

STARRISE HACKATHON

CATALOGUE

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Below is a list of pre-defined problems. Here you will be able to read more about the project's objectives and goals.

1. CARGO MOBILITY – FLOW DIGITALIZATION + URBAN MOBILITY PLAN, (2;4;16)

PROJECT TITLE	2) INCREASING CARGO MOBILITY IN THE TERRITORY OF RIGA FREEPORT (LATVIA)
DESCRIPTION	<p>The goal of the project is to expand the storage and transshipment capacities of existing international cargoes by digitizing the flow of cargoes.</p> <p>The project is important because: Latvian stevedoring companies transship cargo are still using paper type. Modern approaches to the accounting and control of cargo flows require modern digitized warehouses that connect the customs systems of several countries.</p> <p>Benefit – substantial increase of accepted and sent cargo flows, digitization of accounting and control and optimization of processing, connection with cargo flow systems of other countries.</p>



PROJECT TITLE	4) SUSTAINABLE URBAN MOBILITY PLAN FOR KURZEMES REGION
DESCRIPTION	<p>The goal of the project is to prepare a Sustainable Mobility Plan in the Kurzeme region, which would reflect comprehensive planning recommendations on the identified topics of the public transport network. As part of the project, analysis on the existing public transport network, create/organize a permanent working group on solutions to Mobility issues is needed. The project is important because: sustainable Urban Mobility Plans (SUMP) are the cornerstone of European urban mobility policy. The European Commission strongly recommends that European cities of all sizes adopt the SUMP concept. Planning can improve the overall quality of life for residents by addressing key issues such as congestion, air/noise pollution, climate change, road safety and parking. SUMP also provides a basis for innovation and the integration of new mobility services.</p> <p>Benefit – improved overall quality of life for residents, addressing key issues such as congestion, air/noise pollution, climate change, road safety and parking"</p>

PROJECT TITLE	16) OPTIMIZATION OF CARGO FLOW - INCREASE OF FULLY LOAD CARGO LOGISTICS RATE
DESCRIPTION	<p>Tools that increase the number of full cargo transports compared to empty ones. Identified during the FOREST4EU forestry event. Currently each logistics company have its own, or there are some wider scale tools, but none of them is user friendly and available to wider auditorium. Such tool can optimize supply chains and support regional development.</p>

2. SUSTAINABLE FOOD SUPPLY CHAIN FOR CATERING SERVICE IN REGION BY CONNECTING LOCAL FOOD GROWERS, PROCESSING AND PRODUCTION COMPANIES, LOGISTIC AND CATERING SERVICE PROVIDERS AND RECIPIENTS RESPONSIBLE BY MUNICIPALITIES. (3;5;18)

<p>PROJECT TITLE</p>	<p>3) SUSTAINABLE FOOD SUPPLY CHAIN FOR CATERING SERVICE IN PREIĻU COUNTY (LATVIA)</p>
<p>DESCRIPTION</p>	<p>The goal of the project is to create a “food circularity system” in the municipality of Preiļi County by connecting food growers, processing and production companies, logistics and catering service providers and institutions, recipients of catering services in a unified system.</p> <p>The project is important because: food is a basic need everyday, even in peace and crisis, including under conditions of war. Currently, the catering service in municipalities is not provided as efficiently as possible. The fragmented and bureaucratic system in the county, region and country, the problem of ensuring healthy nutrition, especially for risk groups, including for children and seniors and the difficulty of including local, seasonal and fresh food in the menu is a challenge for local governments in organizing this service. By creating a single system within the framework of one municipality, it will also be usable on a regional and national scale.</p> <p>Benefit – High-quality catering service for all target groups (schools, nursing homes, hospitals, etc.), using products produced by local entrepreneurs, managing resources more efficiently, achieving higher added value, saving municipal financial resources. The implementation of this idea would also ensure the basic needs of society in unforeseen situations (extreme weather conditions, threats of war, etc.), increasing the sense of security.</p>



PROJECT TITLE	5) INNOVATIVE SOLUTIONS FOR FOOD PRODUCERS IN THE ZEMGALE PLANNING REGION (LATVIA)
DESCRIPTION	<p>The goal of the project is to reduce the impact of packaging on the environment and promote the use of local products in municipal procurement. In cooperation with all local governments of Zemgale, solutions for the use of local products in the services purchased by the local governments will be developed.</p> <p>The project is important because: the project would basically solve two problems by reducing the impact of packaging on the environment and the supply path from "field to table" by supporting local producers in Zemgale region.</p> <p>Benefit – Society will benefit on the whole by valuing local products and using them on a daily basis.</p>

