the Bureau is in Task 3.5. to implement the LL in Zagreb. Furthermore, Bureau will also deliver input to training and dissemination activities. The project is adding nicely to another EU project – Urban learning, finished last year, which was focused on integrated energy planning in urban areas. The common ground of both projects is how to decarbonise our cities, how to deal with heat islands and CO2 emissions and make them liveable, how to use nature-based solutions and RES and how to imbed all of these in urban planning documents.
The project is an excellent opportunity to share knowledge and experience in dealing with challenges of low-carbon development and an opportunity to involve the local community in achieving common goals. It is a five years project, so there will be the chance for close cooperation and improvement of relationship with other city offices and other stakeholders.

**NGO Green and Blue Sesvete**

ZIPS plays a key role in the co-design and co-production processes for the NBS in Zagreb as the FRC. Their networking and activities in the area will be crucial for involvement of the citizens. They are actively involved in implementing the pilot LL in Zagreb. Furthermore, they are also committed to contributing to the training events, training modules, and organisation of the final conference in Zagreb.

1_Former meat factory "Sljeme", Zagreb, Croatia, proGIreg project; 2_Project meeting, Dortmund, Germany, September 2019., proGIreg project, / Source; City of Zagreb, Office of Strategic Planning and Development of the City; 3_Unused surfaces Zagreb/Sesvete, Croatia, proGIreg project / Source; City of Zagreb, Office of Strategic Planning and Development of the City; 4_proGIreg project

| HORIZON 2020 – Climate action, environment, resource efficiency and raw material | | |
|---|---|---|
| **Project Name** | **Towards circular economy in the plastic packaging value chain** | |
| **Project Acronym** | **CIRC-PACK** | |
| **Project ID** | 730423 | |
| **Start Day - End Day** | 01/05/17 – 30/04/20 | |
| **Instrument Funding** | IA - Innovation action | |
| **Call For Proposal** | H2020-CIRC-2016 TwoStage | |
| **Topic** | CIRC-01-2016-2017 - Systemic, eco-innovative approaches for the circular economy: large-scale demonstration projects | |
| **Project Web Site** | http://circpack.eu/ | |
| **EC FInancial Contribution** | EUR 7 308 180,13 | |
| **All Participants in Project** | 23 | |
| **Croatian Organizations** | MI-PLAST Ltd.<br>SAPONIA D.D.<br>City of Rijeka | |
| **Web Site** | https://mi-plast.eu/hr/<br>https://www.saponia.hr/hr/<br>https://www.rijeka.hr/ | |
| **EC Financial Contribution to Croatian Partners** | EUR 459 550<br>EUR 73 150<br>EUR 120 000 | |
| **Contact Persons in Croatia** | Filip Miketa; Andrea Božić; Suzana Belošević Romac | |
| **Coordinated in** | Spain | |
| **All Participants in Project** | ES, IT, NL, HR, TR, DE, FR | |
| **Project Free Keywords** | *Plastic, Packaging, Design, biobased, biodegradable, recycling, new business models, organizational innovation, plastics landfill reduction* | |

**Project Summary**

CIRC-PACK project aims at more sustainable, efficient, competitive, less fossil fuel dependence, integrated and interconnected plastic packaging value chain. To this end, three case studies will work in developing, testing and validating better system-wide economic and environmental outcomes by

(i) decoupling the chain from fossil feedstocks,

(ii) reducing the negative environmental impact of plastic packaging; and

(iii) creating an effective after-use plastics economy.

All in all, the work will be supported by a non-technological analysis and an advanced methodological analysis (including the circular economy and industrial symbiosis principles) which will trigger a broad deployment of the tested solutions. The CIRC-PACK project will provide breakthrough biodegradable plastics using alternative biobased raw materials, which will have an instrumental role to play in the subsequence steps of the plastic value chain. In addition, eco-design packaging for improving and end-of-like multilayer and multi-component packaging will be technologically advanced and adapted also to the new materials produced. Thus these developments will also contribute with a great impact on the packaging footprint, and increasing the biobased content and using compostable materials. Lastly, a multi-sectorial cascaded approach along plastic packaging value chain will be applied with critical impacts in other value chains beyond the targeted plastic packaging value chain. The overall outcome of the project will facilitate the transition from the current linear plastic packaging value chain to the circular economy principles.

**Role of Croatian organizations**

**MI-PLAST Ltd.**
In the frame of Circ-Pack project, MiPlast is covering and leading several tasks in Demo case A and Demo case C which are developing new packaging materials and formats which could be easily implemented at the current market. The main role is up-scaling of several extrusion processes (TRL5-7) such as single and twin screw extrusion with the accent on recycling extrusion and blown extrusion process. Apart from this, Mi-Plast is responsible for increasing of recycled content (5%-100%) into the final production of new packaging solutions which are bio-based and bio-degradable.

**SAPONIA D.D.**
When developing new products and services Saponia is always trying to get the maximum benefit for the consumer with minimal environmental impact. Therefore, Saponia has joined 22-partner consortium that created the CIRC-PACK project. Saponia is involved in two demonstrations. We will test and validate biodegradable or compostable plastic packaging for cosmetics and liquid detergents made of novel biopolymers developed within the project. As we are developing a new line of ecological friendly products fit for eco-label, we would like to pack it into equally ecological packaging and lower our environmental footprint. The second product is multilayer and multi-material packaging for powder detergents. Currently used laminated boxes for powder detergents cannot be recycled – with new materials our goal is to get recyclable packaging with improved barrier properties for better protection of the detergent. Beside these two goals, we also participate in all other activities with input for better sorting and recycling processes, improved legislation and public awareness of problems regarding the use of plastic materials.

**City of Rijeka**
CIRC-PACK aims to transform plastic packaging waste into a resource. The project will develop more sustainable, bio-based and recyclable plastics used for the manufacturing of a wide range of products: trays, bottles, coffee capsules, jars, car parts, pallets, and new types of multi-layer and multi-material packaging. CIRC-PACK aims to create biodegradable or compostable polyesters as well as smart eco-designs that make sorting easier, with improved recycling technologies that will increase recovery rates and ensure quality. With these innovations, the CIRC-PACK approach can make a real contribution to the circular economy of the future.

Project activities: Three case studies ( DC-A, DC-B, DC-C ) will work in developing, testing and validating better system-wide economic and environmental outcomes by:
• decoupling plastics from fossil feedstock by using alternative renewable feedstock (Demo case A);
• creating innovative formats and testing materials that improve recyclability and the end-of-life scenario (Demo case B);
• creating an effective after-use plastics economy by means of multisectorial cascaded approaching, adapting sorting technologies and in-line monitoring systems (Demo case C).

1_Mi-Plast blown-extrusion facility, CIRC-PACK project; 2_Project members, CIRC-PACK project, KoM Zaragoza, Spain, May 2017.

| HORIZON 2020 – Climate action, environment, resource efficiency and raw material | | |
|---|---|---|
| **Project Name** | **Project Ô: demonstration of planning and technology tools for a circular, integrated and symbiotic use of water** | |
| **Project Acronym** | **Project O** | |
| **Project ID** | 776816 | |
| **Start Day - End Day** | 01/06/18 – 31/05/22 | |
| **Instrument Funding** | IA - Innovation action | |
| **Call For Proposal** | H2020-CIRC-2017 TwoStage | |
| **Topic** | CIRC-02-2016-2017 - Water in the context of the circular economy | |
| **Project Web Site** | http://eu-project-o.eu/ | |
| **EC FInancial Contribution** | EUR 9 261 272,38 | |
| **All Participants in Project** | 24 | |
| **Croatian Organization** | Particula Group Ltd. | |
| **Web Site** | http://www.particula-group.com/hr/ | |
| **EC Financial Contribution to Croatian Partner** | EUR 55 737,50 | |
| **Contact Person in Croatia** | Ms. Danijela Dobrović | |
| **Coordinated in** | Italy | |
| **All Participants in Project** | IT, DK, ES, FR, AT, IL, UK, PT, HR | |
| **Project Free Keywords** | *Water Footprint; Advanced Oxidation Processes; Nanoadsorption; Modularisation; Demonstration activities; Industrial Symbiosis; Textile finishing; Food processing; Agriculture; Aquaculture* | |

**Project Summary**

Project Ô intends to demonstrate approaches and technologies to drive an integrated and symbiotic use of water within a specific area, putting together the needs of different users and wastewater producers, involving regulators, service providers, civil society, industry, and agriculture. The project seeks to apply the pillars of an integrated water management (IWM) as a model for "water planning" (akin to spatial planning) and to demonstrate low cost, modular technologies that can be easily retrofitted into any water management infrastructure at district/plant level, hence enabling even small communities and SMEs to implement virtuous practices. Technologies and planning instruments complement each other as the first make possible the second and the latter can provide an example or even prescribe the former (and similar technologies allowing virtuous water use practices). Indeed the technologies support the regulators in implementing policy instruments, as foreseen by IWM, for convincing stakeholders (like developers and industry) to implement water efficiency strategies and could include instruments for e.g. rewarding virtuous behaviours (for example: advantageous water tariffs), planning regulations that award planning consent more swiftly or even prescribe the use of water from alternative sources (including recycling). Project Ô has in summary the overall objective of providing stakeholders (everybody using or regulating the use of water in an area) with a toolkit that enables them to plan the use of and utilise the resource water whatever its history and provenance, obtaining significant energy savings in terms of avoided treatment of water and wastewater and release of pressure (quantity abstracted and pollution released) over green water sources. This overall objective will be demonstrated in up to four sites each in different European countries and in Israel, involving industries, aquaculture, and agriculture as well as local authorities of different sizes.

**Role of Croatian organization**

**Particula Group Ltd.**
In the Project O Particula Group undertakes tasks in Business modelling and exploitation in Circular economy. Through a business focus approach, Particula Group will take part in setting the framework to implement the circular business model that will consider B2B, B2C, C2B, and G models. The integration and link between water production/use/treatment, energy consumption/production and materials use/generation will be analysed, providing a strategy which considers high modularity, reusing and recycling within the same facilities. Particula Group team will benefit in exploring financing opportunities, including access to Structural Funds funded projects, in line with the investments needs and strategies identified within the developed circular business model. Furthermore, the established Business model will enable the progressive firming up for the different players: technology owners, platforms and tools developers, adopters, including water utilities and water companies in Croatia.

1_Project members, Torino, Italy, Project O

| HORIZON 2020 – Inclusive, innovative and reflective societies | | |
|---|---|---|
| **Project Name** | **Co Production and Co Governance: Strategic Management, Public Value and Co Creation in the Renewal of Public Agencies across Europe** | |
| **Project Acronym** | **COGOV** | |
| **Project ID** | 770591 | |
| **Start Day - End Day** | 01/05/18 – 31/10/21 | |
| **Instrument Funding** | RIA - Research and Innovation action | |
| **Call For Proposal** | H2020-SC6-CULT-COOP-2017-one-stage | |
| **Topic** | CULT-COOP-11-2016-2017 - Understanding the transformation of European public administrations | |
| **Project Web Site** | http://cogov.eu/ | |
| **EC FInancial Contribution** | 4 483 898,75 | |
| **All Participants in Project** | 10 | |
| **Croatian Organizations** | Span Ltd.<br>City of Rijeka | |
| **Web Site** | https://span.eu/<br>www.rijeka.hr | |
| **EC Financial Contribution to Croatian Partners** | EUR 208 703,75<br>EUR 150 000 | |
| **Contact Persons in Croatia** | Grega Črne; Suzana Belošević Romac | |
| **Coordinated in** | United Kingdom | |
| **All Participants in Project** | UK, DK, NL, FR, SI, HR, | |
| **Project Free Keywords** | *Public Value; Co-production; Co-creation; Network Governance; Digital Era Governance* | |

**Project Summary**

This proposal suggests that taking a strategic approach – in the most fundamental sense - to the renewal of organization and management of European public administrations is a key requirement for enhancing the public governance and citizens' participation across Europe. The project aims to locate, explore and diffuse leading-edge experiments in new and more participatory approaches to the public administration which are becoming evident across various countries in Europe. Ultimately, the project aims at generating applicable knowledge about the dynamics and developmental patterns of longitudinal, emergent strategy formation processes and the dynamics leading to strategic renewal and community engagement. We draw on four promising models apparent in the recent public management literature to inform the empirical work theoretically, namely: Public Value Creation models, used in combination with Co Creation and Co Governance (hence the acronym COGOV) ideas, in turn combined with Digital Era Governance inspirations with their possible implications for more participatory approaches to e-government. The project relies on a pan European collaboration of academic and policy partners and is strongly connected to, and informed by, practice.

**Role of Croatian organizations**

**City of Rijeka**

The City of Rijeka is a partner in the H2020 project COGOV which aims to support and promote - as well as identify - promising innovations which provide more legitimate, appropriate and accessible public services. The project will contribute to promoting and assessing the wider social impact of promising organizational innovations in digital era governance across Europe.

More specifically, the project will impact on and contribute to:
• strategic and participatory renewal of public services stimulating greater civic participation, trust, engagement, and political legitimacy;
• stimulate formative organizational learning, problem-solving and service improvement;
• identifying critical success factors in the development and implementation of promising local innovations;
• promoting public value and co-creation based models and practices;
• contributing to the more effective, accessible, socially inclusive and legitimate production of public services and their more effective co-working with groups of users, citizens and NGOs.

**Span Ltd.**
Span Ltd. is one of consortium partners that has managed with an application to the Horizont 2020 tender with an idea for a strategic approach to the renewal of organization and management of European public administrations as a key requirement for enhancing the public governance and citizens' participation across Europe. This project aims to locate, explore and diffuse leading edge experiments in new and more participatory approaches to public administration which are becoming evident across various countries in Europe. Ultimately, the project aims at generating applicable knowledge about the dynamics and developmental patterns of longitudinal, emergent strategy formation processes and the dynamics leading to strategic renewal and community engagement. Span's Ltd. role is focused on work package seven (WP7) within the project, which is the development of an Evidence Based Tool kit for the strategic renewal of governments and public agencies. This package role is based on the findings of WP's 2 to 6, and builds upon them to develop operational tools for the strategic renewal of local governments and other public services organisations.

The tool kit will encompass three main components:
• The roadmap for strategic renewal of governments and public agencies. The project proposal, in the context of this stage, aims to create a sustainable and innovative roadmap (a Decision Support System) for generic successful implementation of strategic renewal for public sector organizations, notably local governments and public agencies.
• Tracking and Benchmarking Subsystem. This is developed based on the system of performance indicators drawn from the analysis of cases of strategic renewals carried out in WP2, WP3 and WP4, which enables to work out a system of KPI's, also as a portfolio management tool for the renewal of strategic services, through the strategic management approaches developed throughout the project. On the grounds of the definition of strategic services and measurable strategic goals, it is possible to set up a KPI system for tracking the performance levels and outcomes of key strategic services over time and benchmarking within groups of comparable organisations or communities.
• The tool enabling the renewal of specific services. This tool will enable the renewal of specific (i.e. critical) services identified in the previous stage/subsystem. The tool will be based on the four models centre stage in the analysis carried out throughout the project: public value, co-production/co-creation, network governance, and digital era governance, and it will resort to the repertoire of practices produced out of WP2 and WP4 (Deliverable 2.4), by utilising the protocol for the extrapolation of 'best practices' succinctly outlined here below: The activities and tasks that will be carried out will reflect the information systems development cycle and consist of: requirements analysis;
• logical design;
• development and testing of the system;
• implementation and evaluation of the system.

The system will be tested by final users. The pilot site for this WP is the Municipality of Rijeka, also one of the consortium partners in this project. Expected benefits for Span Ltd. regarding this project, that has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 770591, are for sure gaining additional experience in the field of consortium engagement for EU projects, acquiring new knowledge and acquaintances that could consequently open new business opportunities for expanding our core business.

| HORIZON 2020 – Inclusive, innovative and reflective societies | | |
|---|---|---|
| **Project Name** | **Cultural Heritage and Identities of Europe's Future** | |
| **Project Acronym** | **CHIEF** | |
| **Project ID** | 770464 | |
| **Start Day - End Day** | 01/05/18 – 30/04/21 | |
| **Instrument Funding** | RIA - Research and Innovation action | |
| **Call For Proposal** | H2020-SC6-CULT-COOP-2017-two-stage | |
| **Topic** | CULT-COOP-03-2017 - Cultural literacy of young generations in Europe | |
| **Project Web Site** | http://chiefproject.eu/ | |
| **EC FInancial Contribution** | EUR 4 580 371,25 | |
| **All Participants in Project** | 10 | |
| **Croatian Organization** | Institute of Social Sciences Ivo Pilar | |
| **Web Site** | https://www.pilar.hr/ | |
| **EC Financial Contribution to Croatian Partner** | EUR 358 867,50 | |
| **Contact Person in Croatia** | Benjamin Perasović, PhD | |
| **Coordinated in** | United Kingdom | |
| **All Participants in Project** | LV, HR, GE, TR, ES, UK, SK, IN, DE | |
| **Project Free Keywords** | *Cultural identity; European cultural heritage; young people; formal education; cultural and education policy; cultural literacy* | |

**Project Summary**

Today, the twinned ideas of respect towards minorities' rights and cultural diversity that have been projected as values derived from the European historical experience are facing well-documented challenges. These include the current radicalisation of young people in Europe, processes questioning the meaningfulness of the European project and the revival of tribal identities and separatism. These processes give cause to fundamentally rethink the idea of Europeanness as a culture of dialogue and mutual respect. CHIEF aims to build an effective dialogue between different stakeholders in order to facilitate the future of Europe based on more inclusive notions of cultural heritage and identity. The project is innovative in its approach to the cultural literacy of young Europeans by privileging the importance of production and transition of cultural knowledge in both formal educational settings initiated from above, and a variety of informal human interactions. These informal interactions are often overlooked despite their strong influence on how knowledge about European culture is acquired by young people. The project proposes to explore them by building an inter-disciplinary, multi-sectoral and transnational partnership in nine countries in and outside the EU. Through its research activities and social interventions, CHIEF will have a substantial impact on policies and practices facilitating intercultural dialogue in Europe. It will contribute to understanding and enhancing cultural literacy for young people, resulting in a greater appreciation of diversity. The project will lead to the more effective use of European cultural heritage as a site of production, translation, and exchange of heterogeneous cultural knowledge. Moreover, it will help to recognize existing innovative practices and develop a new organisational model to enhance the cultural and inter-cultural competence of young Europeans. Finally, it will empower and bolster the innovative capacities of its beneficiaries.

