

B2B Events 0617							
RIF PROPOSAL NUMBER	TITLE	COORDINATOR	HOST ORGANIZATION	PARTNER ORGANIZATION	PROJECT BUDGET	RIF FUNDING	PUBLISHABLE SUMMARY
ENTERPRISES/0618/0129	Production of high added-value commodities through integrated management of citrus processing industry waste	Georgios Panagiotou	KEAN SOFT DRINKS LIMITED	PA 1: Cyprus University of Technology	227.105,00€	187.180,00€	Citrus waste (CW) represents an example of a problem that could become a solution. Considering the rich composition of CW in functional molecules, the valorization of CW through the production of added-value commodities is of great interest for the processing industries (CPIs). Current studies have been mainly focused on valorization of CW through 1st generation technologies reducing the high value of CW constituents to low cost fuels, fertilizers and animal feed. The project will develop a novel zero-waste biorefinery exploring a range of CPI waste for production of food additives (essential oils (EO), pectin, biomaterials (bacterial cellulose) and bioenergy (biomethane) reducing environmental impact, increasing efficiency and lowering costs of production for processing of a spectrum of end-products. The production of EO will be conducted at pilot scale via a sono-assisted reactor enabling both product isolation at high rates and biomass pretreatment for generating the rest of the commodities planned. Different physical, chemical and biological pretreatment methods will be compared to identify the most efficient process for polysaccharides' hydrolysis extraction of EO and pectin, while a sono-assisted acid hydrolysis pilot plant will be constructed. A detailed characterization of the EO will be conducted to optimized its maximum productivity of the advanced biomaterial. The composition of EO and pectin will be characterized, while the structure of bacterial celluloses will be assessed to identify potential commercialization pathways and anaerobic digestion will be used to produce biogas from remaining residues. Cost-benefit analysis and the commercialization plan will assist in maximizing the potential for industrial application. The major goal of the project will be the production of EO at high rates soon after project completion and the development of a sustainable waste valorization plan with applicability to other agroindustrial sectors.
ENTERPRISES/0618/0132	Semantically-enhanced IoT-enabled Building Analytics and Diagnostics	Demetrios Eliades	Phoebe Research and Innovation Ltd	PA 1: University of Cyprus PA 2: Cyprus Sustainable Tourism Initiative	263.880,00 €	198.936,00 €	We spend a big part of our lives in buildings and we require them to offer a comfortable and safe environment, and in addition operated in a cost-effective manner. Therefore, many large-scale buildings are already equipped with Building Automation Systems (BAS) and sub-systems such as lighting, heating, cooling, water supply, etc. (IoT). In addition, there are other systems such as heating, ventilation and air-conditioning (HVAC). Current BAS solutions typically assume pre-deployed devices, as well as pre-designed monitoring and control intelligence. However, the emerging level of maturity of the Internet of Things (IoT) paradigm and the subsequent proliferation and high penetration of small portable and embedded devices (including sensors on mobile devices) that can be deployed in buildings, opens up new opportunities for better monitoring and control of the building and the environment in a context-aware framework. Domognosics+ aims to exploit IoT inherent flexibility and add seamless monitoring and control intelligence in Buildings, towards performing better against certain Quality of Service (QoS) criteria related to occupants' comfort, energy efficiency, quality of the air, robustness of the solution, and so on. The project will research, develop and evaluate an innovative low-cost intelligent system for monitoring and controlling buildings in order to operate more efficiently, reduce energy consumption and control their building systems, and reduce their operational expenses due to systems' inefficiencies, as well as previously undetected events (e.g., water leakages, energy wastes), based on state-of-the-art research-based data-analytics, machine-learning and artificial intelligence methods. The Domognosics+ product comprises the Domognosics+ Platform, an IoT gateway device, a semantically-enhanced supervisory system and a range of smart building apps. The product will be offered as a Web service to building operators with decision support (from analytics, event detection and semantic reasoning/inference).
ENTERPRISES/0618/0158	Rosa damascena: how to maximize the quality of its extracts	Andria Tsolaki	CHRIS N.TSOLAKIS LTD	PA 1: RTD Talco Ltd PA 2: cp foodlab ltd PA 3: SIGINT SOLUTIONS LIMITED	285.440,40 €	199.807,00 €	The general purpose of this project is to maximize the quality of rose-water obtained from roses of the species of Rosa damascena Mill. (Rosaaceae) (Damask Rose) simultaneously with an attempt to minimize the costs related to its production while creating a more competitive product in terms of consumers' satisfaction. We therefore aim to improve the Cypriot rose-water and promote it to a capable product that can compete at an international level, not only by economic criteria but mainly by quality criteria. The main objective of this study we aim to improve the rose-water production, our approach will be by finding the ideal conditions related to harvesting time, storage conditions and distillation parameters and thus by developing a prototype of a standardized production protocol which will minimize the production costs. This high quality rose-water can be promoted in pharmaceutical and cosmetic industries due to its therapeutic properties. The major objectives of this project are: 1)To examine the morphological characteristics of the R. damascena roses and the chemical composition (including phenolic profile and essential oil) of rose-water produced from the aforementioned; 2)To examine the role of harvesting time, storage conditions and distillation conditions in the resulting quality of rose-water obtained from the flowers; 3)To examine the chemical and sensory quality of rose-water in terms of harvesting time, storage conditions and distillation conditions; 4)To develop a prototype of a standardized production protocol that will ensure constant high quality production, maximizing the efficiency of the procedure and thus, minimizing the production costs.