PROJECT TITLE	18) REGIONAL FOOD PRODUCT PORTALS TO ADDRESS LARGE CHAINS
DESCRIPTION	<p>The portal will initially bring together small food producers in Latvia, with plans to later expand by involving more companies from the Baltic and Scandinavian regions. To attract potential export partners and enhance competitiveness, the portal will establish a logistics chain that connects local and regional SMEs to a central sorting and packing hub. From there, products will be prepared for export and delivered directly to individual buyers or smaller retail chains, streamlining the process and making it easier for small producers to access international markets.</p>



3. AUTOMATIC CONTROL OF THE FLOW OF PEOPLE AND VEHICLES (7;8; 23)

PROJECT TITLE	7) AUTOMATIC CONTROL OF THE FLOW OF PEOPLE AND VEHICLES
DESCRIPTION	The goal of the project is to create a unified platform in the municipality for data collection, loading, transformation, storage, automatic decision-making and control of decision execution. The project is important for control and monitoring of transport flow in the entire region (Latvia), data-based and economically efficient decision-making. Benefit - not only the small and medium-sized entrepreneur, but the whole society as a whole will benefit from data-based decision-making in investing.

PROJECT TITLE	8) MARTINIQUE FREE PORT AUTOMATIC VEHICLE CONTROL
DESCRIPTION	Free Port is planning expansion and to increase cargo (including refrigerated) flow through port. Currently the cargo flow is managed in paper version. Free port is interested to implement digitalisation and connect all in one system, that monitors the cargo flow, entered and left vehicles.

PROJECT TITLE	23) SMALL PORT TRAFFIC AND MOORING OPTIMIZATION
DESCRIPTION	<p>Project addresses the challenges faced by numerous small ports across the EU mainland and outermost regions. Many of these ports have general information about mooring requirements and pier availability, if they have, but lack real-time data on which piers are free, occupied, or rented out. This information gap leads to unnecessary traffic within the ports, resulting in higher CO2 emissions and potential damage during maneuvering and mooring. To enhance operational efficiency and reduce environmental impact, the project proposes the development of an online tool-app that allows each port to configure its layout (marina layout) and mark available piers in real-time. The platform will also provide access to current meteorological data, including wind, tide, and current conditions, enabling better decision-making for vessels approaching the port. By streamlining mooring processes and improving communication, this initiative aims to minimize congestion, lower emissions, and enhance safety within small ports, ultimately supporting sustainable maritime practices.</p>



4. TEMPERATURE CONTROL SYSTEM OF FOOD PRODUCT DELIVERY IN SHORT SUPPLY CHAINS (9;10);

PROJECT TITLE	9) TEMPERATURE CONTROL SYSTEM OF FOOD PRODUCT DELIVERY IN SHORT SUPPLY CHAINS
DESCRIPTION	The temperature control system for food product delivery in short supply chains is essential, particularly in hot climates. Despite the shorter delivery times, maintaining optimal temperatures becomes a challenge due to extreme heat. This system ensures that perishable goods remain fresh and safe for consumption, addressing temperature fluctuations that could compromise product quality even over short distances. It plays a critical role in minimizing spoilage and ensuring the integrity of food products throughout the supply chain, regardless of the external weather conditions. Its important both for cooled and refrigerated products.

PROJECT TITLE	10) COST-EFFECTIVE COOLED AND FROZEN FOOD PRODUCT DELIVERY
DESCRIPTION	Cost-effective delivery of cooled and frozen food products is a significant challenge in hot climate areas, especially in outermost regions. The high cost of refrigerated trucks makes it difficult for local SMEs to compete with larger companies, reducing their market competitiveness. There is a growing need for compact delivery solutions that can maintain temperatures between -20°C and +6°C, ensuring product freshness and safety. Such solutions would provide affordable alternatives for small businesses, helping them overcome logistical hurdles and thrive in demanding climates.