**Role of Croatian organization**

**Institute of Social Sciences Ivo Pilar**

Ivo Pilar Institute of Social Sciences is one of ten partners in the project CHIEF (Cultural Heritage and Identities of Europe's Future) that is financed by the European Commission through the H2020 programme. Within the CHIEF project, the PILAR team will be a co-leader of WP3 Survey of young people's cultural literacy and WP7 Engagement with young people's cultural practices and will participate in all other WPs. Members of the PILAR research team have extensive experience in all tasks covered by the proposal such as planning and designing the survey, sample selection and quantitative data analysis, as well as qualitative data collection methods and analysis. The expected benefits for Ivo Pilar Institute of Social Sciences from participating in this project are:

- increasing researchers' competences in qualitative and quantitative research methods and data processing;
- increasing researchers' competences in modern management approaches to empirical data (data management).

| HORIZON 2020 – Inclusive, innovative and reflective societies | | |
|---|---|---|
| **Project Name** | **Cultural Opposition: Understanding the Cultural Heritage of Dissent in the Former Socialist Countries** | |
| **Project Acronym** | **COURAGE** | |
| **Project ID** | 692919 | |
| **Start Day - End Day** | 01/02/16 – 31/01/19 | |
| **Instrument Funding** | RIA - Research and Innovation action | |
| **Call For Proposal** | H2020-REFLECTIVE-SOCIETY-2015 | |
| **Topic** | REFLECTIVE-4-2015 - Cultural opposition in the former socialist countries | |
| **Project Web Site** | http://cultural-opposition.eu/ | |
| **EC FInancial Contribution** | EUR 2 484 917,50 | |
| **All Participants in Project** | 12 | |
| **Croatian Organization** | Croatian Institute of History | |
| **Web Site** | http://www.isp.hr/ | |
| **EC Financial Contribution to Croatian Partner** | EUR 143 950 | |
| **Contact Person in Croatia** | Teodora Shek Brnardić, PhD | |
| **Coordinated in** | Hungary | |
| **All Participants in Project** | HU, PL, IE, DE, LT, CZ, RO, HR,UK | |
| **Project Free Keywords** | *cultural opposition, former socialist countries, European identity, register of collections, online database, fall of the socialist regimes, exile, histoire croisée, civil courage* | |

**Project Summary**

The project proposes both to create an electronic registry of representatives online and offline, private and public collections of cultural opposition in all former socialist countries in Europe and to study the origins, uses and changing roles of these collections in their social, political and cultural contexts. We seek to further an understanding of how these (private and public, alternative and mainstream) collections work, what functions they serve in their respective societies, and how they represent their holdings to the public. The project will examine the legal and political circumstances that determined the collections before 1989 and the conditions that shape them in the post-socialist period. The analyses of the collections will identify various types of cultural opposition. Objectives include:

1. an online registry and a transnational database of collections in the original languages and English that will be accessible to European archival platforms and networks;
2. descriptions of and guides to the collections to enhance the quality of research and provide guidance on the role of the EU in this respect;
3. country reports on the collections and proposals concerning methods of preserving cultural heritage, and a handbook on various types of cultural opposition represented by the collections;
4. online curriculum development and digital content for educational purposes;
5. a documentary film festival, traveling and online exhibitions and local media events based on selected collections;
6. a set of recommendations concerning how to exhibit the cultural opposition movements of former socialist countries for the House of European History.

This project will highlight the positive aspects of the former cultural opposition movements, such as democratic participation, autonomy and cultural plurality, and will remind us of an important pan-European truth: that civic courage can produce genuine cultural values even under authoritarian rule.

**Role of Croatian organization**

**Croatian Institute of History**

Croatian Institute of History's team was responsible for conducting this project in Croatia and Slovenia performing in 7/8 work packages. The core employees of the project were Teodora Shek Brnardić (National Task Manager), Josip Mihaljević (Deputy National Task Manager) and researchers Albert Bing, Lidija Bencetić and Stipe Kljaić. Other researchers joined us later (Darjan Godić, Petar Bagarić, Franko Dota), including student volunteers (Vibor Krajina, Marino Erceg). We have associating researchers from other institutions such as the Croatian State Archives (Nenad Bukvić, Tatjana Šarić) with which we signed a cooperation agreement. We also established cooperation with scholars from Slovenia (Željko Oset, Marta Rendla).

We expect that the project will contribute to increasing the visibility of our research. Given that we have been working hard to disseminate our project from the very beginning and that we publicly present the results of contemporary Croatian history with the use of transnational approaches and modern comparative historiographic methods, we expect to achieve a more significant impact in society. The project increased our involvement in the European Research Area. COURAGE is the first EU funding project Croatian Institute of History conducted which is a valuable experience for future endeavours. We have established contacts with many institutions and individuals in the country and abroad. Also, no less important, we believe the project also contributes to the strengthening of research competencies and the competitiveness of our young historians.

1_Project members, Zagreb, Croatia, COURAGE project

| HORIZON 2020 – Inclusive, innovative and reflective societies | | |
|---|---|---|
| **Project Name** | **Social Innovation Community** | |
| **Project Acronym** | **SIC** | |
| **Project ID** | 693883 | |
| **Start Day - End Day** | 01/02/16 – 31/01/19 | |
| **Instrument Funding** | CSA - Coordination and support action | |
| **Call For Proposal** | H2020-INSO-2015 | |
| **Topic** | INSO-5-2015 - Social innovation Community | |
| **Project Web Site** | https://www.siceurope.eu/ | |
| **EC FInancial Contribution** | EUR 2 991 906,25 | |
| **All Participants in Project** | 12 | |
| **Croatian Organization** | Social Innovation Laboratory (SIL) | |
| **Web Site** | www.socinnovationlab.org | |
| **EC Financial Contribution to Croatian Partner** | EUR 130 775 | |
| **Contact Persons in Croatia** | Mirna Karzen, Stella Kalac | |
| **Coordinated in** | Belgium | |
| **All Participants in Project** | DE, IT, UK, HR, NL, ES, AT, DK, BE | |
| **Project Free Keywords** | *engagement, research, experimentation, learning, policy activities, network, policymaking* | |

**Project Summary**

Developing an enabling environment for social innovation that links actions across the whole field and supports the full exploitation of their potential is vital to addressing societal challenges both in Europe and globally. While there is an increasing interest in social innovation as a means of addressing societal challenges, there is also considerable variation in the extent to which different countries and regions have embraced social innovation. There are many research and policy projects and incubation and acceleration programmes with valuable outcomes but these are still largely disconnected. Thus, the overarching aim of this project is to create a 'network of networks' of social innovation actors. This Social Innovation Community (SIC) will identify, engage and connect actors including researchers, social innovators, citizens, policy-makers, as well as intermediaries, businesses, civil society organisations and public sector employees. Through our cross-cutting Work Packages, we will deliver engagement, research, experimentation, learning and policy activities that engage with and support each of the networks. We will ensure that our cross-cutting activities are complementary and build on each other's work, rather than operating in silos. As such, this SIC aims to deepen and strengthen existing networks, forge new connections between networks, and create new links to actors and networks which hitherto have not been included in the field of social innovation. The aims of such a community are to generate new social innovations, develop and scale up successful ideas to share and spread knowledge more effectively in order to improve research, practice, and policy-making. By creating an enabling environment for social innovation, the project will improve the overall framework conditions for social innovation in Europe. This, in turn, will support the creation of opportunities for growth and for overcoming the current social and economic crisis affecting much of Europe.

**Role of Croatian organization**

**Social Innovation Laboratory (SIL)**

Within the project Social Innovation Community, SIL's role is facilitating and mentoring the so-called "unusual suspects" to co-create and co-design tools for socially innovative solutions. Specifically, SIL mentored City of Zagreb officials in redesigning public services and create multi-disciplinary policy. Outcomes of the process included new solutions aimed to integrate asylum seekers, encourage active living in the city, revitalize abandoned public places in Ilica street and many more. Within the process, SIL collaborated with the Center for Independent Professionals Association. The collaboration engaged the 'freelance' community and gave a fresh, creative perspective in public cooperation with the city officials. The entire process encouraged new ways of solving social challenges, establish an enabling space for experimenting, increase transparency and supporting openness of City officials towards relevant stakeholders in supporting the social innovation ecosystem.

1_City LAB conference - Policy Masterclass in Zagreb, Croatia, SIC project; 2_Participants of SIC experimentation process in Zagreb, Croatia, SIC project; 3_Transnational Learning Exchange session in Zagreb, Croatia, SIC project

| HORIZON 2020 – Secure societies - Protecting freedom and security of Europe and its citizens | | |
|---|---|---|
| **Project Name** | **Unity** | |
| **Project Acronym** | **Unity** | |
| **Project ID** | 653729 | |
| **Start Day - End Day** | 01/05/15 – 30/04/18 | |
| **Instrument Funding** | RIA - Research and Innovation action | |
| **Call For Proposal** | H2020-FCT-2014 | |
| **Topic** | FCT-14-2014 - Ethical/Societal Dimension Topic 2: Enhancing cooperation between law enforcement agencies and citizens - Community policing | |
| **Project Web Site** | https://www.unity-project.eu/ | |
| **EC FInancial Contribution** | EUR 4 330 900 | |
| **All Participants in Project** | 16 | |
| **Croatian Organization** | Police Academy | |
| **Web Site** | http://stari.mup.hr/4542.aspx | |
| **EC Financial Contribution to Croatian Partner** | EUR 60 000 | |
| **Contact Persons in Croatia** | Ruža Karlović, PhD, Damir Osterman | |
| **Coordinated in** | United Kingdom | |
| **All Participants in Project** | BE, NL, FI, UK, BG, DE, ES, HR, EE, MK | |
| **Project Free Keywords** | *engagement, research, experimentation, learning, policy activities, network, policymaking* | |

**Project Summary**

The Unity vision is to strengthen the connection between the police and the diverse communities they serve to maximise the safety and security of all citizens. The end-user focus of Unity shall identify best practices in Community Policing (CP) through primary and secondary research to enhance cooperation between Law Enforcement Agencies (LEAs) and citizens through the development and live pilot demonstrations of technological tools in six EU member states that facilitate, strengthen and accelerate community and LEAs communications. These tools shall be amplified and supported by the design and delivery of CP training and awareness raising activities to LEAs, citizens and community partners, including online virtual communities. Unity will provide LEAs with a new CP model and shared framework of governance and enabling tools and technology to support closer cooperation for greater, more effective and efficient and more inclusive CP. The citizen-centred approach of Unity support the combined protection, safety, security and well-being of communities, but it will also support a more collective, shared ownership of large-scale, collective risk. Coordinated by pioneers and practitioners in CP, Unity seeks new ways of working in which the police will serve as a catalyst for change within communities, helping the latter to become an integral part of the solution, and thereby sharing the ownership and delivery of a sustainable CP model which simultaneously embraces the benefits of technology while meeting diverse community needs. This new and sustainable citizen-centred CP model will have community trust and confidence at its heart, with the ability for two-way flows of information and communication to allow for greater understanding of the problems and issues faced by communities. By working with citizens and community stakeholders to arrive at a full understanding of their concerns, targeted interventions and solutions can be agreed to keep local communities safe.

**Role of Croatian organization**

**Police Academy**

On behalf of the Ministry of the Interior of the Republic of Croatia, the Police College within Police Academy is participating as a partner in the project "Unity - Strengthening the connection between police and communities to maximize the safety and security of all citizens". This project has received funding from the European Union Horizon 2020 Programme under the grant agreement no 653729 which started in May 2015. It was implemented through Unity Consortium of ten European countries: Belgium, Bulgaria, Estonia, Finland, Germany, Macedonia, Netherlands, Spain, the United Kingdom, and Croatia. The role of the Croatian Police College (CPC) was primarily research activity as well as providing police expert support for developing new IT tools. The CPC has participated in an international research which was undertaken in eight countries. Interviews (N=323) were conducted with police, young people, intermediaries, advocates, legal experts, and academics, based on which new IT tools (web portal, mobile app, education cyber game) are developed and piloted. The Police College has been actively involved in the project since the very beginning and has been given the opportunity to host the first official Consortium meeting in November 2015, and to participate in writing and editing a book about community policing – A European Perspective.

1_Consortium and Pilot meeting in Leeds, United Kingdom, Unity project; 2_Consortium and Pilot meeting at Wakefield District Police HQ,, United Kingdom, Unity project

| HORIZON 2020 – Secure societies - Protecting freedom and security of Europe and its citizens | |
|---|---|
| **Project Name** | **Security of Explosives pan-European Specialists Network** |
| **Project Acronym** | **EXERTER** |
| **Project ID** | 786805 |
| **Start Day - End Day** | 01/06/18 – 31/05/23 |
| **Instrument Funding** | CSA - Coordination and support action |
| **Call For Proposal** | H2020-SEC-2016-2017-2 |
| **Topic** | SEC-21-GM-2016-2017 - Pan European Networks of practitioners and other actors in the field of security |
| **Project Web Site** | |
| **EC FInancial Contribution** | EUR 3 498 868,75 |
| **All Participants in Project** | 21 |
| **Croatian Organizations** | University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering<br>Ministry of the Interior |
| **Web Site** | http://www.rgn.unizg.hr/hr/<br>https://www2.mup.hr/ |
| **EC Financial Contribution to Croatian Partners** | EUR 59 525<br>EUR 41 400 |
| **Contact Persons in Croatia** | Ass. prof. Vječislav Bohanek, PhD, Prof. Muhamed Sućeska, PhD, Tomislav Vukoja |
| **Coordinated in** | Sweden |
| **All Participants in Project** | DE, IT, NL, ES, HR, UK, RO, EL, FR, PL, PT, NO, SE |
| **Project Free Keywords** | Security; Explosives; Network; Standardization; Exploitation; Dissemination |

**Project Summary**

EXERTER connects 22 practitioners from 13 EU Member States into a Network with Explosives Specialists within the Security of Explosives (SoE) area. The objective of the EXERTER Network is to bridge the difficulties for security practitioners to capture and utilize research results and to direct the industry's innovation efforts to address the most pressing needs in the fight against terrorism and serious crime. Practitioners will via EXERTER get improved operational capability via novel technologies, methods, and knowledge to aid them in executing more efficient countermeasures in a changing threat environment. In cooperation with key practitioners in the Network, the project will each year define one unique scenario based on past events to facilitate the identification of capability gaps along different counter-terrorist phases associated with PREVENT, DETECT, MITIGATE and REACT. With its explosives expertise, EXERTER will provide recommendations to the SoE community on how these gaps can be countered by
(i) directing innovators into targeted areas to which research programmes should focus,
(ii) proposing standardization priority areas and
(iii) advising on exploitation and commercialisation opportunities.
Ongoing research activities will continuously be reviewed to promote practitioners' uptake of results and knowledge. Academia and research institutes will be supported by the technical expertise within EXERTER to lower exploitation barriers for promising research by enhancing their interaction with the security industry. EXERTER will assess evolving threats requiring the immediate attention of the SoE community - thus widely addressing emerging technologies and trends. Annual interaction workshops will be held where explosives practitioners, research institutes and academia, as well as industry, gather to discuss the current state of play and future roadmaps to answer the urgent capability requirements.

**Role of Croatian organizations**

**University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering** RGNF will participate in several WPs. RGNFs main task is related to WP3 and consists of collecting and uprising the background knowledge from already finished and on-going national and international projects within the area of security of explosives. RGNF will also contribute to state-of-the-art technology studies in WP5, and the analysis in WP6 in order to draw general conclusions and recommendations. In addition, RGNF will support the project regarding the dissemination of the project results (WP8).

**Ministry of the Interior**
Croatian Ministry of the Interior has the role of analysing past terrorist attacks, with the goal of obtaining information from those attacks which can be used to learn and strengthen capabilities of the responders in possible future attacks. The new Work Programme in Secure Societies emphasizes the participation of practitioners and operators, so Croatian Police expertise will come in handy when it comes to first response and mitigation of terrorist attacks.

| HORIZON 2020 – Secure societies - Protecting freedom and security of Europe and its citizens | |
|---|---|
| **Project Name** | **DAnube river region Resillience Exchange network** |
| **Project Acronym** | **DAREnet** |
| **Project ID** | 740750 |
| **Start Day - End Day** | 01/09/17 – 31/08/22 |
| **Instrument Funding** | CSA - Coordination and support action |
| **Call For Proposal** | H2020-SEC-2016-2017-1 |
| **Topic** | SEC-21-GM-2016-2017 - Pan European Networks of practitioners and other actors in the field of security |
| **Project Web Site** | http://darenetproject.eu/ |
| **EC FInancial Contribution** | EUR 3 500 000 |
| **All Participants in Project** | 14 |
| **Croatian Organization** | National Protection and Rescue Directorate |
| **Web Site** | https://duzs.hr/ |
| **EC Financial Contribution to Croatian Partner** | EUR 97 625 |
| **Contact Person in Croatia** | Ivana Cesarec |
| **Coordinated in** | Germany |
| **All Participants in Project** | AT, SK, HU, HR, RS, RO, BG, PL, DE, BE, FR |
| **Project Free Keywords** | *resilience, network, innovation* |

**Project Summary**
The DAREnet project is to support flood management practitioners across the EU Danube River region and from different disciplines to deepen and broaden their Research, Development and Innovation related collaboration (=RDI). DAREnet will build a multi-disciplinary community of practitioners, operating in a network of civil protection organisations, and supported by a broad range of stakeholders from policy, industry, and research. Together they will build a transnational and interdisciplinary ecosystem to foster synergies, innovation and its uptake.
One of the key-results of DAREnet will be a regularly updated RDI Roadmap highlighting promising innovation opportunities to cope with the main environmental and societal challenges of the region. It will provide concrete perspectives for further development, industrialisation, and uptake of innovations of highest relevance for practitioners. The Roadmap will be the result of a systematic assessment and prioritisation of promising innovations, including standardisation to foster the development of common capabilities. The RDI Roadmap will also lay the basis for concrete innovation initiatives, practitioner-driven and "bottom-up", building a unique portfolio of joint innovation concepts for the Danube river region.
To reach sustainable impact, DAREnet will draw upon synergies with the modules and facilities of the EU Civil Protection Mechanism and the regional strategies for flood prevention and risk management of the International Commission for the Protection of the Danube River and EU Strategy for the Danube Region. DAREnet will promote the RDI Roadmap and Portfolio to political key-stakeholders on the national, regional and European level, and will also prospect institutional options to ensure the continuity of the DAREnet innovation process after project end.