ENTERPRISES/0618/0012	PROSTAtc cancer ablation with a 4D robotic system using thermal ultraSONIC waves under MRI guidance.	Marinos Giannakou	MEDSONIC LIMITED	PA 1: Cyprus University of Technology PA 2: YGIA POLYCLINIC	228.266,80 €	192.565,00 €	PROSTASONIC addresses a major social challenge such as treatment of prostate cancer using therapeutic ultrasound under magnetic resonance imaging (MRI). Prostate cancer is one of the leading causes of death in males and therefore, there is a need for improved therapeutic methods. The goal is to produce an advanced prototype robotic system with 4 degrees of freedom (4D) for prostate ablation using thermal ultrasound waves under MR guided focused ultrasound (MRgFUS). The intended application is to use this system for focal ablation of prostate cancer. The tissue heating can be accurately monitored using MR thermometry. The proposed transducer will be compact (around 30 mm in diameter) and will operate with a frequency close to 3 MHz. A software will be developed that will control this medical device. The system will be evaluated in phantoms and by the end of the program all the necessary documents for commercialization will be ready (patent, clinical trials-Phase I, and CE marking).

ENTERPRISES/0618/0057	IoT based Continuous Environmental Monitoring for Health Analytics	Demetris Antoniades	CY.R.I.C CYPRUS RESEARCH AND INNOVATION CENTER LTD	PA 1: Erevnitiko Idryma P. L. Limited PA 2: YGIA POLYCLINIC	268.186,20 €	199.967,14 €	<p>Snow-IoT™ aims to research the applicability of Internet of Things enabled continuous environmental monitoring for better health care, better design of urban environments and in according to the general public awareness regarding health and sustainable living, related to their habitat environment.</p> <p>Snow-IoT will utilize data from IoT sensors as well as aggregated statistics from healthcare providers in order to better plan IoT sensor installation, provide analytic and insights on the environmental conditions and research causality models that can be derived by the data correlations observed. The results of the project will become available through an enhanced insights platform providing additional data to health care providers as well as continuously analyzing risk and offer awareness to the general public.</p>
ENTERPRISES/0618/0157	Automated In-situ Cyanotoxin Assessment Toolbox for Real-Time Surface Water Monitoring	Antonis Hadjantonis	CY.R.I.C CYPRUS RESEARCH AND INNOVATION CENTER LTD	PA 1: Cyprus University of Technology	257.563,20 €	199.699,32 €	<p>Cyanobacteria harmful algal blooms (Cyano-HAB) is an increasingly pressing environmental problem affecting inland water bodies and aquatic ecosystems because of their ability to produce bioactive secondary metabolites (cyanotoxins) that have detrimental effects on mammals, fish and the ecosystem. Toxins in water bodies have recently become more prevalent and persistent due to eutrophication of surface waters, rising of CO₂ in the atmosphere, and global warming. Their presence in drinking water reservoirs pose a severe public health. Based on the above, there is an evident need for a system able to detect diverse groups of cyanotoxins and provide an early warning for the prevention of cyanobacterial blooming from public and private waterbody administrators.</p> <p>The CyanoBox project aims to develop an innovative, remote system that can perform in-situ detection of cyanotoxins in surface water bodies, both in urban, rural, and isolated sites. It will provide an autonomous, affordable, and reliable monitoring tool for Cyano-HABs so that local communities can obtain an early warning on the toxicity of a developing bloom and take all necessary actions to mitigate its effects with limited resources and funds. CyanoBox consists of development of novel cyanotoxin biosensors and assays, machine learning methods, and software development, system integration, and field validation. A combined strategy of methods, processes and actions will define the success of the project and deliver the desired results.</p> <p>It is anticipated that such a system will sustain and even improve the quality of surface water resources and safeguard public health and the wellness of the aquatic ecosystem. Its autonomous feature will provide remote, continuous water monitoring, as an alternative to the traditional discrete (and in many cases costly) monitoring activities that lack the ability to track short-term changes in water quality and toxicity.</p>
ENTERPRISES/0618/0027	Novel Trustworthy Automatic Metering IoT Solution for Smart Cities Applications	Anastasis Kounoudes	SIGNALGENERIC LTD	PA 1: University of Cyprus PA 2: WATER BOARD OF LEMESOS	250.820,00 €	199.964,00 €	<p>Water is a vital natural resource, delivering essential services to our societies and economies, and thereby playing a key role in European productivity and security. Excessive leakage and excessive consumption, especially in areas like Cyprus, where there is water scarcity and drought, have a direct negative impact on the EU citizens' health and on the economy. Therefore, the need for developing and introducing advanced innovative metering and smart water data management technologies is more evident than ever before.</p> <p>The SME SignalGenex in collaboration with the University of Cyprus and the Limassol Water Board propose a revolutionary IoT-based system for intelligent real-time water management and leakage detection with unique functionalities and data privacy management. The TAMIT project aims to significantly improve current technologies developed by SignalGenex (US patent pending) and introduce additional novel technologies, so as to develop a new product able to disrupt with its innovation the smart water management market and beyond.</p> <p>Some of the innovative technologies and components that will be included in the TAMIT product are:</p> <ul style="list-style-type: none"> 1) A novel low-powered, low-cost, universal automatic water metering add-on device that can measure water consumption readings in real-time and communicate these to the cloud 2) Innovative signal processing algorithms and processes embedded in the device to provide robust water metering readings 3) A cloud-based platform able to store a vast number of water meter readings and provide water management interfaces and visualisation to utilities and consumers 4) An AI-based system able to big data analytics and algorithms and processes for intelligent water management embedded on the cloud platform 5) Innovative algorithms and AI based processes for data privacy vulnerability management 6) Robust water leakage detection and early alerting processes 7) A mobile platform and application for enabling personalized water management