5. NEW FUNGUS-BASED AND PLANT-BASED PRODUCTS AND MATERIALS (12,13;17;53;62)

PROJECT TITLE	12) VEGAN LEATHER FROM MUSHROOM MYCELIUM
DESCRIPTION	<p>Material innovations that can replace animal leather are increasingly conquering the market. In the making of mushroom leather from mycelium, mushroom cells are grown into mycelium, a net-like biological mass. Mycelia are structures of the fungus that usually grow underground and are therefore less well known than the superficial fungal body. There are several material innovators working on mycelium-based materials that employ slightly different production techniques. The mycelium usually grows on agricultural by-products and produces a foam-like mat that can then be processed in chemical and mechanical processes to produce a leather-like material. Some innovators also test approaches to let the mycelium eat cotton or other textile materials to increase strength of the material. The results show that the mycelium leather has similar properties to animal leather.</p> <p>Mycelium is a natural, biodegradable material. In order to determine the biodegradability or recyclability of the end-product, it is necessary to consider the chemicals involved in the production processes or, if applicable, the dyes and coatings selected. This is another area where information is still lacking. The aim of this project would be to create/optimize a) a sustainable alternative for a widely used fabric; b) help the underlying technology to increase its TRL and develop into mass-market application; c) to commercialize the outcomes leading to measurable growth in the European economy (on a SME level).</p>

PROJECT TITLE	13) RAW CHAMPIGNON MUSHROOM PROCESSING IN PRODUCTS WITH HIGHER ADDED VALUE - NEW PRODUCTS E.G. DRIED OR READYMADE MEALS FROM GROWN CHAMPIGNONS
DESCRIPTION	<p>Champimar, a local mushroom grower in Martinique, is focused on exploring new opportunities for processing raw champignon mushrooms into higher value-added products. By developing innovative product ideas and seeking partnerships, Champimar aims to enhance the economic potential of its mushroom production. This initiative seeks to transform raw mushrooms into premium products, creating new market opportunities and fostering cooperation that can drive growth and diversification in the local agro-food sector.</p>

PROJECT TITLE	17) PRODUCTS FROM VEGAN LEATHER
DESCRIPTION	<p>Products made from vegan leather, including (business) bags, boots, gloves, belts, accessories or other fashion items, represent a new and growing market niche. The use of vegan leather, derived from mycelium, offers a sustainable alternative to traditional leather and to other, artificial leather with a less fortunate sustainable footprint. This material is primarily sourced from northern and eastern Europe, enabling a short and efficient supply chain within Europe. By leveraging locally grown mycelium, manufacturers can reduce costs, minimize environmental impact, and cater to the rising demand for eco-friendly, cruelty-free fashion products and a overall sustainable value chain/ supply chain. This innovation opens new opportunities for both the fashion and sustainability sectors, as well as sustainable alternative in established industries, with potential ultimate dream cases as leather seating in luxury cars, etc.</p>

PROJECT TITLE	53) MANUFACTURING OF BIODEGRADABLE MYCELIUM PRODUCTS
DESCRIPTION	<p>From the very beginning, the company has dedicated itself to making products with a strong aesthetic value, made only from natural materials, with significantly better properties than conventional solutions in areas such as construction (interior insulation), interior design and even packaging, based on products made of plastic or other petrochemical elements. A first product developed is the mycelium insulation panel, the first of its kind in Romania and among the few worldwide. It is an ambitious and innovative product, capable of replacing polystyrene and other classic materials, being made by hand and without artificial processes. Its qualities in terms of durability, impermeability and fire resistance are ideal for creating quality products while being compostable. This material produces ten times less carbon dioxide and uses about eight times less energy than the production of polystyrene foam. In addition, this panel not only performs better than building materials based on petrochemical/plastic components in terms of thermal and acoustic insulation, but, being a natural material, it is safer and healthier. The product does not contain synthetic resin-based compounds, which can cause toxic smoke and rapid flame propagation during a fire. At the end of the production process, the mycelium materials are inerted, and the resulting products are completely stable, safe, durable, and also biodegradable, with a unique aesthetic. The products obtained in mass production will have the shape of plates of different thicknesses and will be able to replace the polystyrene plates used for home insulation. In addition, at the request of customers, it will be possible to manufacture dedicated interior design elements, of different shapes, in molds designed on request, at competitive prices.</p>

PROJECT TITLE	62) REPURPOSE OF PLANT FIBERS AS SUSTAINABLE MATERIALS
DESCRIPTION	<p>From the very beginning, the company has dedicated itself to making products with a strong aesthetic value, made only from natural materials, with significantly better properties than conventional solutions in areas such as construction (interior insulation), interior design and even packaging, based on products made of plastic or other petrochemical elements. A first product developed is the mycelium insulation panel, the first of its kind in Romania and among the few worldwide. It is an ambitious and innovative product, capable of replacing polystyrene and other classic materials, being made by hand and without artificial processes. Its qualities in terms of durability, impermeability and fire resistance are ideal for creating quality products while being compostable. This material produces ten times less carbon dioxide and uses about eight times less energy than the production of polystyrene foam. In addition, this panel not only performs better than building materials based on petrochemical/plastic components in terms of thermal and acoustic insulation, but, being a natural material, it is safer and healthier. The product does not contain synthetic resin-based compounds, which can cause toxic smoke and rapid flame propagation during a fire. At the end of the production process, the mycelium materials are inerted, and the resulting products are completely stable, safe, durable, and also biodegradable, with a unique aesthetic. The products obtained in mass production will have the shape of plates of different thicknesses and will be able to replace the polystyrene plates used for home insulation. In addition, at the request of customers, it will be possible to manufacture dedicated interior design elements, of different shapes, in molds designed on request, at competitive prices.</p>