**Role of Croatian organization**

**National Protection and Rescue Directorate**
Globally and nationally, floods are recognized as a significant security risk. They are becoming more frequent, caused by extreme amounts of rainfall (climate change), wrong planning and construction (infrastructure failures), etc.
The Republic of Croatia and other South-eastern European countries during 2014 struggled with heavy flooding, with catastrophic consequences that got us thinking on the use of new solutions and ways how to deal and manage such an event - from prevention to reaction. One of the possible ways is networking, exchange of experience and knowledge and European Union funded projects are a great example of realization of such efforts. Project „DAREnet", financed under HORIZON 2020 research programme is a 5-year Coordination and Support Action which has started on the 1st

of September, 2017 with the budget of €3 500 000. This project brings together 14 partners from 11 countries as a unique combination of renowned institutions and players in flood mitigation and civil protection. One of the partners is also National Protection and Rescue Directorate (DUZS) of the Republic of Croatia - independent, professional and administrative organization which prepares plans and manages operational forces, as well as coordinates the activities of all participants in the civil protection system. Most important tasks of this organization are risk and vulnerability assessment, the suggestion of measures aimed at preventing crises and accidents and ensuring that these measures are implemented. Also, DUZS ensures effective emergency management in case of major disasters. As national civil protection authority, National Protection and Rescue Directorate has the first-hand experience which can be used in identifying needs and possible solutions for more effective prevention and response. With EU projects experience regarding flood management programmes such as: Civil Protection Cooperation with the candidate countries and potential candidates – Phase II (IPA CP Cooperation Programme II) and IPA Floods – The Programme for Prevention, Preparedness and Response to floods in the Western Balkans and Turkey, as well as coordinating an EU project „MURA 2015“ (Management of Unified Response Action, with civil protection field exercise and scenario of flooding of the River Mura, and partners from Austria, Hungary, and Slovenia) National Protection and Rescue Directorate was recognized as a valuable partner and contributor to project efforts. Alongside with the Bulgarian Fire Safety and Civil Protection Directorate General (IFSCP), Serbian Sector for Emergency Management (as part of the Ministry of the Interior, the Republic of Serbia) MOI SEM and Hungarian Civil Protection Association (MPVSZ) is representing civil protection practitioners in this project as well as „DAREnet“ National Contacts who will build communities on a national level by involving practitioners from flood management organizations and representatives from academia and industry.

„DAREnet“ is a network project addressing all practitioners in the field of flood management. The project's objectives are to identify actual needs, future challenges, “best-practices” and innovation opportunities for strengthening flood resilience in the Danube River region. As part of planned deliverables, „DAREnet“ will deliver an annual roadmap highlighting promising innovation opportunities to cope with the main environmental and societal challenges of the region with the focus on strengthening the flood resilience throughout the disaster management cycle (prevention, preparation, response, and recovery).

An important segment of „DAREnet“ is its based dynamic multidisciplinary community of practitioners, operating in a network of civil protection organizations. Together they gather solutions collected under Research, Development and Innovation (RDI) topics which are directly derived from the challenges that practitioners are faced with. Within RDI concept identified topics are: resilience of citizens, civil protection training, civil protection methods, procedures and technology, spontaneous volunteers; communication, general data management, academic research, civil protection human resources, critical infrastructure, early warning (information), legislative administration, meteorological services, situation awareness, and waterway management. As one of great assets to this project is Community Management Tool (CMT) (https://cmt.eurtd.com/login) which gives the opportunity to every interested party that wants to participate in the network through eight national groups (on national languages) and one international group (English), offering to exchange experiences with other practitioners and give opinion on certain project deliverables.

1_Project meeting, Vienna, Austria,
DAREnet project

# Notes

# Spreading Excellence and Widening Participation

**General info on Spreading Excellence and Widening Participation**

In Horizon 2020, specific measures and activities have been formulated for expanding excellence and widening participation of institutions in less developed regions with modest results in exploiting research results and innovation capability and having the potential to develop into excellent institutions capable of leveraging funding from the framework programme, but also from other EU programmes.

Spreading excellence and widening participation consists of three main activities aimed at reducing the gap between research and innovation in EU countries and regions that are less successful in exploiting research results:

Teaming - aims at the creation of new (or significant upgrade of existing) centres of excellence in low performing RDI Member States and regions.

ERA Chairs - is focused on carrying out structural changes in institutions that have the potential to improve their research innovation activities and achievement of excellence through the transparent selection of outstanding scientists, ERA Chair holder who will, in accordance with the strategic plan of the institution, ensure the implementation of the European Research Area priorities.

Twinning - aims at significantly strengthening a defined field of research in an emerging institution through links with at least two internationally-leading institutions in a defined field.

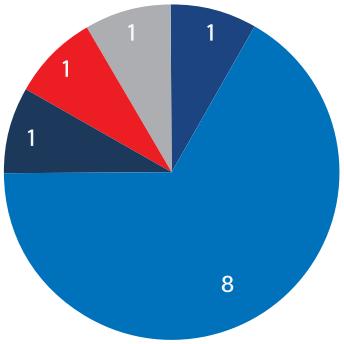
All three measures are coordination and support actions.

In the less developed regions of the EU, there are numerous scientific and research organizations with significant potential for achieving excellence and better positioning in the European Research Area. The total budget for these activities amounts to 816 million euros.

The development and strengthening of synergies between the two largest EU programmes, the Horizon 2020 programme, focused on financing the scientific excellence and the European Structural and Investment Fund, which is focused on financing the strengthening of innovation capacities, infrastructure and equipment, is one of the key elements in the almost all major EU strategic documents for the period up to 2020.

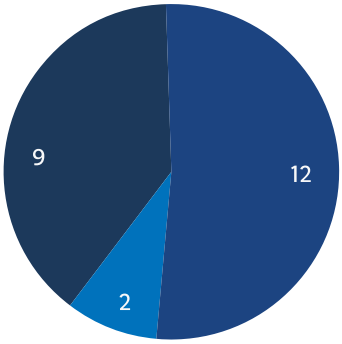
**Number of organizations**

***Type of Area***




- Teaming of excellent research institutions and low performing RDI regions
- Twinning of research institutions
- ERA chairs
- Transnational networks of National Contact Points
- Spreading excellence and widening participation - Cross - theme

***Type of Organization***




- HES - Higher or secondary education
- PUB - Public body (excl. research and education)
- REC- Research organisations

| HORIZON 2020 – Spreading Excellence and Widening Participation | | |
|---|---|---|
| **Project Name** | **Strengthening scientific and research capacity of the Institute of Economics Zagreb as a cornerstone for Croatian socioeconomic growth through the implementation of Smart Specialisation Strategy** | |
| **Project Acronym** | **SmartEIZ** | |
| **Project ID** | 692191 | |
| **Start Day - End Day** | 01/01/16 – 31/12/18 | |
| **Instrument Funding** | CSA - Coordination and support action | |
| **Call For Proposal** | H2020-TWINN-2015 | |
| **Topic** | H2020-TWINN-2015 - Twinning | |
| **Project Web Site** | http://www.smarteiz.eu/ | |
| **EC FInancial Contribution** | EUR 1 000 000 | |
| **All Participants in Project** | 4 | |
| **Croatian Organization** | The Institute of Economics, Zagreb | |
| **Web Site** | https://www.eizg.hr/ | |
| **EC Financial Contribution to Croatian Partner** | EUR 407 285 | |
| **Contact Person in Croatia** | Zoran Aralica, PhD | |
| **Coordinated in** | Croatia | |
| **All Participants in Project** | HR, IT, UK, NL | |
| **Project Free Keywords** | *Smart Specialisation Strategy, strengthening research capacity, EMIT, innovation, scientific excellence, transfer of knowledge and methodologies, capacity building* | |

**Project Summary**

The SmartEIZ project aims to strengthen scientific and research capacity, narrow networking gaps and deficiencies of Institute of Economics, Zagreb (EIZ) in comparison to leading institutions in the field of Economics and Management of Innovation and Technology (EMIT). The objectives of the projects are as follows:

(1) Strengthen the cooperation between EIZ and leading international partner institutions in the EU in the fields of EMIT;

(2) Improve the overall research on EMIT of EIZ through training activities;

(3) Enhance EIZ's capacity to design and implement public policies to favour the internationalisation of the Croatian production system in the globalizing economy;

(4) Improve the capacity of EIZ to study Science/Industry models of collaboration;

(5) Empower EIZ to contribute to RIS3 implementation stimulating inclusive innovation and sustainable development in selected technological domains.

Achievement of specific objectives will contribute to the scientific and technical excellence, in the field of EMIT in order to improve its ability to analyse, design and evaluate public policies. This will help to enhance EIZ staff's research profiles, integrating the project activities into the National Smart Specialization Strategy and strengthening the cooperation with research institutions in the other Member States. Sustainability of the project will be secured via support to EIZ to establish a research hub, with the aim of fostering spillover effects for a larger number of organizations from the public, civil and private sector in Croatia and South-East Europe. SmartEIZ will contribute to the implementation of NS3 via inclusion of relevant stakeholders responsible for RIS3 policy implementation, such as MINGO (Ministry of Economy), HAMAG BICRO (Croatian Agency for SMEs, Innovations and Investments) - responsible for the evaluation of NS3 in active participation in the project. Being part of SmartEIZ in the dissemination of project results is a way of increasing efficiency of NS3 in Croatia.

**Role of Croatian organization**

**The Institute of Economics, Zagreb**

EIZ is the coordinator of this project which means it is responsible for coordinating the partner's activities with regard to the achievement of the objectives of the project. In the past period, relations with the main stakeholders of this project, the Ministry of Economy and HAMAG BICRO, have been improved. In this project, knowledge has been created relevant to the advancement of the overall policy process of the Smart Specialization Strategy. One of the most important roles of EIZ was organization of various forms of training workshops. EIZ organized summer school, various econometric workshops as well as workshops from different fields of Economics and Management of Innovation and Technology. In addition, EIZ is responsible for disseminating project results. The dissemination of project results concerns the provision of adequate information about the project via the SmartEIZ Internet portal and publications. These activities also include publishing dissemination reports related to the project topics relevant to the Smart Specialization Strategy in Croatia.

1_Project members, SmartEIZ project; 2_Training workshop, Maastricht, The Netherlands, SmartEIZ project

| HORIZON 2020 – Spreading Excellence and Widening Participation | |
|---|---|
| **Project Name** | **Ruđer Bošković Institute: Twinning for a step forward of the Theoretical Physics Division** |
| **Project Acronym** | **RBI-T-WINNING** |
| **Project ID** | 692194 |
| **Start Day - End Day** | 01/02/16 – 31/01/19 |
| **Instrument Funding** | CSA - Coordination and support action |
| **Call For Proposal** | H2020-TWINN-2015 |
| **Topic** | H2020-TWINN-2015 - Twinning |
| **Project Web Site** | http://rbi-t-winning.irb.hr/index.php?title=RBI-T-WINNING |
| **EC FInancial Contribution** | EUR 999 987,50 |
| **All Participants in Project** | 5 |
| **Croatian Organization** | Ruđer Bošković Institute |
| **Web Site** | https://www.irb.hr/ |
| **EC Financial Contribution to Croatian Partner** | EUR 696 592,50 |
| **Contact Person in Croatia** | Vinko Zlatić, PhD |
| **Coordinated in** | Croatia |
| **All Participants in Project** | HR, IT, FR, DE, DK |
| **Project Free Keywords** | *Theoretical Physics* |

**Project Summary**

Research topics in theoretical physics at Ruđer Bošković Institute (RBI) are broad, from understanding the basic constituents of the Universe, to the study of new materials and complex systems. The research is performed within the Division of Theoretical Physics (DTP), mostly in collaboration with European research institutions. However, the effectiveness and impact are increasingly suffering from a strong limitation of resources, in terms of funding for students, collaboration and dissemination, in addition to the low salaries. In this context, RBI recently made significant efforts to increase its research capabilities in the applied sector, in line with the Smart Specialization Strategy. This is planned through two projects, the major infrastructure project O-ZIP (a high priority in the Croatian Operational programme for the European Structural Funds) and a recently granted ERA Chair project. Both will impact the theoretical community and call for a rise in its level. RBI-T-WINNING will provide the complementary funding for theoretical physics, with the aim of raising the research profile to that of excellent institutions. This aim will be pursued by supporting strong links with leading European research institutions. An intensive exchange of knowledge and experience will be organized with SISSA, CNRS/University of Paris-Sud Orsay, Ludwig Maximilian University and Niels Bohr Institute, excellent European institutes and altogether cover the investigations within theoretical physics. The set of measures include staff exchanges, training, conferences, summer schools, dissemination and outreach activities for impact on the local community. The project also enables active participation of Croatian researchers in top-level physics research programmes, for increasing their experience and visibility. In synergy with other related projects RBI-T-WINNING will maximize the overall impact on the research & innovation potential of Croatia in theoretical physics and overall.

**Role of Croatian organization**

**Ruđer Bošković Institute**

The role of the DTP in the project is threefold. Most importantly DTP manages the whole project and takes responsibility for the usage of the funds provided to the project. Second, as a leading beneficiary, DTP also creates the activities which are aimed specifically at the improvement of the research quality performed in DTP. These activities include choosing the scientists and topics of interest to researchers in DTP, that give the focused lectures to our researchers, as well as choosing the topics for mutual collaboration and deciding on the exchange of staff among the partner institutions. DTP is also heavily involved in the organization of all dissemination activities. This includes organization of schools and conferences that were developed specifically for the project, as well as support to the dissemination activities in schools and conferences that are not directly organized by the project.

| HORIZON 2020 – Spreading Excellence and Widening Participation | |
|---|---|
| **Project Name** | **Excelling LABUST in marine robotics** |
| **Project Acronym** | **EXCELLABUST** |
| **Project ID** | 691980 |
| **Start Day - End Day** | 01/01/16 – 31/12/18 |
| **Instrument Funding** | CSA - Coordination and support action |
| **Call For Proposal** | H2020-TWINN-2015 |
| **Topic** | H2020-TWINN-2015 - Twinning |
| **Project Web Site** | http://excellabust.fer.hr/ |
| **EC FInancial Contribution** | EUR 1 014 551 |
| **All Participants in Project** | 4 |
| **Croatian Organization** | University of Zagreb, Faculty of Electrical Engineering and Computing |
| **Web Site** | https://www.fer.unizg.hr/ |
| **EC Financial Contribution to Croatian Partner** | EUR 381 225 |
| **Contact Person in Croatia** | Assoc. prof. Nikola Mišković, PhD |
| **Coordinated in** | Croatia |
| **All Participants in Project** | HR, IT, ES, IE |
| **Project Free Keywords** | *marine robotics; underwater robots; autonomous marine vehicles; underwater mapping; navigation, guidance and control; autonomy; cognition* |

**Project Summary**

Laboratory for Underwater Systems and Technologies (LABUST) at the University of Zagreb, Faculty of Electrical and Engineering (UNIZG-FER) in Croatia positioned itself in the last years as the regional leader in marine robotics: LABUST has the required technologies, people, infrastructure, and experience in field experiments. What LABUST is missing is research excellence that will allow it to fully exploit and bring available resources to a level compatible with internationally leading institutions in the area of marine robotics.

The main goal of EXCELLABUST project is to address networking gaps and deficiencies between UNIZG-FER and internationally leading counterparts at EU level, by significantly strengthening marine robotics research within LABUST through twinning with expert partners.

The first objective is to increase UNIZG-FER marine robotics scientific excellence and innovation capacity, and raise staff's research profile within three strategic research domains (SRDs) that are aligned with the Strategic Research Agenda for Robotics in Europe 2014 - 2020: 1) mapping and perception, 2) advanced navigation, guidance, and control, and 3) autonomy and cognition. The second objective is to increase UNIZG-FER scientific involvement and visibility.

These objectives will be reached through a set of strategic measures: staff exchanges and expert visits for providing S&T knowledge transfer; on-site trainings for providing hands-on S&T experience; innovation management trainings; organization of research-industry workshops for strengthening links to marine robotics industry; and joint organization of summer schools with strong emphasis on application of marine robotics for strengthening links to marine robotics end-users from marine biology, marine archaeology, oceanography, marine security, etc. In order to measure the quality of the twinning action, key impact indicators are defined and they will be monitored during and after the EXCELLABUST project lifetime.

**Role of Croatian organization**

**University of Zagreb, Faculty of Electrical Engineering and Computing**
UNIZG-FER and LABUST, as an integral part of UNIZG-FER, is the coordinator of the EXCELLABUST project. It is also from the twinning country to which the excellence in marine robotics is to be transferred within EXCELLABUST project by its international partners. UNIZG-FER LABUST is involved in all strategic measures defined in the work plan and is overseeing conduction of all activities within the project. Its highest effort is devoted to staff exchanges to internationally leading institutions, and participation in trainings, workshops, lectures, etc. UNIZG-FER LABUST is also in charge of organizing International Interdisciplinary Field Workshop of Maritime Robotics and Applications Breaking the Surface and developing and organizing all dissemination activities.