ENTERPRISES/0618/0122	Computer Aided Drug Design and Discovery of Novel Alzheimer's Inhibitors	Antreas Alafritis	NovaMechanics Ltd	PA 1: Erevnitiko Idryma P. L. Limited	257.826,00 €	199.988,40 €	<p>The project aims at using advanced computational techniques to identify potent and superior compounds used for the treatment of Alzheimer's disease (AD), a neurological disorder with no cure that affects millions of people with devastating effects on the quality of life of patients. Specifically, the project aims at identifying novel potent dual b-secretase (BACE1)/tau aggregation inhibitors, a class of drugs showing promising dual inhibition, and which may be of significant interest for the AD treatment. Additionally dual inhibitor fall in the multi target drug ligands (MTDL) which are recently thought to be superior than single target drugs for the treatment of complex diseases like AD. Towards this end we will develop the necessary computational and experimental methods and tools in order to identify and optimize potent BACE1/tau aggregation inhibitors among compounds already synthesized and deposited in large databases.</p>
ENTERPRISES/0618/0016	MRI-guided focused ultrasound robotic system for preclinical research	Marinos Giannakou	MEDSONIC LIMITED	PA 1: Cyprus University of Technology PA 2: YGIA POLYCLINIC	180.987,20 €	150.878 €	<p>FUSROBOT's main goal is to produce an MRI-guided focused ultrasound (MRgFUS) robotic system for preclinical use of small and large animals. MRgFUS is becoming a very hot and attractive non-invasive modality for oncology (cancer), and neurology (Parkinson). Therefore, the need for a cost effective and user friendly system is growing. There is also an urgent need for these research institutions to affordably acquire a general preclinical MRgFUS robotic systems in order to explore new applications in MRgFUS. The goal is to produce a preclinical robotic system (final product) with 4 degrees of freedom (DOF) that can sonicate phantoms, excised tissue or animals using MRgFUS. The tissue heating can be accurately measured using MR thermometry. The ultrasound system will include a single element transducer ranging from 20-40 MHz in center frequency with a bandwidth ranging from 0.5 to 4 MHz. A software will be developed that will control this medical device. The system will be evaluated in phantom, excised tissue and animals. By the end of the program all the necessary documents for patent application will be ready.</p>

ENTERPRISES/0618/0051	Intelligent Roll-to-Roll Processing of Advanced Carbon Fabrics based on Machine Learning and Non-Linear Automatic Control	Vasileios Drakonakis	AMDM - Advanced Materials Design & Manufacturing Limited	PA 1: Phoebe Research and Innovation Ltd	285.631,20 €	199.941,84 €	<p>The scope of Roll 'n' Roll is to develop a novel, intelligent, industrial R2R machine for enhancing the manufacturing process as well as the quality control system of technical fabrics processing. The novel features of the proposed project are 1st the innovative way of applying heat only on the surface of technical fabrics and 2nd the non-linear feedback control system which will be integrated with the machine. The latter is basically a machine-learning-based non-linear automatic feedback control system, which will be developed and consider the above described process as a plant characterized by the state of the temperature at the fabric surface to be processed.</p> <p>The project consists of three main development activities:</p> <ul style="list-style-type: none"> 1- the design and simulation of the process with the prototype development; 2- the non-linear automatic feedback control system development; 3- the evaluation and the quality control of the process. <p>A detailed commercialization plan of the Roll 'n' Roll machine in the fields of</p> <ul style="list-style-type: none"> I- polymer composites and technical fabric processing and II- flexible organic electronics processing will be prepared together with a number of dissemination activities of the project results.
ENTERPRISES/0618/0052	Innovative Design for Improved Application of Glass BIPVs on Buildings	Fanos Karantonis	M.G.F.K. ENERGYLTD	PA 1: University of Cyprus PA 2: Deloitte Limited	256.360,00 €	197.756,00 €	<p>This ImpAct-BIPV (Innovative Design for Improved Application of Glass BIPVs on Buildings aims to bring the novel emerging glass BIPVs installation on facades in its next maturity level. Buildings account for 40% of the global energy consumption and BIPVs are the answer in achieving the nearly zero energy buildings NZEB. The objective of this consortium brought together is to develop a complete BIPV system able to all relevant regulations, according to the needs, safety and requirements to be implemented in commercial buildings. Additionally the new product, will enable natural light to enter the building whilst filter out harmful solar radiation whilst keeping a comfortable indoor temperature for the occupants. The new glass BIPV product will be developed that can be installed on facades of commercial buildings in Southern Europe. As this is an installation on new buildings Cyprus is particularly fit for the wider application of the technology. In Cyprus, therefore, this new product comes at a time that the market will be seeking opportunities to meet this requirement. The advanced development of glass BIPV technology, and the launch of this novel product, will assist in the widespread application of BIPVs in the commercial sector in Cyprus. With the expertise of the consortium partners, it is expected from the primary key stakeholders such as architects, buildings owners, contractors, policy makers, to have a high interest in this field. With the expertise of a strong enterprise such as Deloitte is, great significance will be given in raising awareness of this product in the public and private sector, within Cyprus and worldwide. Moreover, this collaboration will be fruitful in raising awareness in the construction world of this new product, as it is a collaborative work between an architectural/construction firm to incorporate a BIPV facade for new commercial buildings in Cyprus.</p>