6. NEW PRODUCTS IN BALTIC SEA (BLUE ECONOMY) – E.G. MUSSELE, FISHES ETC. (19)

PROJECT TITLE	NEW PRODUCTS IN BALTIC SEA (BLUE ECONOMY) – E.G. MUSSELE, FISHES ETC.
DESCRIPTION	The Baltic Sea is currently one of the most polluted seas in Europe and the world as a whole. Consequently, there has been a shortage of fish in recent decades. Therefore, growing and developing new products in the Baltic Sea region remains relevant. Currently, in Latvia, Sweden and other countries of the Baltic Sea region, there are known SMEs that are trying to grow new species of sea inhabitants to be used as food.

7. TECHNOLOGIES FOR SURVEYING AGRICULTURAL LANDS, INCLUDING FORESTS (20;56)

PROJECT TITLE	20) A SATELLITE FOR SURVEYING AGRICULTURAL LANDS, MAYBE ALSO FORESTS
DESCRIPTION	A satellite dedicated to surveying agricultural lands, with potential applications for monitoring forests, will leverage advanced satellite technologies to forecast crop yields, detect drought conditions, and assess damage caused by natural events. By providing real-time data and predictive insights, this technology will help farmers and forest managers optimize resource use, mitigate risks, and improve decision-making. The satellite's capabilities will enhance precision agriculture, allowing for more sustainable land management and boosting productivity in both agriculture and forestry sectors.

PROJECT TITLE	56) DEVELOPMENT OF AN IOT SENSOR NETWORK
DESCRIPTION	<p>Development of a network of IoT sensors capable of monitoring in real time the stressors in forest ecosystems (soil and air moisture, temperature, air quality, pollution levels, density of harmful insect species or the presence of forest fires).</p> <p>The challenge is the lack of an effective system for continuous and real-time monitoring of problems affecting forest health, the monitoring of forest ecosystems is reactive and fragmented, relying on occasional inspections or historical data.</p> <p>Degree of innovation:</p> <ul style="list-style-type: none"> • It is an innovative approach both at the level of the organization and in the region where the project is carried out. <p>Expected results:</p> <ul style="list-style-type: none"> • Real-time data collection, providing valuable and continuous information on the state of forests. • By integrating this data with artificial intelligence and machine learning algorithms, the project will be able to anticipate risks and provide solutions for their prevention. • Accurate monitoring of forest ecosystems will contribute to the conservation of biodiversity. • Significant cost reduction • The data collected could be used by national and local authorities to inform more effective environmental decisions and policies

8. CHALLENGES WITH EXACT PRODUCT DELIVERY ADDRESSES (24)

PROJECT TITLE	CHALLENGES WITH EXACT PRODUCT DELIVERY ADDRESSES
DESCRIPTION	<p>Challenges associated with accurate product delivery addresses, particularly in cases where physical addresses do not correspond to actual locations. Often, even when the correct address is entered into mapping tools, the system may point to the wrong location. This issue is especially critical for food product deliveries to elderly individuals, who may struggle to provide clear directions or explanations of their correct location.</p>

9. INTER-ISLAND AND IN-ISLAND LOGISTICS CHALLENGES – HUB PRINCIPLE (CAN BE WIDENED) (48;16;9;10;24)

PROJECT TITLE	43) MARTINIQUE HUB CARAIBES
DESCRIPTION	<p>Cybersecurity and digitalization of port logistics operations, especially port entrance control.</p> <p>The creation of the Antilles Hub, aimed at increasing traffic and developing a green corridor between the ports of Martinique and Guadeloupe. This initiative aligns with IMO 2023 standards and the European regulation, focusing on decarbonizing maritime transport.</p> <p>The project will handle 300,000 additional containers annually and includes plans for infrastructure enhancements and the introduction of biogaspowered ships, reducing CO2 emissions significantly.</p> <p>Martinique as 1st stop in Latin America link to EU</p>