1_Kick-off meeting,
Zagreb, Croatia,
EXCELLABUST project

| HORIZON 2020 – Spreading Excellence and Widening Participation | |
|---|---|
| **Project Name** | **Smart Integration of Genetics with Sciences of the Past in Croatia: Minding and Mending the Gap** |
| **Project Acronym** | **MendTheGap** |
| **Project ID** | 692249 |
| **Start Day - End Day** | 01/02/16 – 31/01/19 |
| **Instrument Funding** | CSA - Coordination and support action |
| **Call For Proposal** | H2020-TWINN-2015 |
| **Topic** | H2020-TWINN-2015 - Twinning |
| **Project Web Site** | http://mendthegap.agr.hr/ |
| **EC FInancial Contribution** | EUR 989 731,89 |
| **All Participants in Project** | 8 |
| **Croatian Organizations** | University of Zagreb, Faculty of Agriculture<br>University of Zagreb, Faculty of Science<br>Croatian Academy of Sciences and Arts<br>Institute for Anthropological Research<br>Croatian Natural History Museum<br>Cultural Centre Vela Luka |
| **Web Site** | http://www.agr.unizg.hr/<br>https://www.pmf.unizg.hr/<br>http://info.hazu.hr/hr/<br>http://www.inantro.hr/hr/home/<br>http://www.hpm.hr/ http://www.czkvl.hr/ |
| **EC Financial Contribution to Croatian Partners** | EUR 237 945,13<br>EUR 118 860<br>EUR 111 889,25<br>EUR 39 878,13<br>EUR 22 096,88<br>EUR 34 550 |
| **Contact Person in Croatia** | Prof. Ino Čurik, PhD |
| **Coordinated in** | Croatia |
| **All Participants in Project** | HR, UK, IT |
| **Project Free Keywords** | *archaeology, archaeogenetics, the human past, heritage* |

**Project Summary**

This project is an innovative opportunity to mend several gaps in the research capacity in Croatia in Archaeology, Genetics, and other 'Sciences of the Past' by twinning a consortium of Croatian researchers (CrEAMA Initiative) with archaeological scientists from the University of Cambridge (UCAM) and the University of Pisa (UP). The project exploits the location-specific advantages that arise from two crucial facts. Firstly, there is a large number of archaeological sites and remains in Croatia that are relatively understudied. Secondly, there is a group of researchers (CrEAMA Initiative) whose research capacity, impact, and grant success at the European level has not realised its full potential owing to a relative lack of resources, coordination, and strategic planning. This project will unlock this latent scientific potential by developing multi-inter-trans- disciplinary (MIT disciplinary) expertise. Our ultimate vision is to develop a research group capable of using an MIT disciplinary approach to Sciences of the Past; this will be a powerful force for innovation and will contribute to resolving contemporary issues. This vision will be realised through support from our partners: the UCAM and the UP. Both institutions display success in Archaeology, Genetics and other Sciences of the Past, and have proven track records in applying for and completing EU-funded research projects. The first goal is to establish and integrate the existing MIT disciplinary scientific research community in Croatia. The second goal is to upgrade and intensify scientific research of CrEAMA Initiative by utilising recent methodological achievements in genetics (NGS) and other biological disciplines (GMM). The third goal is to foster

the integration of the CrEAMA Initiative into ERA. Our last goal is to commercialise and integrate the CrEAMA Initiative research with the needs of society (local community) at the local (Korčula Island), regional (Dalmatia), national, European (web) and global (web) level.

**Role of Croatian organization**

**Role of the CrEAMA Initiative in the project**

"Smart Integration of Genetics with Sciences of the past in Croatia: Minding and Mending the Gap" (MendTheGap) CrEAMA Initiative (Croatian East Adriatic Multi-Inter-Trans disciplinary Archaeology Initiative) is a consortium of Croatian researchers representing several research entities (institutions) and various disciplines such as Genetics, Biology, Geoarcheology, Anthropology and Archaeology with varying research experience, all related to the Sciences of the Past. While on a number of research topics CrEAMA Initiative is performing as one unit its members are employed at the University of Zagreb (Faculty of Agriculture and Faculty of Science), Croatian Academy of Sciences and Arts, Institute for Anthropological Research, Croatian Natural History Museum, Cultural Centre Vela Luka. We are challenged to establish an MIT disciplinary approach that utilizes modern technologies and provides holistic and more confident answers.

1_Project members, Vela Spila, Korčula, Croatia, MendTheGap project

| HORIZON 2020 – Spreading Excellence and Widening Participation | | |
|---|---|---|
| **Project Name** | **Expanding Potential in Particle and Radiation Detectors, Sensors and Electronics in Croatia** | |
| **Project Acronym** | **PaRaDeSEC** | |
| **Project ID** | 669014 | |
| **Start Day - End Day** | 01/07/15 – 30/06/20 | |
| **Instrument Funding** | CSA - Coordination and support action | |
| **Call For Proposal** | H2020-WIDESPREAD-2014-2 | |
| **Topic** | WIDESPREAD-2-2014 - ERA Chairs | |
| **Project Web Site** | http://lnr.irb.hr/PaRaDeSEC/ | |
| **EC FInancial Contribution** | EUR 2 434 500 | |
| **All Participants in Project** | 1 | |
| **Croatian Organization** | Ruđer Bošković Institute | |
| **Web Site** | https://www.irb.hr/ | |
| **EC Financial Contribution to Croatian Partner** | EUR 2 434 500 | |
| **Contact Person in Croatia** | Neven Soić, PhD | |
| **Coordinated in** | Croatia | |
| **All Participants in Project** | HR | |
| **Project Free Keywords** | *radiation and particle detectors, sensors, signal processing electronics, data acquisition system, nuclear physics, particle physics, astrophysics, research instrumentation development and testing* | |

**Project Summary**

Modern experiments in astrophysics, nuclear and particle physics depend on specialized and complex detector systems. Development and testing of such unique instrumentation, essential for breakthrough research, requires expertise from a broad range of topics in physics, electronics, and computing. Research institutions able to make significant contributions in this field have a high reputation in the scientific community and increased odds to engage in related large collaborative projects. Participation in such activities requires a significant investment in infrastructure, but often leads to emergent technological progress and potential for technology transfer, positively impacting the local economy. RBI researchers collaborate with top European research centers, and have an excellent knowledge of the experimental techniques involved. However, RBI as an institution insufficiently contributes to instrumentation development. An important step to correct this weakness, and to increase the related technological potential of Croatia, including material science, electronics, and ICT, was successfully executed by the recently implemented REGPOT FP7 project Particle Detectors. Further actions will be taken through the proposed European Structural and Investment Funds project O-ZIP, designed in line with the national Smart Specialization strategy. PaRaDeSEC will provide funding for the required top staff to consolidate all available resources into the new Center for Detectors, Sensors & Electronics, an independent RBI unit which will strictly implement all conditions to foster state of the art research. The ERA Chair as the Center head will be involved in the RBI management structure and will be an integral component of ongoing structural changes at RBI, based on the best practices of the top EU research centers and ERA priorities. The Center will be focused on nuclear, particle and astrophysics, and is expected to also impact the broader research community and national economy.

**Role of Croatian organization**

**Ruđer Bošković Institute**

RBI is a beneficiary of the PaRaDeSEC project: funds are granted to RBI for implementation of the project. Employed ERA Chair is an expert in semiconductor detector technology with knowledge and experience on R&D of semiconductor detectors for basic research and interdisciplinary applications. The employed ERA Chair team consists of four experienced researchers on semiconductor technology with complementary expertise. Upgrade of laboratory space and purchase of research equipment missed at RBI is accomplished using the PaRaDeSEC and related projects funding. At RBI, some other essential facilities exist, like accelerator center equipped with the linear electrostatic accelerator and various specialized beam lines, and gamma-ray irradiation facility. Center for Detectors, Sensors and Electronics is established as the focal point of all activities related to the development, testing and construction of detectors, sensors, and related electronics. RBI is now equipped for a range of characterization and test measurements of detector assemblies, detector designing, assembling and irradiation, which makes the further expansion of these R&D activities possible.

| HORIZON 2020 – Spreading Excellence and Widening Participation | | |
|---|---|---|
| **Project Name** | **Centre of Excellence for Autonomous and Cooperative Robotic Systems** | |
| **Project Acronym** | **ACROSS** | |
| **Project ID** | 763565 | |
| **Start Day - End Day** | 01/09/17 – 31/08/18 | |
| **Instrument Funding** | CSA - Coordination and support action | |
| **Call For Proposal** | H2020-WIDESPREAD-04-2017-TeamingPhase1 | |
| **Topic** | WIDESPREAD-04-2017 - Teaming Phase 1 | |
| **Project Web Site** | https://www.across-coe.eu/ | |
| **EC FInancial Contribution** | EUR 399 937,50 | |
| **All Participants in Project** | 3 | |
| **Croatian Organizations** | University of Zagreb, Faculty of Electrical Engineering and Computing<br>ICENT - Innovation Centre Nikola Tesla | |
| **Web Site** | https://www.fer.unizg.hr/<br>http://www.icent.hr/ | |
| **EC Financial Contribution to Croatian Partners** | EUR 185 075<br>EUR 56 925 | |
| **Contact Person in Croatia** | Prof. Ivan Petrović, PhD | |
| **Coordinated in** | Croatia | |
| **All Participants in Project** | HR, SE | |
| **Project Free Keywords** | *Robotics, Autonomous Systems, Cooperative Robotic Systems* | |

**Project Summary**

The overall objective of the project is to create a Centre of Excellence for Autonomous and Cooperative Robotic Systems in Croatia (ACROSS CoE), which will be at the forefront of research and innovation of novel methodologies and advanced engineering approaches in the targeted domains. ACROSS CoE will be created and run as a long-term joint venture between the UNIZG-FER University of Zagreb Faculty of Electrical Engineering and Computing, the KTH Royal Institute of Technology, and the ICENT Innovation Centre Nikola Tesla. To achieve the overall objective, the proposal focuses on long-term objectives for Teaming Phase 2 and on a one-year objective for Teaming Phase 1. Long-term objectives of the Phase 2 and beyond are: (i) Reinforcing scientific capacity and innovation performances in autonomous and cooperative robotic systems, (ii) Increasing scientific visibility and reputation at international level, and (iii) Improving responses to socioeconomic needs of Croatia. ACROSS CoE will achieve these objectives by striving for high-quality research, in line with international standards of excellence, and by directing its research towards areas serving the technological needs identified by the Croatian Smart Specialisation Strategy. The ultimate objective of the Phase 1 is to produce an extensive, detailed, and robust Business Plan for ACROSS CoE and to achieve this, the plan will be built upon (i) Assessment of the existing ACROSS ecosystem and (ii) Development of roadmaps for achieving ACROSS CoE excellence. The ACROSS project is relevant to the work programme since the main goal is to create a new Centre of Excellence in Croatia, a low R&I performing country, by building upon a partnership with KTH, a world-leading scientific and innovation institution. Creation of the ACROSS CoE will help Croatia in attaining a competitive position in the global value chains, thus also contributing to Europe's competitiveness and its ability to address future societal challenges.

**ACROSS project passed the first phase at the H2020-WIDESPREAD-2016-2017 call. During 12 months of the Phase 1 (from September 2017 to August 2018) a Business Plan for the future ACROSS CoE will be prepared. Business Plan will be submitted to the EU Horizon 2020 Call H2020-WIDESPREAD-2018- 2020 Teaming Phase 2.**

1_Kick-off meeting, Zagreb, Croatia, ACROSS project

# European Cooperation in Science and Technology

**COST - European Cooperation in Science and Technology**

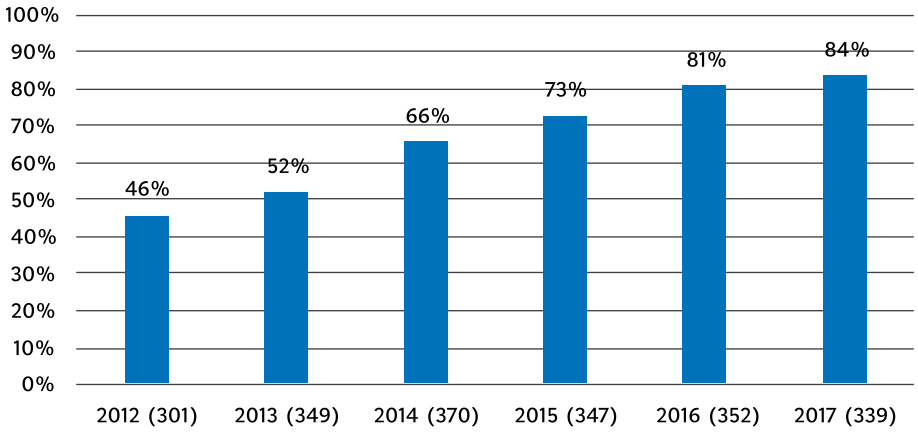
COST is supported by the EU Framework Programme Horizon 2020.

COST is a funding agency for research and innovation networks. Our Actions help connect research initiatives across Europe and enable scientists to grow their ideas by sharing them with their peers. This boosts their research, career, and innovation.

COST Features:
• One networking instrument: the Action
• Open participation (involve all stakeholders, type of institutions, career levels, countries, at any time)
• Bottom-up approach (researchers driven, any topic/multiple topics)
• Flexible (adaptable research and activities)
National participation in COST Actions refers to the participation in the Management Committee of an Action/MoU approvals.

The graph below shows the percentage of national Action participations with respect to the total number of Actions running at any time of the year (shown in brackets).

**National participation in running Actions %**
**(total number of running Actions in bracket)**



| COST - European Cooperation in Science and Technology | | |
|---|---|---|
| **Project Name** | **European network for innovative uses of EMFs in biomedical applications** | |
| **Project Acronym** | **EMF-MED** | |
| **Project ID** | COST Action BM1309 | |
| **Start Day - End Day** | 16/04/14 – 15/10/18 | |
| **Instrument Funding** | COST (supported by the EU Framework Programme Horizon 2020) | |
| **Call For Proposal** | COST Open Call OC-2013-1 | |
| **Topic** | | |
| **Project Web Site** | www.COST-EMF-MED.eu | |
| **EC FInancial Contribution** | EUR 653 190 | |
| **All Participants in Project** | 33 | |
| **Croatian Organization** | University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture | |
| **Web Site** | https://eng.fesb.unist.hr/ | |
| **EC Financial Contribution to Croatian Partner** | EUR 653 190 | |
| **Contact Person in Croatia** | Prof. Antonio Šarolić, PhD | |
| **Coordinated in** | Croatia | |
| **All Participants in Project** | AT, BE, BA, BG, HR, CY, CZ, DK, EE, FI, FR, MK, DE, EL, HU, IE, IL, IT, LT, MT, NL, NO, PL, PT, RO, RS, SK, SI, ES, SE, CH, TR, UK | |
| **Project Free Keywords** | | |

**Project Summary**
The Action will provide a cooperative framework to support the research on beneficial biological effects of non-ionizing electromagnetic fields (EMFs) and their use in biomedical applications. Research on biological effects of EMFs has traditionally focused on health risks. Inspired by promising recent studies on useful biomedical EMF interactions and applications, this Action will focus on beneficial effects, aiming for breakthrough results, new discoveries and innovative biomedical technologies. The Action will provide a better understanding of underlying physical and biological interaction mechanisms, related to both cancer and non-cancer applications, filling the gaps in the present state of knowledge. Ultimately, the Action will aim to contribute to development and optimization of innovative EMF-based medical devices and procedures, which will be safer, more efficient and less invasive. Interdisciplinarity of the proposed topic and significance of the expected outcomes require a concerted research network at the EU level.

**Role of Croatian organization**

**University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture**
FESB, University of Split, was the Action scientific and financial coordinator. The Action itself was initially proposed by prof. Antonio Šarolić, PhD from FESB. After leading and coordinating the proposal phase, when the Action was approved, he became the Chair of the Management Committee (Action Chair), while FESB, the University of Split became the Grant Holder of the Action.

This put the Croatian organization in charge of the Action coordination, which was executed successfully over the period of four and a half years (Action duration was extended by 6 months). The scientific part of coordination, as well as the research, was executed by the scientific staff from the group of the Action Chair, but the scientific activities were also spread to other groups, even out of FESB, namely from the Medical School, involving them in meetings and short-term scientific missions, increasing also the local networking, along with the international networking. The financial management of the Action was initially a new experience for FESB, however, COST financial models were quickly mastered by the faculty accounting department, bringing new and valuable experience to the faculty staff and organization.

1_Project members, Vienna, Austria, EMF-MED project; 2_Project members in the cellars of Diocletian's Palace, Split, Croatia, EMF-MED project

| COST - European Cooperation in Science and Technology | | |
|---|---|---|
| **Project Name** | **Capacity Building in forest policy and governance in Western Balkan region** | C A - P A - B - A L |
| **Project Acronym** | **CAPABAL** | |
| **Project ID** | COST TN1401 | |
| **Start Day - End Day** | 02/10/14 – 31/11/18 | |
| **Instrument Funding** | COST, EU HORIZON2020 | |
| **Call For Proposal** | Strategic COST actions | |
| **Topic** | Capacity building in forest policy, economics and management | |
| **Project Web Site** | http://capabal.sumins.hr | |
| **EC FInancial Contribution** | EUR 488 826,13 | |
| **All Participants in Project** | 18 | |
| **Croatian Organization** | Croatian Forest Research Institute | |
| **Web Site** | www.sumins.hr | |
| **EC Financial Contribution to Croatian Partner** | EUR 73 323,91 | |
| **Contact Person in Croatia** | Dijana Vuletić, PhD | |
| **Coordinated in** | Croatia | |
| **All Participants in Project** | AT, BA, BG, HR, CZ, FI, MK, DE, GEL, HU, ME, PO, RS, SK, SL, ES, UK | |
| **Project Free Keywords** | *capacity building, forest and natural resources policy, economics, management* | |

**Project Summary**

CAPABAL aims to enhance the capacity, in particular professional knowledge, skills and access to networks and emerging research, of young future leaders in research and policy making in field of forest and natural resources governance, policy, and economics in the Western Balkan region. This will facilitate the achievement of international standards of sustainable forest management and governance as well as promote economic development in the region. The Western Balkan countries are in different stage of joining the EU and thus undergoing policy reform, economic reform, and governance reform to comply with the EU directives and legislative requirements. CAPABAL will target early career investigators (ECI), future policy leaders, and young resource managers employed in regional institutions ranging from forestry faculties and research institutes to natural resources ministries, forest enterprises, businesses, and NGOs. CAPABAL's activities and the associated exposure to international researchers, policymakers, and resource managers, as well as European and international policy processes, will have immediate effects on the improvement of governance, policy, and economic reforms in the Western Balkan countries. In addition, strengthening personal relationships among future leaders in science, policy, and practice within the region will also support the necessary trust and capacity for strong science-policy-practice communication. One important objective of this Targeted Network is the development of a Vision document on the Future of Balkan Forest and a Strategic Regional Research Agenda to address those challenges and opportunities identified in the vision. Using all COST tools like STSMs, Training Schools and small group meetings many of young researchers and professionals shared and gained knowledge and experiences. Those activities also provide inputs for two Policy briefs and a Brochure on Good Governance published as some of the results of this action.