ENTERPRISES/0618/0164	Smart Energy Platform Facilitating the Cyprus Liberalized Energy Market	Nicos Tofis	Eletroyia Estates Ltd	PA 1: University of Cyprus PA 2: G.M EuroCy Innovations Ltd	231.580,00 €	180.139,60 €	<p>Although Cyprus has adopted all the relevant prerequisites and adapted its national legislation and policy with regards to energy regulation and energy markets as a full member state of EU, Cyprus energy market is still in its infancy levels compared to the envisaged EU framework liberalization and competition levels.</p> <p>Although recently a sum of 120 MWp photovoltaic plants have been licensed from Cyprus Energy Regulator (CERA) and are awaiting connection, there is an obvious obstacle towards bringing this energy into the new market model.</p> <p>There is not a mechanism to facilitate this process and match the demand side with the supply side from the logistic point of view nor the technological platform where the generated energy will be traded among the stakeholders.</p> <p>Moreover, the electricity market in the island is currently exclusively supplied by the state-owned Electricity Authority of Cyprus (EAC). Efforts have been made towards expediting the model shift from a monopolised to a liberalized electricity market in order to trigger the completion in the production and supply sides.</p> <p>Although three other suppliers apart from EAC have been licenced, the market is not ready to integrate the new technologies. Apart from the actions that CERA has instructed the independent system operator (TSO) to proceed with there is a long way until the new electricity market is ready to be launched. This research proposal fills two major gaps of the Cyprus electricity market:</p> <ul style="list-style-type: none"> 1. Provides the means for applying the issued regulations that regulate the relationship between the generation side and the supplier side. 2. Provides the framework under which the prosumers will choose their supplier, by defining the net consumption/injection profile with the most profitable energy plan tariff of the supplier. <p>The EnergyXchange project, aims to bridge the aforementioned gaps, by bridging the academic and industry worlds and exploiting the recent advances in intelligent ICT solutions.</p>
ENTERPRISES/0618/0041	Valorization of diabase mud for the development of innovative building materials	Pericles Savva	Latomia Pharmakas PLC	PA 1: Frederick Research Center PA 2: RECS Civil Engineers & Partners LLC. PA 3: University of Cyprus	248.748,00 €	199.917,60 €	<p>The general objective of the DIAVAL project is to transform the diabase mud from waste to secondary raw material for the production of innovative binders and, hence, of marketable pre-casted building materials which will be mainly applied as paving blocks. The diabase mud is a residue coming from the regular production operations of the company. More specifically, the diabase mud is generated from the crushing procedure and after the washing of the aggregate. The diabase mud is a granular material with a particle size of 0.063 mm or lower than 0.063 mm in size. Apart from the low fraction, this mud has a humidity content of almost 30%, rendering it an "inappropriate raw material" for the cement and concrete industry. The company has an annual production of diabase mud near 25000 t, which is disposed of in a landfill close to the production facilities of the company. According to the EU legislation, the diabase mud should be considered of class of hazard of landfills. In fact, this type of industrial waste had not even been registered in the Cyprus National Report.</p> <p>Towards this end, the scope of our work will be to setup a pilot production line for producing innovative building materials (paving blocks) from waste diabase mud, based on the innovative technology of geopolymserisation. The pilot products will be evaluated in terms of physicochemical and mechanical properties, as well as financial cost, to allow for their full market potential and usage. All yield data as of the pilot scale experiments, along with the full characterization of the raw material will be carried out in the beginning along with the laboratory development of the materials and measurement of the most crucial properties and b) the engineering of the paving blocks and the scaling up to produce the prototype. At the end of the project the technoeconomical analysis as well as the business plan will be designed and evaluated in order to make the best commercialization of the produced material.</p>

ENTERPRISES/0618/0007	Development of an environmentally friendly earth masonry system using locally sourced raw materials	Michalis Tapakoudis	GIGANTAS ANTAIOS TOUVLOPIO LTD	PA 1: Between the Lines Trading and Services Ltd PA 2: University of Cyprus	244.540,00 €	199.978,00 €	The project aims to develop an environmentally friendly earth masonry system that will be composed of Compressed Earth Blocks (CEBs), which will be fabricated using locally sourced materials. It is anticipated that the research conducted will promote (i) the use of sustainable building methods and (ii) the exploitation of local natural resources for the production of construction materials. Experimental and computational research will be carried out. The primary objectives will be to: (i) facilitate the production and use of CEBs, (ii) demonstrate the feasibility and technical quality of the proposed solution and develop a business plan for the production of Sustainable Masonry Components (SMCs) for substantially improving their products/services and (iv) promote the use of environmentally friendly earthen materials in the building sector, setting the path for further research.