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10. AGRI AND FOOD WASTE UTILIZATION, MANAGEMENT AND NEW PRODUCT DEVELOPMENT FROM WASTE (SEAWEEDS PREDICTION AND UTILIZATION, NEW COMPOSTS, DIGITALIZATION, APPS, COSMETICS, FIELD FERTILIZE, ETC.) (28;44;45;59;60)

PROJECT TITLE	28) SEAWEEDS PREDICTION AND UTILIZATION
DESCRIPTION	High tourist flow areas face significant challenges related to the seasonal influx of seaweed, which can adversely affect coastal aesthetics and recreational activities. The accumulation of seaweed on shorelines is influenced by various environmental factors, including water and air temperatures, as well as prevailing winds. Therefore, there is a pressing need to develop predictive models to anticipate when and where seaweed will wash ashore, enabling proactive management strategies to minimize disruptions for local tourism. In addition to addressing the management of seaweed, there is need in innovative utilization strategies for harvested seaweed, particularly for agricultural applications. Seaweed is rich in nutrients and can serve as a natural fertilizer or soil amendment, contributing to sustainable farming practices.

PROJECT TITLE	44) CRASHED SUGAR CANE WASTE UTILIZATION IN COSMETICS PRODUCTS.
DESCRIPTION	Neisson distillery.

PROJECT TITLE	45) SUGAR CANE WASTE AS FIELD FERTILIZERS
DESCRIPTION	Neisson distillery.

PROJECT TITLE	59) INNOVATIVE SOLUTIONS TO LOCAL PROBLEMS ON FOOD WASTE AND WATER MANAGEMENT IN THE AGRICULTURE AND FOOD SECTORS TO PREVENT THE EFFECTS OF CLIMATE CHANGE IN THE REGION.
DESCRIPTION	<p>Our proposal targets SMMs in the North-West region of Romania, with their characteristics, and their respective fields of activity (meat industry, dairy, fruit and vegetable processing, bread and bakery products and agriculture in the area). It is proposed to prevent the formation of waste and to use them as resources, through the nutrients they contain, and also through their potential to produce bioenergy. Food waste is an important part of the food chain. Ideally, they should not be produced, but this is not possible yet. Thus, trying reducing the amount of waste produced while also turning them into resources is one way to both reduce their damaging potential and make them useful.</p> <p>Innovation: The idea is innovative both in our region and at the European level, but with specific local characteristics, depending on the specific activities in the food industry operating in the study area. Using waste and wastewater from the agriculture and food industry as a resource, under food safety conditions, means the application of innovative solutions for better use of them and reducing environmental risks.</p> <p>Expected results: Innovative solutions for food industry waste management and wastewater treatment; reducing food waste at the local and regional level; efficient use of water resources in context of climate change.</p>

PROJECT TITLE	60) SMART RESOURCE MANAGEMENT TO REDUCE FOOD WASTE USING ICT AND DIGITALIZATION
DESCRIPTION	<p>Food quality monitoring using smart labels and digitalization to reduce food waste throughout the food chain in the region. Creating optimal transportation routes between agricultural companies to reduce transportation time and distances travelled. Development of an application to ensure food exchanges between farmers (in the form of barter); and development of a similar application, at the urban level, to ensure the exchange of food for the willing urban population, similar to food banks, so that food does not become waste, but is consumed.</p>



11. GLUTEN FREE PROTEIN PRODUCTION NETWORK – EXPANDING THE GLUTEN-FREE PROTEIN MARKET FOR CELIAC DISEASE (50)

<p>PROJECT TITLE</p>	<p>GLUTEN FREE PROTEIN PRODUCTION NETWORK – EXPANDING THE GLUTEN-FREE PROTEIN MARKET FOR CELIAC DISEASE</p>
<p>DESCRIPTION</p>	<p>Celiac disease is an illness caused by an immune reaction to eating gluten. Gluten is a protein found in foods containing wheat, barley or rye. If you have celiac disease, eating gluten triggers an immune response to the gluten protein in your small intestine. Celiac disease diagnoses are rising globally, yet despite this growing population, the gluten-free food market remains relatively small. This makes it challenging for manufacturers to turn a profit, leading to a limited number of gluten-free product options. Even when raw materials are inherently gluten-free, ensuring that there is no cross-contamination from gluten during production is crucial for the safety of those with celiac disease. To address this gap, the project aims to develop a robust network of gluten-free protein manufacturers, fostering collaboration to expand product offerings and ensure strict compliance with gluten-free standards. This initiative will also focus on creating new supply chains that cater specifically to gluten-free requirements, enhancing accessibility for those with celiac disease. Eventually, these supply chains can evolve into value-added chains, enabling the development of innovative products that meet the needs of the growing gluten-free market.</p>





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