**Role of Croatian organization**

**Croatian Forest Research Institute**

Croatian Forest Research Institute is the scientific coordinator of this action and Chair of the action is from the Institute. Also, the Institute is a Grant holder of the action, which means it is responsible for the financial management of the action and is executing all the payments. Also, the main responsibility of the Croatian Forest Research Institute is

the entire organization and execution of all activities together with reporting and planning during the whole action. Beside Chair of the action, several other researchers from the Institute have been involved (Silvija Krajter Ostoić, PhD, Marta Curman, MSc, Antonija Beuk, MSc and few researchers from the University of Zagreb, Forestry Faculty (prof. Stjepan Posavec, PhD, Karlo Beljan, PhD). Also, a number of young researchers took part in Training schools, STSMs, small group and all Working groups meeting. The total contribution to the Institution and country is bigger than 15 % from the table but most important is knowledge, experience and group work in an international atmosphere that they have been exposed to.

1_Final conference, Brdo near Kranj, Slovenia, CAPABAL project; 2_Project members, Triglav national park, Slovenia, CAPABAL project

# Notes

# Science with and for Society

**General info on Science with and for Society**

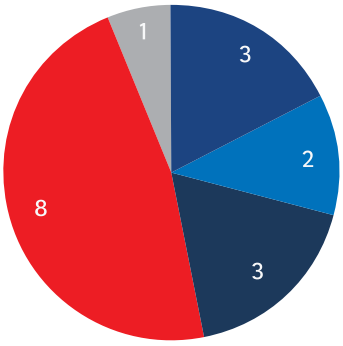
One of the European Union objectives described in the Europe 2020 strategy is to strengthen EU's scientific and technological bases by achieving the European Research Area ("ERA"), to encourage Union to advance towards knowledge society and to develop into a more competitive and sustainable economy in respect of the industry. Achievements of these objectives cannot be met without the establishment of the space within which the free circulation of researches, scientific knowledge, and technology is possible. In addition to three main pillars (excellent science, industrial leadership and societal challenges), Horizon 2020 aims to accomplish these goals through two special objectives Spreading excellence and widening participation and Science with and for society. While the task of the Spreading excellence and widening participation is to promote spreading excellence to widening countries, Science with and for society (SWAFS) aims to build effective cooperation between science and society.

The central focus of SWAFS is to recruit new talents to careers in science and to couple scientific excellence with social awareness and responsibility. Establishment of the European Research Area cannot be accomplished without the European science system capable of recognizing and mobilizing scientific talents in all areas. However, such recruitment is limited without the dialogue between the scientific community and broader society. In the age of rapid advances of science paired with the economic crisis, new ethical, legal and social issues emerge which may hinder active cooperation between science and society. While science must address the citizen's fears and contribute to the economic, social and political development, its endeavours have to overcome the obstacles such as inadequate individuals' access to science and policymakers' neglect of the scientific consensus, where policies are often based more on the populist narratives rather than on evidence.

Within the budget of approximately 462 million euros in H2020 framework, SWAFS fund activities such as enhancing cooperation and interaction between schools, research institutions, industry and civil society; promote gender equality and structural changes in the organisation of research institutions, integrate society in science and innovation issues, policies and activities; encourage citizen participation in science; develop governance for the advancement of the responsible research and other activities that contribute to the realization of the SWAFS priorities.

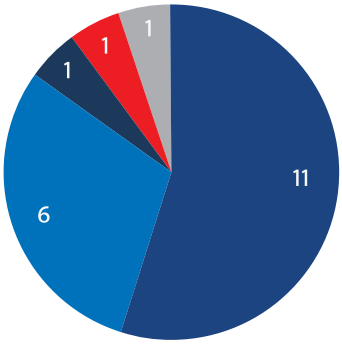
**Number of organizations**

***Type of Area***




- Make scientific and technological careers attractive for young people
- Promote gender equality in research and innovation
- Integrate society in science and innovation
- Develop the governance for the advancement of responsible research and innovation
- Science with and for Society - Cross theme

***Type of Organization***




- HES - Higher or secondary education
- PUB - Public body (excl. research and education)
- REC- Research organisations
- PRC - Private for profit (excl. education)
- OTH - Other

| HORIZON 2020 – Science with and for Society | | |
|---|---|---|
| **Project Name** | **Higher Education Institutions and Responsible Research and Innovation** | |
| **Project Acronym** | **HEIRRI** | |
| **Project ID** | 666004 | |
| **Start Day - End Day** | 01/09/15 – 31/08/18 | |
| **Instrument Funding** | CSA - Coordination and support action | |
| **Call For Proposal** | H2020-SEAC-2014-1 | |
| **Topic** | SEAC-2-2014 - Responsible Research and Innovation in Higher Education Curricula | |
| **Project Web Site** | http://heirri.eu/ | |
| **EC FInancial Contribution** | EUR 1 498 775 | |
| **All Participants in Project** | 9 | |
| **Croatian Organization** | University of Split | |
| **Web Site** | http://www.unist.hr/ | |
| **EC Financial Contribution to Croatian Partner** | EUR 97 650 | |
| **Contact Person in Croatia** | Prof. Ana Marušić, MD, PhD | |
| **Coordinated in** | Spain | |
| **All Participants in Project** | ES, DK, NO, AT, HR, BE | |
| **Project Free Keywords** | *Social needs and values, Governance, Problem based learning methodology, eLearning, MOOC, Multimedia Learning, Social Media, Science Centers and Museums* | |

**Project Summary**

Higher Education Institutions and Responsible Research and Innovation (HEIRRI) foster an alignment of research and innovation (R&I) with the needs, values, and societal expectations. The six key aspects of "Responsible Research and Innovation (RRI)"-societal/public engagement, gender equality, open access, science education, ethics and governance in R&I-are transdisciplinary included at all stages of formation of scientists and engineers, and other professional fields involved in R&I.

HEIRRI will create and share on OA a stock-taking inventory constituted by a State of the Art Review and a Data Base. The inventory will gather results of other EU funded RRI projects, good cases and practices of RRI and RRI Learning. Also, different stakeholders involved and/or affected by R&I will participate in a debate and reflection process on RRI Learning through online and offline Forum actions.

Results from the inventory will represent the basis for RRI Training programmes and formative materials, offering the students knowledge and skills to develop viable solutions to specific problems related to R&I, integrating theory and practice. They will be designed for the different HEI educational levels (undergraduate, MD and PhD, summer courses and MOOC), mainly based on Problem based learning methodology, and supported by multimedia materials (videos and micro videos, 2.0 materials, etc.). All results and products elaborated by HEIRRI will be uploaded on OA at RRITools Platform.

An internationalization plan will guarantee their spreading awareness and future use by HEI from Europe and beyond. A global scope and expertise on RRI will be provided by HEIRRI consortium that consists of 5 European HEIs (Universitat Pompeu Fabra (UPF), Universitetet I Bergen (UiB), Aarhus Universitet (AU), Institut Fuer Hoehere Studien und Wissenschaftliche Forschung (IHS), Sveuciliste u Splitu (University of Split, UNIST)), the European network of science centres and museums (AEESTI / Ecsite), Fundación Bancaria Caixa D'estalvis i Pensions de Barcelona La Caixa (FBLC), a network of universities (Associació Catalana d'Universitats Públiques, ACUP), and a private company specialized in R&I (INNOVATEC).

**Role of Croatian organization**

**University of Split**

'Higher Education Institutions & Responsible Research and Innovation' or HEIRRI, is a Horizon 2020 project that aims to integrate responsible research and innovation (RRI) concepts into higher education institutions. RRI is an on-going process of aligning research and innovation with the values, needs, and expectations of society. HEIRRI emphasizes anticipation, reflexivity and engagement as key tools for young researchers and innovators. In order to promote RRI, HEIRRI team designed teaching programmes.

University of Split team was led by prof. Ana Marušić. Our objective was to perform pilots of training programmes, evaluate the implementation, and explore the room for improvement.

Overall, we organized 37 pilots at 15 educational institutions across the world, with overwhelmingly positive feedback. Four of the pilots were conducted at the University of Split, for undergraduates, PhD students, and public. We also helped organize the training pilots at the University of Mostar School of Medicine in Bosnia and Herzegovina. Although HEIRRI is coming to its end, we continue to promote RRI through workshops, regular curriculum and elective courses at our and neighbouring universities.

1_Summer School of Responsible Research and Innovation, Split, HEIRRI project; 2_Train-the-trainer course, Mostar, HEIRRI project; 3_Project members, Vienna, Austria, HEIRRI project

| HORIZON 2020 – Science with and for Society | | |
|---|---|---|
| **Project Name** | **CITIZEN AND MULTI-ACTOR CONSULTATION ON HORIZON2020** | |
| **Project Acronym** | **CIMULACT** | |
| **Project ID** | 665948 | |
| **Start Day - End Day** | 01/06/15 – 31/03/18 | |
| **Instrument Funding** | CSA - Coordination and support action | |
| **Call For Proposal** | H2020-ISSI-2014-1 | |
| **Topic** | ISSI-2-2014 - Citizens and multi-actor engagement for scenario building | |
| **Project Web Site** | http://www.cimulact.eu/ | |
| **EC FInancial Contribution** | EUR 3 299 701,83 | |
| **All Participants in Project** | 29 | |
| **Croatian Organization** | ODRAZ - Sustainable Community Development | |
| **Web Site** | http://odraz.hr/en/home | |
| **EC Financial Contribution to Croatian Partner** | EUR 51 375 | |
| **Contact Person in Croatia** | Lidija Pavić-Rogošić | |
| **Coordinated in** | Denmark | |
| **All Participants in Project** | DK, DE, AT, FR, BE, CZ, RO, BG, HU, IT, UK, ES, CH, FI, NO, PL, LT, LV, IE, NL, PT, MT, SK, BE, CY, LU, HR, SE, EL | |
| **Project Free Keywords** | | |

**Project Summary**

CIMULACT had as the main objective to add to the relevance and accountability of European research and innovation – Horizon 2020 as well as national - by engaging citizens and stakeholders in co-creation of research agendas based on real and validated societal visions, needs and demands. The project expanded the outlook and debate on STI issues, increased scientific literacy in a broad sense, which includes the understanding of the societal role of Science, Technology and Innovation (STI), and created a shared understanding between scientific stakeholders, policy-makers and citizens. This multi-actor approach embraced EU28 plus Norway and Switzerland.

The CIMULTACT builds on the principle/conviction that the collective intelligence of a society gives Europe a competitive advantage, which may be activated to strengthen the relevance of the European science and technology system. By establishing a genuine dialogue between citizens, stakeholders, scientists, and policymakers visions and scenarios for the desirable futures were developed and debated, and transformed into recommendations and suggestions for research and innovation policies and topics.

• Created vision and scenarios that connect societal needs with future expected advances in Science and their impact on technology, society, environment etc. in connection to the grand challenges.
• Provided concrete input to Horizon 2020 through recommendations and policy options for R&I and simulated calls for the Horizon2020 Work Programmes.
• Engaged citizens and stakeholders in a highly participatory debate/consultation/process on scenarios for desirable sustainable futures and research.
• Strengthened capacities of citizen and multi-actor engagement in R&I through development, experimentation, training and assessment of methods for engagement.
• Facilitated dialogue and shared understanding between policymakers, citizens, and stakeholders.
• Revealed the relative merits of the citizen focused consultations.

**Role of Croatian organization**

**ODRAZ - Sustainable Community Development**

ODRAZ - Sustainable Community Development was one of the 29 partners involved in the project, responsible for the implementation of activities in Croatia.
In short,

- Organised a national workshop with citizens for creation of six visions of the future of Europe.
- Participated at citizens and experts co-creation workshop in Milano to define research programme scenarios.
- Organised an event with citizens and experts to discuss research programme scenarios.
- Organised an open online consultation.
- Participated in the Pan European Conference in Brussels to define research topics.
- Informed relevant Croatian stakeholders and wider public about the projects, results and used methodology.

Citizens and stakeholders were engaged in a highly participatory debate/consultation/process. One of ODRAZ's main focuses was related to promoting public engagement and co-creation, either to teach stakeholders about the methods or helping them to conduct such processes in their communities. CIMULACT gave us the possibility to learn about new methods, but also gave us a possibility to conduct the whole, very well designed process in the field. So, we gained a new knowledge, but also an experience, which we will use in our further work.

1_Project meeting, Zagreb, Croatia, CIMULACT project; 2_Project members, Zagreb, Croatia, CIMULACT project

| HORIZON 2020 – Science with and for Society | | |
|---|---|---|
| **Project Name** | **LIVING INNOVATION - Implementing RRI through co-creation of smart futures with industry and citizens** | |
| **Project Acronym** | **LIV.IN** | |
| **Project ID** | 787991 | |
| **Start Day - End Day** | 01/05/18 – 30/04/21 | |
| **Instrument Funding** | CSA - Coordination and support action | |
| **Call For Proposal** | H2020-SwafS-2017-1 | |
| **Topic** | SwafS-06-2017 - Engaging industry – Champions for RRI in Industrial Sectors | |
| **Project Web Site** | https://www.living-innovation.net/ | |
| **EC FInancial Contribution** | EUR 3 549 475 | |
| **All Participants in Project** | 15 | |
| **Croatian Organization** | Ericsson Nikola Tesla d.d. | |
| **Web Site** | https://www.ericsson.hr/ | |
| **EC Financial Contribution to Croatian Partner** | EUR 112 125 | |
| **Contact Person in Croatia** | Adj. prof. Darko Huljenić, PhD | |
| **Coordinated in** | Austria | |
| **All Participants in Project** | AT, UK, IT, DE, NL, ES, RO, HR, PL, BE | |
| **Project Free Keywords** | *Co-Creation, ICT sector, smart homes, smart health, societal engagement* | |

**Project Summary**

In the LIV.IN project, major industry leaders from the ICT sector join forces to co-create more responsible approaches to innovation for the first time. LIV.IN builds on the premise that recognition of the value of RRI among industry is necessary for achieving the aim of the call "to progress further in integrating RRI in industrial contexts". The project follows an opportunity-oriented approach in order to

• activate industry leaders, experts and citizens to experiment with responsible ways of co-creating innovations;
• build capacity for RRI implementation and develop tools that are applicable across industry sectors; and
• transform attitudes towards RRI from risk to opportunity. LIV.IN will demonstrate the added value of RRI in the area of smart future living.

We carefully selected this application area because it directly impacts the lives of citizens (societal relevance) but also constitutes a major emerging market (business opportunity). The project includes four key features that will significantly enhance the quality of the proposed coordination and support activities. First, six LIV.IN Labs and a virtual community of practice will constitute the central spaces for experimentation with integrating RRI in industry, and, consequently, the development of new approaches to innovation. Second, the application and continuous improvement of RRI tools in these spaces will contribute to capacity-building among industry and citizens alike. Third, embedded audio-visual story-telling will be the main vehicle for disseminating results and for shifting attitudes towards RRI from risk to opportunity. Finally, continuous dialogue with earlier and present initiatives in the areas of RRI, CSR and open innovation will ensure the transferability of project results across industry sectors. Ultimately, LIV.IN is guided by its vision to become a flagship initiative for effective integration of RRI in industry.

**Role of Croatian organization**

**Ericsson Nikola Tesla d.d.**
Ericsson Nikola Tesla company's role in the project is a project partner, participating in the development work packages. Our participation is driven by the idea to promote the concept of responsible innovation and bring it to the industrial context. We want to learn and enable co-creation of responsible innovations with project partners from industry and academia. We participate and support the creation of Living labs regarding: Future Homes&Lifestyles, Lifelong Health&Care, Internet of things in daily life, Communities&Collaboration, and Preventive Healthcare and Fitness where in all labs we will be a partner. The benefits for the company to participate in such a project are many but main are to create value with partners, learn possibilities and potential problems with implementation to be better prepared for some potential market projects.

# Notes

European
Atomic
Energy
Community

**General info on EURATOM**

The Euratom Programme is the nuclear research and training programme of the European Atomic Energy Community (Euratom) complementing the Horizon 2020 Framework Programme for Research and Innovation. While Euratom is a separate legal entity from the EU, it is governed by the EU's institutions. Euratom membership covers the 28 EU Member States and also has various bilateral agreements with a number of third countries on nuclear fission/fusion research or peaceful use of nuclear energy and nuclear safety.

The general objective of the Euratom Programme is to support nuclear research and training activities with an emphasis on continually improving nuclear safety, security and radiation protection, notably to potentially contribute to the long-term decarbonisation of the energy system in a safe, efficient and secure way.

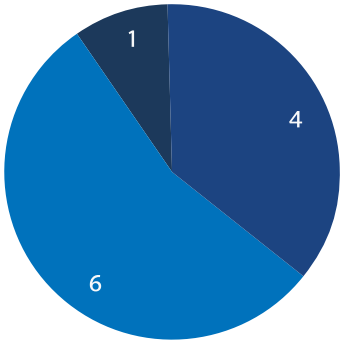
The Euratom Programme will strengthen the research and innovation framework in the nuclear field and coordinate Member States' research efforts, thereby avoiding duplication, retaining critical mass in key areas and ensuring that public funding is used in an optimal way.

The Euratom Programme distinguishes between direct and indirect actions. The indirect actions focus on the research in the area of fusion energy and nuclear fission and radiation protection. The direct actions in the field of nuclear safety, safeguards and security are carried out by the European Commission's Joint Research Centre (JRC). The JRC has been conducting direct research and training in the nuclear field in complement and full alignment with the efforts of the Member States in the field. JRC activities support the need for nuclear safety, security research, and cross-cutting activities, in order to ensure that top-level competence and expertise are available in the EU.

Projects in the area of energy fusion, nuclear fission, and radiation protection are funded based on the call for proposals.