ENTERPRISES/0618/0167	Improve Energy Efficiency through Personalised Energy Management Services in Small Offices and Homes	Fenareli Lampathaki	Suite5 Data Intelligence Solutions Limited	PA 1: UBITECH LIMITED	284.192,00 €	198.934,40 €	PERSEPHONE aims to design and deploy an innovative IT ecosystem for motivating end-users' behavioural change towards the adoption of energy efficient lifestyles, building upon the evolution of the current Internet of Things (IoT) towards the Internet of People (IoP) and Gamification areas. Internet of Things technologies are exploited for the proper and energy efficient interconnection of a heterogeneous set of sensor nodes (e.g. smart energy meters, sensors interacting with microgeneration infrastructure, sensors in smart phones), the collection of data based on Mobile Crowd Sensing Mechanisms exploiting the power of the collection of data from a critical mass of interested people, the application of proper machine learning schemes with regard to the collection of data and finally the use of Data Modelling and Analytics techniques, applied for the modelling of the collected data - both from sensor networks as well as directly from end users- and the extraction of advanced knowledge by exploiting the power of Semantic Web techniques, Linked Data and Data Analytics. Focus is given on the development of personalised mobile applications and games targeted at proper energy related information to end users, triggering interaction with relevant areas, increasing awareness with regard to energy efficiency, to achieve energy consumption savings in their daily activities and adopt energy efficient lifestyles based on a set of recommendations and motives targeted to their culture and comfort zone. The engagement and direct inclusion of end users within the diverse components of the provided IT ecosystem is going to be strongly supported.
ENTERPRISES/0618/0046	Sustainable Conferences and Events	Despina Papadopoulou-Kakkoura	Top Kinisis Travel Public Ltd	PA 1: AKTI PROJECT AND RESEARCH CE	284.840,00 €	199.388,00 €	Conference Tourism is a major business sector; according to the International Congress & Convention Association, it has witnessed a rapid growth during the last years. Although the conference events industry is mainly concentrated to Cyprus economy, at the same time the arrival of hundreds of participants can overwhelm the local infrastructure, creating a significant amount of waste and generating a large amount of greenhouse gases, which leave behind a big carbon footprint. Stakeholders involved in the sector need to understand the carbon impact of the Conferences & Events industry and undertake the responsibility of keeping the environment higher than the needs, by reducing themselves and by using the right tools to plan and manage conferences/events as a sustainable way. The sustainability in planning conferences/events will lead to financial advantages, environmental improvements, social benefits, create a positive image for the stakeholders involved and help raise awareness of climate change issues and actions that must be taken to reduce or offset greenhouse gas emissions. Although there are several sustainability standards and tools available, the main lack of measure and awareness over sustainability in event, Conference attendees in the daily life are not utilising them effectively for many reasons: lack of sustainability awareness, insufficient legal framework & policy enforcement, misconceptions about the cost of sustainability adoption and lack of "all-in-one" friendly user tools. This project will aim in contributing substantially towards the achievement of a Sustainable future according to the EUROPE 2020 Strategy (EU strategy for smart, sustainable & inclusive growth) and environmental, social and economic sustainability of the conferences and events that are organized by Top Kinisis, enabling to become one of the top preferred providers for sustainable conferences & events in Cyprus and Europe, and inspiring other organisations to do the same.
ENTERPRISES/0618/0131	Design and manufacturing of a novel Low Density Polyethylene (LDPE) Film for the construction industry, using recycled agricultural plastic waste (APW)	Panos Protopapas	Elysee Irrigation Ltd	PA 1: Ministry of Agriculture, Rural Development and Environment PA 2: Frederick Research Center	264.410,00 €	199.628,50 €	The project "Design and manufacturing of a novel Low Density Polyethylene (LDPE) Film for the construction industry, using recycled agricultural plastic waste (APW)" aims to the design and manufacturing of an innovative, environmental friendly and economically viable Low Density Polyethylene (LDPE) film (Recy-Film) for applications in the construction industry. The main innovation and environmental aspect of the proposed product is the raw material to be used, which will be recycled agricultural plastic waste (APW), delivering a green building material that can be used for green public procurement. The main beneficiary of the project is Elysee Irrigation Ltd, the largest manufacturer and supplier of irrigation systems for agriculture, domestic and public use in Cyprus. Recy-Film will essentially replace the existing LDPE film product of Elysee, whose current production line uses virgin, fossil fuel-based materials. LDPE films are installed in buildings as vapor barriers, to reduce weed growth, and as a separating layer to accommodate differential movements. The choice of construction LDPE films was selected due to its low cost, durability and resistance to water (APW) with respect to its exploitation either for portable water pipes, or for irrigation plastics. For the manufacture of the Recy-Film, a pilot recycling unit, which will be able to handle 6 tonnes of agricultural plastic waste (APW) on a daily basis, will be installed at the industrial facilities of Elysee. The project will also investigate the supply chains of agricultural plastic waste (APW) from the source to the recycling facilities for the design of a complete recycling system. This initiative is welcome by both the Department of Public Works of the Ministry of Transport, Communication and Works, and the Department of Environment of the Ministry of Agriculture, Rural Development and Environment, as they have already expressed their interest to support the promotional activities of the project.

ENTERPRISES/0618/0147	Development of a Solar Energy Storage unit for increasing the efficiency and the capacity of solar domestic hot water systems	Elisavet Theofanous	ENERES CPM LIMITED	PA 1: Cyprus University of Technology	238.695,00 €	197.500,50 €	Solar energy is a clean, abundant and easily accessible renewable energy source. Its intermittent and dynamic nature makes thermal energy storage (TES) systems highly valuable for many applications. Latent heat storage (LHS) using phase change materials (PCMs) is particularly well suited for solar domestic hot water (SDHW) applications as it offers high storage capacity and requires little space. However, one major problem of the LHS system is the heating of any SDHW system. For these tanks it is very important to create and keep the stratification both during heating up and during usage when there is a draw of water from the tank which is replaced by city mains cold water. This affects directly the effectiveness of the solar system operation. With stratification it is possible to allow the hot water to "concentrate" at the top of the tank and the cold water at the bottom. As the water that returns to the solar tank is at a higher temperature than the stored water, it will increase the stratification, resulting cold water is directed to the collectors which increases their efficiency. Therefore, the main aim of this project is not only to improve the stratification characteristics of the storage tanks but also to increase the solar fraction of the system and increase their storage capacity by using PCM units. The main innovation of this project lies to the fact that, to the best of our knowledge, this is the first time that a pilot plant will be designed, tested, optimised and manufactured that will largely increase the efficiency of a SDHW system in the Cyprus market and probably the European. This product will be ready made and easy to install to all commercially available hot water cylinders in Cyprus without altering the initial design of the cylinder and thus the production lines of the manufacturers. For this purpose, several different designs will be developed in terms of shape, mounting system, PCM used etc.
ENTERPRISES/0618/0171	iRisPhone-Pro: The all inclusive, accessible Smart Home Phone, focused on the promotion of a positive and intuitive lifestyle	Markos Demetriou	iResTech Ltd	PA 1: Cyprus University of Technology PA 2: CYRILIC CYPRUS RESEARCH AND INNOVATION CENTER LTD PA 3: SYMVOULIO KONOTIKIS EVIMERIAS IDALIOU	272.105,20 €	199.951,00 €	The iRisPhone-Pro is a novel Smart Home Phone, one which aims to improve the user's lifestyle through advanced and intuitive interfaces, through the implementation of AI features, as well as life enriching features that will allow the modernisation of the home. Specifically, apart from providing modern hardware that will be inter-connectable with various smart devices for environment monitoring and control, as well as smart health devices and other peripherals, it will allow the users to enjoy various smartphone and tablet applications that will facilitate the users' daily activities and enhance their quality of life. This device will be of particular benefit to the senior community, as one of its primary aims is to extend their independence in their home environment, regardless of their technological abilities and knowledge, and promote their social standing within our digitally connected world.
ENTERPRISES/0618/0195	Development of a novel antimicrobial absorbent food pad to extend the shelf life and quality of fresh red meat products	Panagiotis Sofokleous	P.T.A. Food Lab & Nutritional Services LTD		236.672,00 €	165.670,00 €	An innovative antimicrobial system will be developed, which relates to an antimicrobial absorbent food pad that releases antioxidants to kill or inhibit the growth of foodborne pathogens in the meat liquid exudates and which will confine the antimicrobial compounds and absorbed liquids so that they will not come in contact with the food product and which those antioxidants break down to safe/nontoxic bio-products that can be used as antimicrobials and oxidative gases in vacuum sealed pre-packed meat products. Firstly, a combination of oxidizing agents will be investigated and selected to meet their weight and time release studies will be performed to evaluate the concentrations of the antioxidants being produced when the oxidizing agents come in contact with the liquid meat exudates. The antimicrobial activity of the absorbing food pad will be evaluated in vitro and in realistic conditions. The volume of the gases CO2 and O2 being produced from the decomposition of the antioxidants will be measure to evaluate if they are suitable to be used in modified atmosphere food packaging. The second part of the project will be to evaluate the performance of the system to assess the shelf life and possible deterioration in the quality/composition of the pre-packed red meat. The antimicrobial system has the potential to: a) extend the shelf life of package food by inhibiting/eliminating food pathogens and therefore reduce food waste, b) prevent antimicrobial resistance, c) degrade into larger breakdown products that have no effect in the safety/quality of food, d) reduce the cost of the food due to the self-limiting action and the excess of the oxidizing agents, e) decrease cost in MAP process by infusing naturally the gases CO2 and O2 into the package, f) conveniently manufactured to fit at any size/type of package container, g) be mass produced and h) increase the competitiveness of Cyprus in the active packaging industry.
ENTERPRISES/0618/0170	Isolation and Characterization of Fusarium mycotoxins in Cereals and by-products	Lygia Eleftheriou	cp foodlab ltd		309.800,00 €	199.000,00 €	The proposed study includes an investigation in Fusarium phytopathogens. The main objectives of the proposed project are: (i)the isolation and characterization of agriculturally significant Fusarium phytopathogens (<i>F. verticillioides</i> , <i>F. proliferatum</i> , <i>F. sporotrichioides</i> , <i>F. poae</i> , <i>F. graminearum</i> and <i>F. culmorum</i>) from cereals (as raw materials), from fields (as animal feed,) and cereal products (as end products) from Cyprus; (ii)the assessment of their ecological fitness characteristics and their sensitivity to fungicides used against cereal phytopathogens; (iii)the development of biological and molecular techniques for rapid and reliable detection and identification of Fusarium phytopathogens in cereals; (iv)the development of appropriate analytical methods for simultaneous determination of various Fusarium mycotoxins (fumonisins, zearalenone and trichothecenes) in the field (as seed) and cereal (as raw material) samples, and their identification and quantification; (v)The establishment of a training center for the education and training of farmers, producers, and consumers on the dangers arising from the production and consumption of infected raw materials. This will be the first study to measure the content of mycotoxins in cereals as raw material (i.e. before harvest) and in the field (as seed) and field harvested cereals. The proposed methodology will include the identification and quantification of mycotoxins on the onset of a production cycle (including collecting the samples as raw materials before harvest) could benefit the producers and help prevent the release of dangerous goods to humans and animals contaminated with mycotoxins. This study is even more important for Cyprus and other regions of the Mediterranean due to the prevailing weather conditions that promote the production of mycotoxins on cereals.