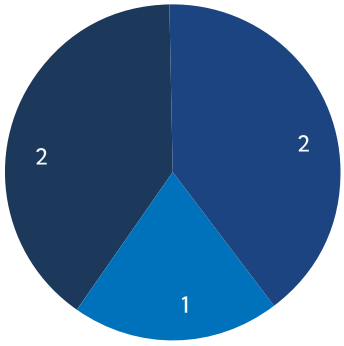
**Number of organizations**

***Type of Organization***




- HES - Higher or secondary education
- REC- Research organisations
- Private for profit (excl. education) (PRC)

***Funding Instrument***




- RIA - Research and Innovation action
- CSA - Coordination & Support Action
- OTH - Other

| HORIZON 2020 – EURATOM | | |
|---|---|---|
| **Project Name** | **New Approach to Reactor Safety ImprovementS** | |
| **Project Acronym** | **NARSIS** | |
| **Project ID** | 755439 | |
| **Start Day - End Day** | 01/09/17 – 31/08/21 | |
| **Instrument Funding** | RIA - Research and Innovation action | |
| **Call For Proposal** | NFRP-2016-2017-1 | |
| **Topic** | NFRP-1 - Continually improving safety and reliability of Generation II and III reactors | |
| **Project Web Site** | http://www.narsis.eu/ | |
| **EC FInancial Contribution** | EUR 4 965 472,14 | |
| **All Participants in Project** | 19 | |
| **Croatian Organization** | APOSS Ltd. | |
| **Web Site** | | |
| **EC Financial Contribution to Croatian Partner** | EUR 113 976 | |
| **Contact Person in Croatia** | Ivan Vrbanić, MEng, PhD | |
| **Coordinated in** | France | |
| **All Participants in Project** | FR, DE, NL, SI, PL, FI, IT, UK, AT, HR | |
| **Project Free Keywords** | Nuclear Power Plant, Probabilistic Safety Assessment, Multirisks integrated framework, Natural External Hazards | |

**Project Summary**

Probabilistic Safety Assessment (PSA) procedures allow to better understand and estimate the likelihood of the most causes prone to initiate nuclear accidents and to identify the most critical elements of the systems. However, despite the remarkable reliability of current procedures, the 2011 Fukushima Daiichi accident highlighted a number of challenging issues with respect to their application and the validity of their results. From this nuclear disaster, the upgrading of the current methodological framework appeared to be necessary in areas such as cascading/conjunct events characterization, fragility analyses and uncertainties treatment. New developments in those areas would even enable the extension of their use in accident management. Based on recent theoretical progress, the NARSIS project aims at making significant scientific updates of some elements required for the PSA, focusing on external natural events (earthquake, tsunami, flooding, high-speed winds...). These improvements mainly concern:

• Natural hazards characterization, considering concomitant external (simultaneous-yet-independent or cascading) events, and the correlation in intra-event intensity parameters;
• Fragility and functionality assessment of main critical NPPs' elements, accounting for conjunct effects (including ageing effects) and interdependencies under single or multiple external aggressions;
• Risk integration combined with uncertainty characterization and quantification, to allow efficient risks comparison and account for all possible interactions and cascade effects;
• Better processing/integration of expert-based information within PSA, through modern uncertainty theories both to represent in a flexible manner the experts' judgments and to aggregate them to be used in a comprehensive manner.

The proposed improvements will be tested and validated on simplified and real NPP case studies. Demonstration supporting tools for operational & severe accident management will be also provided.

**Role of Croatian organization**

**APOSS Ltd.**

APOSS is involved in Work Package 5 (WP5) the objective of which is to develop a demonstration tool to support decision-making (DM) in the severe accident management, relying on the probabilistic safety assessment (PSA) techniques and current status of guidelines for extensive damage and severe accident management. This will be done in the form of structured logic models of progression of hazard-induced accident sequences which will be used as a platform for the development of supporting DM tool for severe accident management. The DM tool developed under WP5 would be of demonstration level and would be used to demonstrate the feasibility of developing such a tool for actual nuclear power plants (NPP) and its potential for managing and reducing the residual risk from NPPs operation. The focus of APOSS's involvement is on defining a set of hazard-induced damage states and on development of state-specific accident progression event trees (APET) to be used in development of supporting severe accident management DM tool for demonstration purposes, as well as supporting the development of the demonstration tool itself, from the perspective of severe accident phenomenology and PSA.

| HORIZON 2020 – EURATOM | | |
|---|---|---|
| **Project Name** | **European Joint Programme for the Integration of Radiation Protection Research** | |
| **Project Acronym** | **CONCERT** | |
| **Project ID** | 662287 | |
| **Start Day - End Day** | 01/06/15 – 31/05/20 | |
| **Instrument Funding** | COFUND-EJP - COFUND (European Joint Programme) | |
| **Call For Proposal** | NFRP-2014-2015 | |
| **Topic** | NFRP-07-2015 - Integrating radiation research in the European Union | |
| **Project Web Site** | http://www.concert-h2020.eu/en | |
| **EC FInancial Contribution** | EUR 19 822 878 | |
| **All Participants in Project** | 78 | |
| **Croatian Organization** | Institute for Medical Research and Occupational Health | |
| **Web Site** | https://www.imi.hr/en/ | |
| **EC Financial Contribution to Croatian Partner** | EUR 25 770,20 | |
| **Contact Person in Croatia** | Ivica Prlić, PhD | |
| **Coordinated in** | Germany | |
| **All Participants in Project** | DE, FI, BE, FR, UK, IT, SE, HR, PL, AT, ES, HU, BG, NO, NL, PT, CZ, RO, EL, SK, EE, LV, IE | |
| **Project Free Keywords** | | |

**Project Summary**

The proposed European Concerted Programme on Radiation Protection Research (acronym: CONCERT) aims to contribute to the sustainable integration of European and national research programmes in radiation protection. It will do so by focusing resources and efforts in five key directions:

• Bring together the elements of the European scientific communities in the fields of radiation effects and risks, radioecology, nuclear emergency preparedness, dosimetry and medical radiation protection, whose joint expertise is essential to continue the development of radiation protection knowledge in a multidisciplinary mode to reduce further the uncertainties in radiation protection.
• Strengthen integrative activities between the various areas of expertise, in particular, biology, biophysics, epidemiology, dosimetry and modelling as well as fostering the use of existing infrastructures and education and training activities in radiation protection.
• Stimulate and foster scientific excellence, by setting up and co-funding advanced research programmes with the potential to enhance current knowledge and the scientific evidence base for radiation protection.
• Exchange and communicate with all stakeholders, including the professional organizations concerned with radiation protection, the regulatory organizations across Europe, the public and media where necessary, and the international community of scientific, technical, legal and other professional experts in radiation protection.
• Foster the harmonious application of available scientific basis for radiation protection practices across Europe, by bringing together scientific and technical expertise in radiation protection issues, standard setting know how, particularly with respect to the implementation of the Euratom Basic Safety Standards (BSS) at the legal, administrative and operational level.

To reach its goals, CONCERT will have seven Work Packages each of which will focus on each of the key directions.

**Role of Croatian organization**

**Institute for Medical Research and Occupational Health**

IMROH can provide an outdoor environmental-ecosystem reference research polygon. Activities in radiation protection extend to the workers, the public and the environment, evaluation and reduction of radiological impacts of NORM and industrial polluted sites, environmental radioactivity measurement, personal (occupational and patient) and environmental (special electronic) dosimetry, risk assessment procedures and quality assessment procedures (medicine – nuclear medicine),mutagenesis and occupational and environmental health risk assessments and protocols. IMROH will contribute (to an extent of its research and educational capabilities) together with other associated institution and/or University departments in Croatia mainly to work packages WP4, WP5, WP6, and WP7.

Croatian national support system for proposers in Horizon 2020 is established by the national coordination at the Ministry of Science and Education (MSE), which also holds NCP positions for Future and Emerging Technologies, Research Infrastructure and European Research Council. The Agency for Mobility and EU Programmes (AMEUP) hosts the majority of the remaining thematic priority NCPs: Financial and Legal, Space, Joint Research Centre, Marie Skłodowska-Curie actions, Secure, clean and efficient energy, Smart, green and integrated transport, ICT, Secure Societies, Nanotechnologies, Advanced Materials, Biotechnology and Advanced Manufacturing and Processing, Health, demographic change and well-being, Food security, sustainable agriculture and forestry, marine/maritime/inland water research and the bioeconomy, Climate action, environment, resource efficiency and raw materials, Inclusive, innovative and reflective societies, Science with and for society, and Spreading Excellence and Widening Participation. The Croatian Agency for SMEs, Innovation and Investments (HAMAG BICRO) hosts NCPs for areas mainly directed at SMEs: Access to Risk Finance and Innovation in SMEs, while the State Office for Radiological and Nuclear Safety (DZRNS) hosts the NCP for EURATOM.
NCPs in Croatia also participate in several transnational projects of cooperation among NCPs, including the following: C-Energy 2020, Health NCP Net 2.0, NCP_WIDE.NET, Idealist2018, SEREN4, BioHorizon, NCPs CaRE, Net4Society, Net4Mobility, Sis.net2 and NCP Academy.

**Croatian participations in Horizon 2020 as extracted on the 1st of June 2018**
**Data Source - This aggregated data is drawn from the European Commission's (EC) database on applicants to Horizon 2020. Data on Horizon 2020 is based on signed grant agreements relating to funding calls.**

**Croatian projects in Horizon 2020 – Table 1.**

| | Priority Area | Number of funded proposals | Net EU Funding contribution (€) |
|---|---|---|---|
| **EXCELLENT SCIENCE** | ERC | 5 | 3 533 606 |
| | FET | 5 | 1 585 418 |
| | MSCA | 30 | 7 669 027 |
| | RI | 27 | 4 605 692 |
| **TOTAL:** | | **67** | **17 393 743** |
| **INDUSTRIAL LEADERSHIP** | ICT | 26 | 7 397 081 |
| | NMP+B | 10 | 2 238 277 |
| | SPACE | 2 | 194 888 |
| | Innovation in SMEs | 13 | 1 795 283 |
| **TOTAL:** | | **51** | **11 625 529** |
| **SOCIETAL CHALLENGES** | HEALTH (SC1) | 27 | 10 643 971 |
| | FOOD (SC2) | 38 | 7 425 720 |
| | ENERGY (SC3) | 85 | 17 552 734 |
| | TRANSPORT (SC4) | 51 | 5 346 670 |
| | CLIMATE (SC5) | 33 | 6 033 053 |
| | Europe in a changing world (SC6) | 23 | 3 723 123 |
| | Secure societies (SC7) | 9 | 732 289 |
| **TOTAL:** | | **266** | **51 457 560** |
| **SPREADING EXCELLENCE AND WIDENING PARTICIPATION** | TEAMING | 1 | 242 000 |
| | TWINNING | 8 | 3 547 886 |
| | ERA chairs | 1 | 2 434 500 |
| | Transnational networks of NCPs | 1 | 24 144 |
| | Spreading excellence and widening participation – Cross-theme | 1 | 147 464 |
| **TOTAL:** | | **12** | **6 395 993** |
| **SCIENCE WITH AND FOR SOCIETY** | Make scientific and technological careers attractive for young people | 3 | 298 418 |
| | Integrate society in science and innovation | 3 | 97 168 |
| | Develop the governance for the advancement of responsible research and innovation | 8 | 1 355 903 |
| | Promote gender equality in research and innovation | 2 | 556 250 |
| | Science with and for Society – Cross-theme | 1 | 20 500 |
| **TOTAL:** | | **17** | **2 328 239** |
| **CROSS-THEME** | Cross-theme | 2 | 726 384 |
| **TOTAL:** | | 2 | 726 384 |
| **EURATOM RESEARCH AND TRAINING PROGRAMME 2014-2018** | EURATOM | 5 | 2 083 440 |
| **TOTAL:** | | **5** | **2 083 440** |

**Croatian projects in Horizon 2020 – Table 2.**

| Number | Organizations | Project Acronym | Net EU Funding Contribution |
|---|---|---|---|
| **Excellent Science I Pillar** | | | |
| **European Reserch Council** | | | |
| 1. | Ruđer Bošković Institute | NewSpindleForce | €2 150 000 |
| 2. | University of Zagreb, School of Medicine | ScienceSquared | €27 813 |
| 3. | University of Zagreb, Faculty of Science | TheONE | €399 575 |
| 4. | University of Split, School of Medicine | GLIOVACC | €149 968 |
| 5. | University of Split, Faculty of Science | SHExtreme | €806 250 |
| **Future and Emerging Technologies** | | | |
| 6. | University of Zagreb, Faculty of Electrical Engineering and Computing | subCULTron | €667 080 |
| 7. | University of Zagreb, Faculty of Electrical Engineering and Computing | MANGO | €436 000 |
| 8. | Ruđer Bošković Institute | RECORD-IT | €349 463 |
| 9. | University of Zagreb, Faculty of Electrical Engineering and Computing | aPad | €99 750 |
| 10. | University of Zagreb, Faculty of Electrical Engineering and Computing | IDEAS | €33 125 |
| **Marie Sklodowska-Curie actions** | | | |
| 11. | University of Zagreb, Faculty of Electrical Engineering and Computing;<br>Xylon Ltd. | ImmerSAFE | €743 283 |
| 12. | University of Zagreb, Faculty of Science;<br>Genos Ltd. | IMforFUTURE | €495 522 |
| 13. | Genos Ltd. | GlySign | €495 522 |
| 14. | University of Split | MIROR | €495 522 |
| 15. | Genos Ltd. | GlyCoCan | €371 641,50 |
| 16. | University of Zagreb, Faculty of Food Technology and Biotechnology;<br>University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture | Phoenix | €306 000 |
| 17. | University of Zagreb, Faculty of Veterinary Medicine | MANNA | €247 761 |
| 18. | University of Rijeka, The Faculty of Medicine | GLYCOVAX | €247 761 |
| 19. | University of Zagreb, Faculty of Science | IGNITE | €247 761 |
| 20. | Green Infrastructure Ltd. | NEUROSOME | €247 761 |
| 21. | University of Zagreb, Faculty of Electrical Engineering and Computing;<br>Specijalni proizvodi od drva Fran Ltd. | papabuild | €229 500 |
| 22. | Ruđer Bošković Institute | BIOXYARN | €170 010 |
| 23. | University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture | STARMAS | €158 010 |
| 24. | University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture | HYDRIDE4MOBILITY | €130 500 |

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|---|---|---|---|
| 25. | Society znanost.org;<br>University of Split;<br>University of Zagreb, Faculty of Electrical Engineering and Computing | CRO-EU-REKA | €107 430 |
| 26. | University of Zagreb, Faculty of Electrical Engineering and Computing<br>SD INFORMATIKA Ltd. | WASTCArD | €94 500 |
| 27. | TOPOMATIKA trodimenzionalno skeniranje, optički mjerni sustavi i računalna obrada Ltd. | A_MADAM | €54 000 |
| 28. | Agency for Mobility and EU Programmes | Net4MobilityPlus | €42 750 |
| 29. | Agency for Mobility and EU Programmes | Net4Mobility | €24 637,50 |
| 30. | University of Rijeka | TAPAS | €0 |
| 31. | University of Zagreb | SPARK | €0 |
| 32. | University of Zagreb, Faculty of Chemical Engineering and Technology;<br>University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture;<br>Comprehensive Water Technology Ltd. | NOWELTIES | €712 101 |
| 33. | University of Zagreb, Faculty of Humanities and Social Sciences | Cleopatra | €474 734 |
| 34. | University of Zagreb, Faculty of Civil Engineering | DuRSAAM | €474 734 |
| 35. | Ministry of Science and Education;<br>University of Zagreb;<br>University of Rijeka;<br>University of Split;<br>University of Zadar;<br>University of Dubrovnik;<br>Josip Juraj Strossmayer University of Osijek;<br>University North;<br>Juraj Dobrila University of Pula;<br>Catholic University of Croatia;<br>Institute for Adriatic Crops and Karst Reclamation;<br>Croatian Science Foundation;<br>State Intellectual Property Office;<br>Ruđer Bošković Institute;<br>Old Church Slavonic Institute;<br>Institute for Social Research in Zagreb;<br>The Mediterranean Institute for Life Sciences | TPTF_ERN | €321 755 |
| 36. | KONČAR – Electrical Engineering Institute, Inc.;<br>University of Zagreb, Faculty of Economics & Business | OpenInnoTrain | €253 000 |
| 37. | University of Rijeka, Faculty of Civil Engineering | THREAD | €237 367 |
| 38. | Ruđer Bošković Institute | MUSICA | €147 464 |
| 39. | University of Zagreb, Faculty of Electrical Engineering and Computing | DORNA | €138 000 |
| 40. | SUVAG Polyclinic for the Rehabilitation of Listening and Speech | Neo-PRISM-C | €0 |
| **Research Infrastructures** | | | |
| 41. | The Croatian Academic and Research Network – CARNET | GN4-2 | €608 591 |
| 42. | University of Zagreb, Faculty of Electrical Engineering and Computing | EUMarineRobots | €301 250 |

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|---|---|---|---|
| 43. | Yotta Advanced Computing Ltd.;<br>Ruđer Bošković Institute | SESAME NET | €229 525 |
| 44. | The Croatian Academic and Research Network – CARNET | GN4-1 | €184 019 |
| 45. | Ruđer Bošković Institute;<br>University of Zagreb, University Computing Centre | EOSC-hub | €182 087,50 |
| 46. | University of Zagreb, University Computing Centre | EGI-Engage | €169 125 |
| 47. | Ruđer Bošković Institute | INDIGO-DataCloud | €142 500 |
| 48. | Ruđer Bošković Institute | OpenAIRE-Advance | €100 000 |
| 49. | Institute of Social Sciences Ivo Pilar | ECDP | €91 861,25 |
| 50. | Ruđer Bošković Institute | AIDA-2020 | €86 440 |
| 51. | Ruđer Bošković Institute | ESSnuSB | €67 333 |
| 52. | Ruđer Bošković Institute | OpenAIRE2020 | €49 000 |
| 53. | Institute of Oceanography and Fisheries | SeaDataCloud | €41 812,50 |
| 54. | University of Zagreb, Faculty of Humanities and Social Sciences | CESSDA-SaW | €19 375 |
| 55. | The Croatian Academic and Research Network – CARNET | BELLA-S1 | €0 |
| 56. | University of Zagreb, Faculty of Geodesy | PRE-EST | €18 750 |
| 57. | Institute of Ethnology and Folklore Research | HaS-DARIAH | €16 250 |
| 58. | Arheological Museum in Zagreb | ARIADNEplus | €60 095 |
| 59. | The Croatian Academic and Research Network – CARNET | OCRE | €31 950 |
| 60. | Ruđer Bošković Institute;<br>University of Zagreb, Faculty of Science | STRONG-2020 | €25 000<br>€32 500 |
| 61. | Ruđer Bošković Institute | RADIATE | €591 500 |
| 62. | University of Zagreb, Faculty of Geodesy | SOLARNET | €62 236 |
| 63. | The Croatian Academic and Research Network – CARNET | GN4-3 | €821 218 |
| 64. | The Croatian Academic and Research Network – CARNET | GN4-3N | €0 |
| 65. | University of Zagreb, University Computing Centre;<br>Ruđer Bošković Institute | NI4OS-Europe | €212 500<br>€187 950 |
| 66. | University of Zadar | OPERAS-P | €64 100 |
| 67. | Institute of Physics | LASERLAB-EUROPE | €66 250 |
| **Industrial Leadership II Pillar** | | | |
| **Information and Communication Technologies** | | | |
| 68. | University of Zagreb, Faculty of Electrical Engineering and Computing;<br>KONČAR - Electrical Engineering Institute, Inc. | SafeLog | €1 066 400 |
| 69. | University of Zagreb, Faculty of Electrical Engineering and Computing;<br>VIPnet Ltd. | symbIoTe | €579 000 |
| 70. | University of Zagreb, The Faculty of Organization and Informatics (FOI);<br>The Croatian Academic and Research Network - CARNET | CRISS | €448 750 |
| 71. | ICENT - Innovation Centre Nikola Tesla;<br>MURAPLAST Ltd. | L4MS | €304 537,50 |