ENTERPRISES/0618/0176	Development of natural soap from Saponaria plants	Miranda Tringis	CYHERBIA BOTANICAL PARK LTD	PA 1: Frederick Research Center PA 2: MINISTRY OF HEALTH	218.090,00 €	199.256,00 €	The main objective of the proposed project is the isolation of saponin extracts from Saponaria plants, a common species and an endemic species found and grown in Cyprus, to develop antimicrobial soaps. The soaps, made from pure saponin extracts with no chemicals or synthetic additives, will be highly suitable for sensitive and atopic skin. Saponaria plants are highly endemic in Cyprus as a primary source of natural ingredients that exhibiting antimicrobial properties may be used in the production of antimicrobial cosmetics and soaps. The methodology to be implemented includes the development of seed germination protocols, the plantation of seedlings, the collection of plant material from mature plants and the production of crude extracts. Crude extracts will then be extracted further to isolate the saponin-rich fraction. The saponin extract will be combined with additional ingredients to form the natural soap. The saponin extract will be characterized and tested for its antimicrobial properties. The in vitro studies will include the investigation of the antimicrobial properties of the saponin extract and the determination of the stability of the final soap products. Saponin extracts from the common species have been previously characterized and tested for their antimicrobial activity. The endemic species has never been characterized. In this project, the antimicrobial properties of the endemic species will be for the first time and comparison of the saponin composition will be performed for the two species. New knowledge on the saponin extraction methods and on the endemic species saponin extracts composition will be gained. Finally, the endemic species will be utilized to make a natural soap, unique in its synthesis, properties and its origin. In conclusion, this project will provide a great opportunity for the HO to develop a new competitive product expected to sell to the local and foreign market.

ENTERPRISES/0618/0013	Nano-Enabling of Carbon Fibre Reinforced Composites for Improving "Through Thickness" Electrical Conductivity	Vasileios Drakonakis	AMDM - Advanced Materials Design & Manufacturing Limited	PA 1: Cyprus University of Technology	263.946,00 €	199.075,80 €	e-NanoPrint aims to develop and produce a novel, highly conductive in the z-axis carbon fiber (CF) textile material through the introduction of printed electrically conductive polymer droplet patterns on the two CF textile surfaces. The electrically conductive polymer droplet patterns extensively penetrate the fabric and eventually CF composite through thickness electrical conductivity. e-NanoPrint aims the industrial development of an innovative textile-material, with revolutionary through-thickness electrical conductivity, in levels similar to in-plane carbon fabric electrical conductivity.
							The general objectives of the proposed work can be summarized below: 1)To develop a new process for polymer nanocomposites printing on technical fabrics in a prototype level 2)To evaluate the newly developed process toward the direction of increased technical fabrics through thickness electrical conductivity 3)To design and plan the scale-up of the developed process for integration with production of advanced textiles/preprints; 4)To research and evaluate the printed technical fabrics in order to reach the desired electrical conductivity properties 5)To establish and commercialize a new class of advanced textiles based on carbon fibers
ENTERPRISES/0618/0019	EventApe S.E.T Protocol - an Autonomous Interoperable BlockChain system that aims to create transparent, secure and efficient smart ticketing contracts	Giorgos Giorgakis	G.G. EUROSUCCESS CONSULTING LTD	PA 1: SmartApe Solutions Ltd	288.611,20 €	199.800,16 €	The goal of this project is to bring to the forefront the notion of interoperability for BlockChain technology for the ticketing industry. We will create an open ticketing ecosystem where all parties in the ticketing supply chain can work together with more control, more internal operational transparency, and more security. By doing so, we will solve the global issue of the ticket secondary market. "It has been reported that within the secondary ticket sale market (worth around 15 USD millions) tickets can be expensive, fake, duplicate or counterfeit and as a result, this provides negative feedback to the event organizers and the content creators".
							We will design and develop an Ecosystem for interoperable BlockChain using the design philosophy of the Internet Architecture as the basis for identifying key design principles. We will identify all the challenges faced in the design of interoperable BlockChain architecture. We will emphasize at interoperability as a crucial requirement for the survivability of BlockChain autonomous system. Our overall goal is to develop a design philosophy of a blueprint model for interoperable BlockChain system which can be applied to various industries.
							Benefits For the event organizers / content creators: More revenues, better control of ticket inventory, transparent and secure transactions, ability to set complex ticket rules, lower financial risk, in-depth insights to better understand their audience, better pricing strategy. For the fans / attendees: Fair ticket prices, easily finding tickets to their favourite events, no more fake / void / duplicate tickets, ability to release the ticket in the marketplace if attendance is impossible, no hidden transaction costs, secure transactions, special benefits from the event organizers of their favourite event creators.
ENTERPRISES/0618/0034	Recycled Aggregates for the Production of Concrete	Pereles Savva	Latomia Pharmakas PLC	PA 1: University of Cyprus PA 2: Frederick Research Center PA 3: Ministry of Transport, Communications and Works PA 4: RECS Civil Engineers & Partners L.L.C.	244.975,00 €	199.927,00 €	The proposed research aims in converting an otherwise waste material, recycled concrete aggregates (RCA), into a high-value material, recycled aggregate concrete (RAC). Research will focus on enhancing the mechanical and durability properties of RAC. It is expected that the effective introduction of RCA into the production processes will enhance the state-of-the-art knowledge concerning the use of recycled materials in concrete and will contribute to boost the recycling process in Cyprus with all possible economic, technical and environmental benefits. The objectives of the proposed research are in full agreement with the strategic objectives of the RPF RESTART 2016-2020 Programme, which specifically states: "...the use of construction materials with high-added value, reduction in consumption of natural resources, reduction of the environmental impacts and increase of reuse of available resources". The research will be conducted by the University of Cyprus, using the best available mixture design, ensuring the optimum mechanical and durability properties. RCA will undergo surface treatment to remove part of the adhered mortar. Additionally, RCA will be utilized as internal curing (IC) agents to deliver water to the material's inner structure. The effectiveness of the above will be investigated utilizing several standardized experiments. Further, a life cycle assessment (LCA) that will allow the evaluation of the technoeconomic feasibility of incorporating the particular waste materials as value-added constituents in "green" concrete will be performed.