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|---|---|---|---|
| 72. | University of Zagreb, Faculty of Electrical Engineering and Computing; | TETRAMAX | €151 625 |
| 73. | Centre for Peace Studies | PIE News | €122 500 |
| 74. | University of Rijeka, Faculty of Humanities and Social Sciences | e-Confidence | €115 000 |
| 75. | Partnerstvo za društveni razvoj | COMPACT | €66 250 |
| 76. | FabLab association, the association for the promotion of digital fabrication | MAKE-IT | €49 282,50 |
| 77. | Agency for Mobility and EU Programmes | Idealist2018 | €24 937,50 |
| 78. | ZIP - Startup Incubator Ltd. | LIFE | €18 750,00 |
| 79. | Cooperative for Ethical Financing | PROFIT | €21 000 |
| 80. | University of Zagreb, Faculty of Electrical Engineering and Computing | EPI SGA1 | €1 353 750 |
| 81. | The Regional Development Agency Dubrovnik-Neretva County DUNEA;<br>University of Dubrovnik | SeaClear | €815 800 |
| 82. | Ponikve Eco Island Krk, Ltd.;<br>KONČAR-Power Plant and Electric Traction Engineering Inc. | SYNERGY | €512 750 |
| 83. | University of Zagreb, Faculty of Electrical Engineering and Computing | AERIAL-CORE | €463 438 |
| 84. | Agrivi Ltd. for production, trade and services | TheFSM | €360 500 |
| 85. | Penta Ltd. for IT Engineering | AMANDA | €190 000 |
| 86. | Styria Media Services Ltd. for trade and services | EMBEDDIA | €165 750 |
| 87. | ICENT - Innovation Centre Nikola Tesla | DIH² | €152 820 |
| 88. | University of Zagreb, Faculty of Electrical Engineering and Computing | MEEP | €140 000 |
| 89. | University of Dubrovnik | EuConNeCts4 | €89 550 |
| 90. | University of Rijeka, Faculty of Economics and Business | FIN-TECH | €50 000 |
| 91. | DYNNIQ d.o.o. | 5G-DRIVE | €29 910 |
| 92. | DYNNIQ d.o.o. | 5G-HEART | €112 500 |
| 93. | Agency for Mobility and EU Programmes | Idealist2020 | €8 844 |
| **Nanotechnologies, advanced materials, biotechnology, advanced manufacturing and processing** | | | |
| 94. | University of Zagreb, Faculty of Chemical Engineering and Technology | CARBAZYMES | €544 260 |
| 95. | STILLE EKO Ltd. | HEART | €201 250 |
| 96. | University of Zagreb, Faculty of Electrical Engineering and Computing | ENCORE | €316 625 |
| 97. | Infra Plan Consulting | EnDurCrete | €68 750 |
| 98. | Institute for medical Research and occupational Health | RiskGONE | €106 140 |
| 99. | Bio-Mi d.o.o. | ECOAT | €293 000 |
| 100. | Bio-Mi d.o.o. | MANDALA | €238 650 |
| 101. | Bio-Mi d.o.o. | USABLE PACKAGING | €235.688 |
| 102. | Bio-Mi d.o.o. | BIOnTop | €179 814 |
| 103. | Energy Institute Hrvoje Požar | CELEBio | €54 100 |

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|---|---|---|---|
| **Space** | | | |
| 104. | Croatian Forest Research Institute | MySustainableForest | €144 887,50 |
| 105. | Amphinicy Technologies | Blink | €50 000 |
| **Innovation in SMEs** | | | |
| 106. | TERA Tehnopolis Ltd. | KET4CleanProduction | €105 375 |
| 107. | Croatian Agency for SMEs, Innovations and Investments;<br>University of Split;<br>Technology park Varaždin Ltd.;<br>TERA Tehnopolis Ltd. | SSBI-CRO-KAM-2 | €97 377 |
| 108. | FOXY Ltd. | MM | €50 000 |
| 109. | Croatian Agency for SMEs, Innovations and Investments;<br>University of Split;<br>Technology park Varaždin Ltd.;<br>TERA Tehnopolis Ltd.;<br>STEP RI Science and Technology Park of the University of Rijeka Ltd. | SSBI-CRO-KAM3 | €46 312 |
| 110. | STEP RI Science and Technology Park of the University of Rijeka Ltd. | TransUP | €0 |
| 111. | The State Intellectual Property Office of the Republic of Croatia | VIP4SME | €30 000 |
| 112. | Croatian chamber of economy - CCE | InnTense | €0 |
| 113. | University of Split;<br>Technology park Varaždin Ltd.;<br>Croatian Agency for SMEs, Innovations and Investments;<br>TERA Tehnopolis Ltd. | SSBI-CRO-KAM | €18 034 |
| 114. | Razvojna agencija Sisačko-moslovačke županije SI-MO-RA d.o.o. | OaSIS | €5 300 |
| 115. | Amphinicy Technologies | BLINK | €1 265 997 |
| 116. | Croatian Chamber of Economy CCE | DepoSit | €49 938 |
| 117. | Croatian Chamber of Economy CCE;<br>Croatian Agency for SMEs, Innovations and Investments (HAMAB-BICRO);<br>University of Split;<br>Technology Park Varaždin;<br>Tera Tehnopolis Ltd.;<br>The Science and Technology Park of the University of Rijeka | SSBI-CRO-KAM4 | €37 076 |
| 118. | Croatian Chamber of Economy CCE;<br>Croatian Agency for SMEs, Innovations and Investments (HAMAB-BICRO);<br>University of Split;<br>Technology Park Varaždin;<br>Tera Tehnopolis Ltd.;<br>The Science and Technology Park of the University of Rijeka | SSBI-CRO-KAM5 | €78 625 |

| Societal Challenges III Pillar | | | |
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| **Health, demographic change and wellbeing** | | | |
| 119. | University of Zagreb, School of Medicine<br>Genera Inc.<br>General hospital Varaždin<br>SmartMedico Ltd.<br>Triadelta partners Ltd.<br>University of Zagreb, Faculty of Veterinary Medicine | OSTEOproSPINE | €2 537 390 |
| 120. | University of Zagreb, School of Medicine;<br>University of Zagreb, Faculty of Veterinary Medicine;<br>University of Zagreb, Faculty of Science;<br>Clinical Hospital "Sveti Duh" | BIO-CHIP | €967 000 |
| 121. | Genos Ltd.;<br>University of Zagreb, Faculty of Science | SYSCID | €880 050 |
| 122. | Genos Ltd.;<br>University of Split, Faculty of Science | Back-UP | €615 686,25 |
| 123. | Croatian Institute of Public Health;<br>University Hospital Centre Zagreb | RECOVER-E | €472 985 |
| 124. | Agency for Quality and Accreditation in Health Care and Social Welfare | SELFIE | €295 373,75 |
| 125. | University Hospital for Infectious Diseases "Dr. Fran Mihaljevic " | EmERGE | €281 104,50 |
| 126. | Croatian Institute of Public Health | I-MOVE-plus | €217 500 |
| 127. | Croatian Institute of Public Health | HBM4EU | €181 480,75 |
| 128. | Institute of Public Health Osijek-Baranja county | EVOTION | €145 000 |
| 129. | Children's Hospital Zagreb | EUROlinkCAT | €144 100 |
| 130. | The Ministry of Science and Education | ERA PerMed | €99 412,50 |
| 131. | University of Zagreb, School of Medicine | Alliance4Life | €95 250 |
| 132. | University of Zagreb, School of Medicine | FAPIC | €91 250 |
| 133. | Agency for Mobility and EU Programmes | HNN 2.0 | €42 375 |
| 134. | Croatian Health Insurance Fund | ASSESS CT | €15 000 |
| 135. | University of Zagreb, School of Medicine | JPsustaiND | €12 500 |
| 136. | University Clinical Hospital Center "Sestre Milosrdnice" | EUthyroid | €11 125 |
| 137. | Croatian Health Insurance Fund | EURO-CAS | €8 125 |
| 138. | Ericsson Nikola Tesla D.D. | PHArA-ON | €439 338 |
| 139. | Dom zdravlja Zagreb - Centar<br>Clinical Hospital " Sestre milosrdnice'' | HSMonitor | €1 066 500 |
| 140. | Children's Hospital Zagreb (Klinika za dječje bolesti Zagreb) | EJP RD | €0 |
| 141. | Genos ltd. | 3TR | €106 502 |
| 142. | University of Rijeka, Faculty of Medicine | VALUECARE | €255 000 |
| 143. | University of Zagreb, School of Medicine | LiverScreen | €225 000 |
| 144. | University of Rijeka, Faculty of Humanities and Social Science<br>Ministry of Labour and the Pension System | MindBot | €615 875 |

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| 145. | Agency for Medicinal Products and Medical Devices<br>Croatian Health Insurance Fund | UNICOM | €594 750 |
| **Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy** | | | |
| 146. | University of Zagreb, Faculty of Agriculture<br>INA-Industrija nafte, d.d. | GRACE | €704 000 |
| 147. | MI-PLAST Ltd. | PULPACKTION | €545 885,38 |
| 148. | MI-PLAST Ltd. | HYPERBIOCOAT | €461 855 |
| 149. | MI-PLAST Ltd.<br>SAPONIA D.D. | FUNGUSCHAIN | €427 426 |
| 150. | University of Zagreb, Faculty of Economics and Business<br>KONZUM d.d. | Strength2Food | €391 500 |
| 151. | The International Centre for Sustainable Development of Energy, Water and Environment Systems;<br>Eko Kvarner Organisation | AgroCycle | €341 730 |
| 152. | Institute of Oceanography and Fisheries | ParaFishControl | €314 780 |
| 153. | Bio-mi Ltd.;<br>AquafilCRO d.o.o | EFFECTIVE | €421 670,23 |
| 154. | MI-PLAST Ltd. | AFTERLIFE | €182 250 |
| 155. | Institute of Oceanography and Fisheries | BLUEMED | €170 000 |
| 156. | IPS Konzalting Ltd. | Nutri2Cycle | €164 843,75 |
| 157. | Croatian chamber of economy CCE;<br>Ruđer Bošković Institute | PerformFISH | €159 147,50 |
| 158. | MI-PLAST Ltd. | REFUCOAT | €156 825,00 |
| 159. | University of Zagreb, Faculty of Agriculture;<br>Josip Juraj Strossmayer University of Osijek, Faculty of Agriculture in Osijek | TREASURE | €154 916,25 |
| 160. | University of Zagreb, The Faculty of Kinesiology | STOP | €150 369,65 |
| 161. | MI-PLAST Ltd. | RES URBIS | €127 500 |
| 162. | Croatian Veterinary Institute | MedAID | €125 041,25 |
| 163. | Local action group LAG 5 | HNV-Link | €121 670 |
| 164. | Croatian Agricultural and Forestry Advisory Service | NEFERTITI | €96 296,25 |
| 165. | Croatian Forest Research Institute | INCREdible | €96 281,25 |
| 166. | Public Institution for the Development of the Međimurje County REDEA | TRUE | €91 003,75 |
| 167. | Institute of Agriculture and Tourism Poreč | WINETWORK | €90 687,50 |
| 168. | Institute of Agriculture and Tourism Poreč | OLEUM | €73 741 |
| 169. | Particula Group Ltd. | BIOBRIDGES | €72 375 |
| 170. | Croatian Agricultural and Forestry Advisory Service | PLAID | €48 375 |
| 171. | The Nature Park Medvednica | SINCERE | €45 843 |
| 172. | SAPONIA D.D. | EMBRACED | €44 187,50 |
| 173. | Agency for Mobility and EU Programmes | BioHorizon | €39 187,50 |
| 174. | Mreža savjetodavnih službi jugoistočne Europe | FAIRshare | €451 663 |
| 175. | SDEWES Centre | BE-Rural | €280 475 |
| 176. | Mreža savjetodavnih službi jugoistočne Europe | i2connect | €83 002 |
| 177. | IPS Konzalting | FERTIMANURE | €202 437 |

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| 178. | University of Split | FF-IPM | €168 250 |
| 179. | Competence Centre Ltd. for research and development | ROSEWOOD4.0 | €137 500 |
| 180. | Cromaris d.d. | NewTechAqua | €130 778 |
| 181. | Energy Institute Hrvoje Požar | BIOEASTsUP | €117 625 |
| 182. | Ministry of Science and Education | BlueBio | €89 786 |
| 183. | Hrvatska poljoprivredno-šumarska savjetodavna služba; Ministarstvo poljoprivrede | DESIRA | €59 770 |
| **Secure, clean and efficient energy** | | | |
| 184. | Croatian Transmission System Operator Ltd.; KONČAR-Power Plant and Electric Traction Engineering Inc.; University of Zagreb Faculty of Electrical Engineering and Computing | CROSSBOW | €1 217 300 |
| 185. | University of Zagreb Faculty of Electrical Engineering and Computing | MEET | €433 747,50 |
| 186. | North-west Croatia Regional Energy Agency; The International Centre for Sustainable Development of Energy, Water and Environment Systems | BioVill | €397 571,25 |
| 187. | Development Agency Zagreb - TPZ Ltd; North-west Croatia Regional Energy Agency | E-FIX | €295 250 |
| 188. | The International Centre for Sustainable Development of Energy, Water and Environment Systems; City of Osijek; Agency for Transactions and Mediation in Immovable Properties | FosterREG | €279 718,75 |
| 189. | University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture; The International Centre for Sustainable Development of Energy, Water and Environment Systems | CoolHeating | €268 587,50 |
| 190. | University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture; North-west Croatia Regional Energy Agency | KeepWarm | €253 097,50 |
| 191. | University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture; North-west Croatia Regional Energy Agency | PentaHelix | €251 125 |
| 192. | Institute for Political Ecology | mPOWER | €244 062,50 |
| 193. | University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture; City of Velika Gorica | Planheat | €230 875 |
| 194. | City of Zagreb; Energy Institute Hrvoje Požar | URBAN LEARNING | €208 637,50 |
| 195. | Zagreb City Holding Ltd.; University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture; | Bin2Grid | €194 089,74 |
| 196. | Energy Efficiency and Environmental Protection Fund | ERANet SmartGridPlus | €193 511,34 |
| 197. | North-west Croatia Regional Energy Agency | BioRES | €193 125 |
| 198. | Institution Regional Energy Agency Kvarner; Primorje-Gorski Kotar County; Istrian County | SIMPLA | €174 993,75 |

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| 199. | Energy Institute Hrvoje Požar | REEEM | €172 750 |
| 200. | University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture | PROSEU | €169 000 |
| 201. | North-west Croatia Regional Energy Agency | IMPLEMENT | €168 676,25 |
| 202. | Energy Institute Hrvoje Požar | EnPC-INTRANS | €167 473 |
| 203. | North-west Croatia Regional Energy Agency | EmBuild | €165 075 |
| 204. | Studio Elektronike Rijeka Ltd. | FLEXITRANSTORE | €159 250 |
| 205. | KONČAR - Electrical Engineering Institute, Inc. | FLEXCoop | €150 000 |
| 206. | KONČAR - Electrical Engineering Institute, Inc. | HOLISDER | €142 625 |
| 207. | City of Rijeka | mySMARTLife | €140 625 |
| 208. | IRENA - Istrian Regional Energy Agency Ltd | HAPPEN | €139 237,50 |
| 209. | Energy Institute Hrvoje Požar | multEE | €135 540 |
| 210. | IDA Ltd. Istrian Development Agency | EMPOWERING | €128 375 |
| 211. | Croatia Green Building Council | BUILD UPON | €127 625 |
| 212. | University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture, | Upgrade DH | €123 125 |
| 213. | Energy Institute Hrvoje Požar | BiogasAction | €121 500 |
| 214. | Ministry of Construction and Physical Planning | CAV_EPBD | €120 915 |
| 215. | Energy Institute Hrvoje Požar | BIMcert | €113 736,25 |
| 216. | Energy Institute Hrvoje Požar | TRUST-EPC-SOUTH | €112 750 |
| 217. | North-west Croatia Regional Energy Agency | C-Track 50 | €104 088,75 |
| 218. | Society For Sustainable Development Design | COMPETE4SECAP | €102 957,50 |
| 219. | University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture; | CEN-CE | €100 000 |
| 220. | Energy Institute Hrvoje Požar | START2ACT | €92 287,50 |
| 221. | University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture; | AutoRE | €83 750 |
| 222. | Zelena energetska zadruga | Biomasud Plus | €83 562,50 |
| 223. | University of Zagreb, Faculty of Civil Engineering | Fit-to-nZEB | €82 980 |
| 224. | Croatian Chamber of Agriculture | uP_running | €78 573,75 |
| 225. | Ministry of Construction and Physical Planning | CAIV_EPBD | €77 250 |
| 226. | Ministry of Environment and Energy | CA-RES3 | €71 964 |
| 227. | Center for Monitoring Business Activities in the Energy Sector and Investments | PUBLENEF | €66 664,48 |
| 228. | University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture | HRE | €64 250 |
| 229. | Croatian chamber of mechanical engineers | PROF-TRAC | €61 057,50 |
| 230. | Energy Institute Hrvoje Požar | EPATEE | €59 917,50 |
| 231. | Energy Efficiency and Environmental Protection Fund | EN SGplusRegSys | €59 812,50 |
| 232. | Energy Institute Hrvoje Požar | Bioenergy4Business | €51 027,50 |
| 233. | University of Zagreb,Faculty of Civil Engineering | Net-UBIEP | €50 437,50 |
| 234. | Rimac Automobili Ltd. | HybridBatteryPack | €50 000 |
| 235. | INCLUDE Ltd. for the production of electrical equipment | Steora | €50 000 |
| 236. | Ministry of Environment and Energy | CA-EED 2 | €36 166,25 |

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| 237. | Ministry of Economy, Entrepreneurship and Crafts | MSTYR15 | €32 730,75 |
| 238. | City of Zagreb | CITYKEYS | €31 750 |
| 239. | Energy Institute Hrvoje Požar | ODYSSEE-MURE | €28 990 |
| 240. | Agency for Mobility and EU Programmes | C-ENERGY 2020 | €22 000 |
| 241. | University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering | ENOS | €77 250 |
| 242. | WWF Adria;<br>Faculty of Mechanical Engineering and Naval Architecture;<br>Ericsson Nikola Tesla D.D.;<br>Vodoopskrba i odvodnja Cres Losinj D.O.O.;<br>Regional Energy Agency Kvarner | INSULAE | €2 048 321,25 |
| 243. | Faculty of Mechanical Engineering and Naval Architecture;<br>Health Resort Topusko | REWARDHeat | €1 459 875 |
| 244. | CIRKULARNI ENERGETSKI RESURSI d.o.o. za projektiranje i izgradnju energetskih postrojenja | WEDISTRICT | €816 812,5 |
| 245. | HEP-OPERATOR DISTRIBUCIJSKOG SUSTAVA DOO ZA DISTRIBUCIJU I OPSKRBU ELEKTRICNE ENERGIJED.O.O.;<br>University of Zagreb, Faculty of Electrical Engineering and Computing | FLEXIGRID | €722 875 |
| 246. | Croatian Transmission System Operator;<br>University of Zagreb, Faculty of Electrical Engineering and Computing;<br>Studio Elektronike Rijeka d. o. o. | FARCROSS | €537 400 |
| 247. | University of Zagreb, Faculty of Electrical Engineering and Computing;<br>CROATIAN TRANSMISSION SYSTEM OPERATOR | FLEXGRID | €398 250 |
| 248. | REGEA North-West Croatia Regional Energy Agency;<br>Energy Institute Hrvoje Požar;<br>International Center for Sustainable Development of Energy, Water and Environment | REPLACE | €323 792,5 |
| 249. | Society For Sustainable Development Design | EmpowerMed | €308 618,75 |
| 250. | KONČAR - Power Plant and Electric Traction Engineering | BALIHT | €293 875 |
| 251. | Green Energy Cooperative | COMPILE | €259 262,5 |
| 252. | KONČAR - Power Plant and Electric Traction Engineering | TRINITY | €199 302,25 |
| 253. | Green Energy Cooperative | AgroBioHeat | €197 825 |
| 254. | Energy Institute Hrvoje Požar | LABEL 2020 | €110 233,75 |
| 255. | Croatia Green Building Council (CGBC) | BUILD UPON2 | €107 825 |
| 256. | ADRIA WINCH D.O.O. FOR PRODUCTION, DESIGN, TRAFFIC AND SERVICES | FLOTANT | €107 530 |
| 257. | REGEA North-West Croatia Regional Energy Agency | CitizEE | €104 875 |
| 258. | Faculty of Mining, Geology and Petroleum Engineering | STRATEGY CCUS | €73 650 |
| 259. | REGEA North-West Croatia Regional Energy Agency | SocialRES | €73 500 |
| 260. | HEP - ESCO d.o.o. for managing and financing energy efficiency projects | SocialWatt | €68 375 |
| 261. | Ministry of Economy, Entrepreneurship and Crafts | EEPLIANT3 | €50 911,59 |
| 262. | Energy Institute Hrvoje Požar | ODYSSEE-MURE | €43 153,75 |

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| 263. | Energy Institute Hrvoje Požar | ENSMOV | €38 945 |
| 264. | Agency for Mobility and EU Programmes | C-Energy 2020 V2 | €18 675 |
| 265. | Croatian Geological Society | CROWDTHERMAL | €8750 |
| 266. | REGEA NORTH-WEST CROATIA REGIONAL ENERGY AGENCY | EUCF | €26 850 |
| 267. | CROATIAN BIOGAS ASSOCIATION | REGATRACE | €17 750 |
| 268. | Croatian Geological Society | REFLECT | €7893,75 |
| **Smart, green and integrated transport** | | | |
| 269. | Alveus Ltd. | COMPA 2GO | €612 000 |
| 270. | University of Zagreb, Faculty of Civil Engineering;<br>HŽ Infrastruktura Ltd.;<br>Infra Plan Consulting | SAFE-10-T | €255 000<br>€26 250<br>€197 500 |
| 271. | DOK-ING Ltd. | JOSPEL | €324 687,50 |
| 272. | University of Rijeka, The Faculty of Medicine | PIXEL | €307 500 |
| 273. | University of Split, Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture | Giantleap | €296 250 |
| 274. | University of Zagreb, Faculty of Civil Engineering;<br>HŽ Infrastruktura Ltd. | DESTinationRAIL | €213 750<br>€75 000 |
| 275. | University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture | QUIET | €253 781,25 |
| 276. | University of Zagreb, Faculty of Civil Engineering;<br>HŽ Infrastruktura Ltd.;<br>Infra Plan Consulting | GoSAFE RAIL | €80 000<br>€35 000<br>€122 500 |
| 277. | Alveus Ltd. | SHIPLYS | €226 250 |
| 278. | Croatian Post d.d. | COG-LO | €219 062,50 |
| 279. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ18 4DTM | €162 258,79 |
| 280. | ULJANIK Group | HOLISHIP | €140 875 |
| 281. | ULJANIK Group | RAMSSES | €136 893,75 |
| 282. | City of Zagreb | SocialCar | €112 101 |
| 283. | City of Koprivnica;<br>City of Dubrovnik | Prosperity | €93 956,50 |
| 284. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ10 PROSA | €78 187,48 |
| 285. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ05 Remote Tower | €70 381,53 |
| 286. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ04 TAM | €56 080,29 |
| 287. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ06 ToBeFREE | €55 452,11 |
| 288. | Alveus d.o.o. | COMPA | €50 000 |
| 289. | TEMA Ltd. | PerMarDrive | €50 000 |
| 290. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ24 NCM | €47 987,42 |
| 291. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ01 EAD | €36 074,24 |
| 292. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ20 AMPLE | €31 202,47 |
| 293. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ16 CWP HMI | €25 167 |
| 294. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ09 DCB | €16 209,07 |
| 295. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ15 COSER | €15 996,34 |

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| 296. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ19 CI | €15 483,93 |
| 297. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ14 EECNS | €10 088,03 |
| 298. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ27 IOPVLD | €6 552,26 |
| 299. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ02 EARTH | €0 |
| 300. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ03a SUMO | €0 |
| 301. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ25 XSTREAM | €0 |
| 302. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ31 DIGITS | €0 |
| 303. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ17 SWIM-TI | €0 |
| 304. | Association "Cyclists' Union | MoTiV | €12 660 |
| 305. | Flow Ship Design | LASH FIRE | €187 644 |
| 306. | Faculty of Transport and Traffic Sciences<br>Croatia Control, Croatian Air Navigation Service Ltd. | PJ09-W2 DNMS | €121 964 |
| 307. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ18-W2 4D Skyways | €120 719 |
| 308. | City of Zagreb | TRIPS | €77500 |
| 309. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ10-W2 PROSA | €45172,07 |
| 310. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ05-W2 DTT | €40654,86 |
| 311. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ19-W2 CI | €0 |
| 312. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ20-W2 AMPLE | €0 |
| 313. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ02-W2 AART | €0 |
| 314. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ13 - W2 ERICA | €0 |
| 315. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ14-W2 I-CNSS | €0 |
| 316. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ01-W2 EAD | €0 |
| 317. | Croatia Control, Croatian Air Navigation Service Ltd. | PJ04-W2 TAM | €0 |
| 318. | City of Zadar | Park4SUMP | €47 588 |
| 319. | City of Dubrovnik | CityChangerCargoBike | €131 156 |
| **Climate action, environment, resource efficiency and raw materials** | | | |
| 320. | City of Zagreb, Office of Strategic Planning and Development of the City;<br>University of Zagreb, Faculty of Architecture;<br>Bureau for Physical Planning;<br>Komfor Klima Grupa Ltd. for production, trade and services;<br>NGO Green and Blue Sesvete | proGIreg | €1 457 981,38 |
| 321. | MI-PLAST Ltd.;<br>SAPONIA D.D.;<br>City of Rijeka | CIRC-PACK | €652 700 |
| 322. | Croatian Meteorological and Hydrological Service;<br>National Protection and Rescue Directorate;<br>University of Applied Sciences Velika Gorica | EU-CIRCLE | €540 416 |
| 323. | PRONING DHI Ltd. | RECONECT | €180 037,08 |
| 324. | City of Rijeka | CLIC | €171 612,50 |
| 325. | Croatian Geological Survey | GeoERA | €151 594,54 |
| 326. | Particula Group Ltd. | C-SERVEES | €139 300 |
| 327. | University of Zagreb, Faculty of Science | MERCES | €135 000 |
| 328. | Competence Centre Ltd. for research and development;<br>Croatian Forest Research Institute | ROSEWOOD | €127 656,25 |

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| 329. | City of Zadar | GROW GREEN | €119 620 |
| 330. | The Regional Development Agency Dubrovnik-Neretva County DUNEA | UrBAN-WASTE | €87 781,25 |
| 331. | Agency for Mobility and EU Programmes | NCPs CaRE | €74 000 |
| 332. | Zagreb City Holding Ltd. | PPI4Waste | €68 937,50 |
| 333. | BRUNCIN Ltd. | AtlantOS | €68 750 |
| 334. | University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering | MIN-GUIDE | €59 551,25 |
| 335. | Particula Group Ltd. | Project O | €55 737,50 |
| 336. | Zavod za prostorno uređenje Koprivničko-križevačke županije | MINATURA 2020 | €43 187,50 |
| 337. | Primorje-Gorski Kotar County | SCREEN | €26 357,64 |
| 338. | Hamburger Recycling ENS Ltd. | IMPACTPapeRec | €22 565,96 |
| 339. | Croatian Geological Society | INTRAW | €5 097,04 |
| 340. | Croatian Geological Society | KINDRA | €8 758,99 |
| 341. | Croatian Geological Survey | MICA | €6 250 |
| 342. | Croatian Geological Survey | Minland | €10 000 |
| 343. | Croatian Geological Survey | ProSUM | €9 500 |
| 344. | Croatian Geological Survey | FORAM | €10 625 |
| 345. | I.G.K. RECIKLAŽA Ltd. za proizvodnju, trgovinu i usluge | CINDERELA | €0 |
| 346. | Croatian Geological Society | INFACT | €5 000 |
| 347. | Croatian Agency for the Environment and Nature - HAOP | ESMERALDA | €0 |
| 348. | SDEWES Centre | LOCOMOTION | €465 000 |
| 349. | The Green Energy Cooperative | REGREEN | €291 211 |
| 350. | International Sava River Basin Commission | SHELTER | €209 365 |
| 351. | Croatian Forest Research Institute | CLEARING HOUSE | €36 563 |
| 352. | Croatian Geological Society | ROBOMINERS | €7000 |
| **Europe in a changing world - inclusive, innovative and reflective Societies** | | | |
| 353. | Institute of Social Sciences Ivo Pilar | CHIEF | €358 867,50 |
| 354. | Span Ltd.;<br>City of Rijeka | COGOV | €358 703,75 |
| 355. | University of Zagreb, Faculty of Civil Engineering | INCEPTION | €251 845 |
| 356. | Institute of Ethnology and Folklore Research | INFORM | €225 775 |
| 357. | Institute of Social Sciences Ivo Pilar | PROMISE | €145 832,50 |
| 358. | Croatian Institute of History | COURAGE | €143 950 |
| 359. | Social Innovation Laboratory (SIL) | SIC | €130 775 |
| 360. | University of Zagreb, Faculty of Humanities and Social Sciences | ACCOMPLISSH | €123 213,75 |
| 361. | Institute of Social Sciences Ivo Pilar | DARE | €99 667,50 |
| 362. | The Institute of Economics, Zagreb | I3U | €98 750 |
| 363. | University of Zagreb, Faculty of Architecture | DOIT | €76 625 |
| 364. | Croatian Academy of Sciences and Arts | HERA JRP UP | €67 408,26 |
| 365. | University of Zagreb, Faculty of Teacher Education | YOUNG_ADULLLT | €61 490 |
| 366. | Croatian Academy of Sciences and Arts | HERA-JRP-PS | €50 000 |

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| 367. | Agency for Mobility and EU Programmes | NET4SOCIETY4 | €35 460 |
| 368. | University of Rijeka; City of Rijeka | MESOC | €358 438 |
| 369. | University of Split, Faculty of Economics, Business and Tourism | SmartCulTour | €340 001 |
| 370. | University of Zagrb, Faculty of Humanities and Social Sciences | FOCUS | €306 061 |
| 371. | Institute of Social Sciences Ivo Pilar | INVENT | €269 730 |
| 372. | Institute for Development and International Relations | SoPHIA | €154 375 |
| 373. | Centre for Peace Studies | MiCREATE | €43 250 |
| 374. | Juraj Dobrila University of Pula | InDivEU | €16 250 |
| 375. | Agency for Mobility and EU Programmes | Net4Society 5 | €6 656 |
| **Secure societies - Protecting freedom and security of Europe and its citizens** | | | |
| 376. | University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering;<br>Ministry of the Interior | EXERTER | €100 925 |
| 377. | National Protection and Rescue Directorate | DAREnet | €97 625 |
| 378. | Police Academy of the Ministry of the Interior of the Republic<br>of Croatia | PROPHETS | €85 000 |
| 379. | Police Academy of the Ministry of the Interior of the Republic<br>of Croatia | Unity | €60 000 |
| 380. | Ministry of the Interior | BROADMAP | €48 000 |
| 381. | Agency for Mobility and EU Programmes | SEREN 3 | €30 095 |
| 382. | Agency for Mobility and EU Programmes | SEREN 4 | €27 593,75 |
| 383. | Zagreb International Airport | SATIE | €184 800 |
| 384. | Ministry of the Interior | ROXANNE | €98 250 |
| **Spreading Excellence and Widening Participation** | | | |
| **Spreading Excellence and Widening Participation** | | | |
| 385. | Ruđer Bošković Institute | PaRaDeSEC | €2 434 500 |
| 386. | Ruđer Bošković Institute | RBI-T-WINNING | €696 592,50 |
| 387. | University of Zagreb, Faculty of Agriculture;<br>Faculty of Science of the University of Zagreb;<br>Croatian Academy of Sciences and Arts;<br>Institute for Anthropological Research;<br>Croatian Natural History Museum;<br>Centar za kulturu Vela Luka | MendTheGap | €565 219,39 |
| 388. | The Institute of Economics, Zagreb | SmartEIZ | €407 285 |
| 389. | University of Zagreb, Faculty of Electrical Engineering and Computing | EXCELLABUST | €381 225 |
| 390. | University of Zagreb, Faculty of Electrical Engineering and Computing;<br>ICENT - Innovation Centre Nikola Tesla | ACROSS | €242 000 |
| 391. | University of Zagreb, Faculty of Electrical Engineering and Computing | AeRoTwin | €294 106 |
| 392. | University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture | INEX-ADAM | €342 838 |

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|---|---|---|---|
| 393. | Croatian Geological Survey | GeoTwinn | €419 425 |
| 394. | University of Zagreb, Faculty of Geodesy | TODO | €92 267,50 |
| 395. | Agency for Mobility and EU Programmes | NCP_WIDE.NET | €24 143,75 |
| 396. | Ruđer Bošković Institute | STREPUNLOCKED | €147 464 |
| | **SWAFS** | | |
| **Science with and for Society** | | | |
| 397. | University of Split, School of Medicine | EnTIRE | €446 000 |
| 398. | University of Split, School of Medicine | VIRT2UE | €288 152,50 |
| 399. | Agency for Mobility and EU Programmes | EURAXESS TOP III | €129 293 |
| 400. | Ericsson Nikola Tesla d.d. | LIV.IN | €112 125 |
| 401. | University of Split | HEIRRI | €97 650 |
| 402. | Catholic University of Croatia | PRO-RES | €92 500 |
| 403. | Agency for Mobility and EU Programmes | EURAXESS TOP IV | €71 475 |
| 404. | ODRAZ - Sustainable Community Development | CIMULACT | €51 375 |
| 405. | Agency for Mobility and EU Programmes | NCP ACADEMY | €45 000 |
| 406. | Agency for Mobility and EU Programmes | SiS.net2 | €23 500 |
| 407. | Blue World Institute of Marine Research and Conservation | SPARKS | €36 693 |
| 408. | Agency for Mobility and EU Programmes | NCP Academy | €20 500 |
| 409. | University of Split, School of Medicine | SOPs4RI | €225 625 |
| 410. | University of Zagreb, Faculty of Agriculture | RESBIOS | €97 250 |
| 411. | Agency for Mobility and EU Programmes | SiS.net 3 | €9 100 |
| 412. | University of Zagreb, Faculty of Electrical Engineering and Computing | CALIPER | €229 375 |
| 413. | Academy of Applied Arts, University of Rijeka; University of Rijeka, Faculty of Law in Rijeka; University of Rijeka; University of Rijeka, Faculty of Humanities and Social Sciences | SPEAR | €326 875 |
| | **Cross theme** | | |
| **Cross-theme** | | | |
| 414. | Green Infrastructure Ltd. | ShaleSafe | €264 670 |
| 415. | INETEC – Institute for Nuclear Technology | CreepUT | €461 713,88 |
| | **EURATOM** | | |
| **Euratom** | | | |
| 416. | Ruđer Bošković Institute | EUROfusion | €188 160 |
| 417. | APOSS-analize pouzdanosti i sigurnosti sustava Ltd. za usluge i inženjering | NARSIS | €113 976 |
| 418. | Institute of Physics | M4F | €70 000 |
| 419. | Institute for Medical Research and Occupational Health | CONCERT | €34 998,41 |
| 420. | Ruđer Bošković Institute | DONES-PreP | €221 198 |

# Notes