ENTERPRISES/0618/0056	A Fully Autologous Cell-based System for Delivery of Molecular Therapeutics to Brain Malignancies	Andreani Odysseos	E.P.O.S IASIS RESEARCH AND DEVELOPMENT LTD	PA 1: University of Cyprus	258.271,20 €	199.924,00 €	Glioblastoma Multiforme (GBM) is the most frequent (3-5/100,000) and morbid brain tumour with median survival 15months. To improve clinical outcomes and decrease toxic side effects, more targeted, tumor-specific therapies are being developed. Delivering anticancer payloads using tumour-tropic cells can greatly increase therapeutic distribution to tumor sites, while sparing normal tissue. However, the delivery of toxic payloads to tumours, including stem cells/NSCs, are tumour-tropic cells that can pass through normal organs quickly, leading to invasive and metastatic tumor foci throughout the body, and cross the blood-brain barrier to reach tumors in the brain. Current strategies include NSC-mediated enzyme/prodrug gene therapy, oncolytic virotherapy, and delivery of antibodies, nanoparticles, anti-extracellular vesicle targeting oligonucleotides. BRAIN-THROUGH will be a new therapeutic solution that focuses on the potential of NSCs to differentiate to cancer-targeted anticancer payloads selectively to tumor sites. These NSC will be autologous, thus generated with reprogramming of somatic cells derived from the same (or genetically identical) animal, engineered to produce and release miRNA (i.e. therapy with small, non-coding nucleotide sequences) that can target and downregulate multiple genes which are responsible for tumour generation and progression. This miRNA will be targeted to a specific protein also involved in tumour monitoring and rest. NSCs will be grown on biodegradable scaffolds yielding three-dimensional autologous organs which will then be implanted into the brain of the same animal that bears syngeneic GBM tumours and the sustained INSC growth, tumour homing and anti-tumour efficacies will be evaluated. While BRAIN-THROUGH will deliver a fully autologous solution for brain tumours, the use of INSCs in cancer treatment is applicable to other metastatic solid tumors, thus creating great prospects for extended pipelines and sustained competitiveness.
ENTERPRISES/0618/0127	PULSE: a PUblic SpEaking VR app	Kleanthis Neokleous	SILVERSKY3D VR TECHNOLOGIES LTD	PA 1: University of Cyprus PA 2: Youth Board of Cyprus	251.880,00 €	199.932,00 €	Public Speaking Anxiety is a highly prevalent problem among individuals of all ages often leading to reduced quality of life. For most people, the anxiety they experience about speaking in public does not cross the threshold for a clinical diagnosis and are thus unlikely to seek face-to-face therapy. Yet, even these people could benefit from the presence of an easy-to-use self-administered intervention that could be used to overcome their fear of public speaking. The proposed project aims at the (1) further development and (2) clinical validation of a prototype Virtual Reality (VR) application that is being developed as a self-administered intervention for the treatment of Public Speaking Anxiety.

ENTERPRISES/0618/0168	Development of non-Destructive Fast Spectroscopic Methods for the Detection of Biological contaminants in Water/Foods and Heavy Metals/Nutrients in Agricultural Soils	Pavlos Aspris	P.T.A. Food Lab & Nutritional Services LTD	PA 1: Cyprus University of Technology PA 2: University of Cyprus	250.460,00 €	199.910,00 €	The BioMetal-Contaminants project will develop real time Laser Induced Breakdown spectroscopy (LIBS)-techniques and apply two existing vibrational techniques Surface-Enhanced Raman Spectroscopy (SERS)/FTIR chemical mapping with an ultimate goal to monitor the Bio-contamination in water and foods (E. coli and Salmonella enterica), and the heavy contamination and nutrients elements in Agricultural soils and to improve the efficiency and detection limits. The project will also implement pulse LIBS and development of dual pulse LIBS (DPLIBS) and resonance-enhanced LIBS for decreasing the limit of detection and improving reproducibility of LIBS in heavy metal detection, agricultural soil/nutrients and bacterial contamination in Water and Foods are the new research approaches. The implementation of developments will open new opportunities for developing better monitoring spectroscopic techniques in food-and-soil industry and agriculture than are available today. The application of robust and practical vibrational spectroscopic techniques and signal enhancement methods will also, via the use of nanoparticles in the case of nanoparticle-enhanced (NELIBS) will lead to the development of different methods for improving the sensitivity and reproducibility. Metallic nanoparticles (NPs) and roughened metallic substrates have been used to enhance the Raman signal via surface plasmon resonance effect has been widely used in SERS. This effect is very useful because it not only does it increases the local density of the bacteria, but it also makes bacteria contact the SERS substrate. The type of bacteria could be differentiated in all cases studied along with the metabolic state (viable or heat killed). Water samples from industries and agricultural strata tend to have a lot of pollutants making it harmful for consumption. The determination of toxic metals by the high-sensitive techniques of DPLIBS and RELIBS will improve the limit of detection and also provide valuable information to those experiments performed by all partners.
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