Catalogue of services

Description of services developed by participating institutions of

EIT Infrabooster

1st edition

Strategic Regional Innovations

Powered by

Community Strategic Regional Innovations

Funded by the European Union

In cooperation with

University of Warsaw

cross-KIC DEL03:

Description of services developed by participating institutions of EIT Infrabooster, published on the website or in print

1st edition

https://eit-ris.eu/infrabooster/

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Descriptions provided by research teams participating in EIT InfraBooster

Compiled and edited by EIT InfraBooster organisers

EIT Infrabooster is powered by the EIT Community Strategic Regional Innovations Cluster, with the support of EIT Climate-KIC, EIT Food, EIT Health and EIT Manufacturing and delivered by: the Centre for Socially Responsible Innovations, Faculty of Management, University of Warsaw.

EIT Community InfraBooster — Co-funded by the European Union

EIT Climate-KIC — Co-funded by the European Union

EIT Food — Co-funded by the European Union

EIT Health — Co-funded by the European Union

EIT Manufacturing — Co-funded by the European Union

University of Warsaw — HR Excellence in Research — 4eu+ European University Alliance

Faculty of Management University of Warsaw — AACSB Accredited — EQUIS Accredited — AMBA Accredited

Centre for Socially Responsible Innovations

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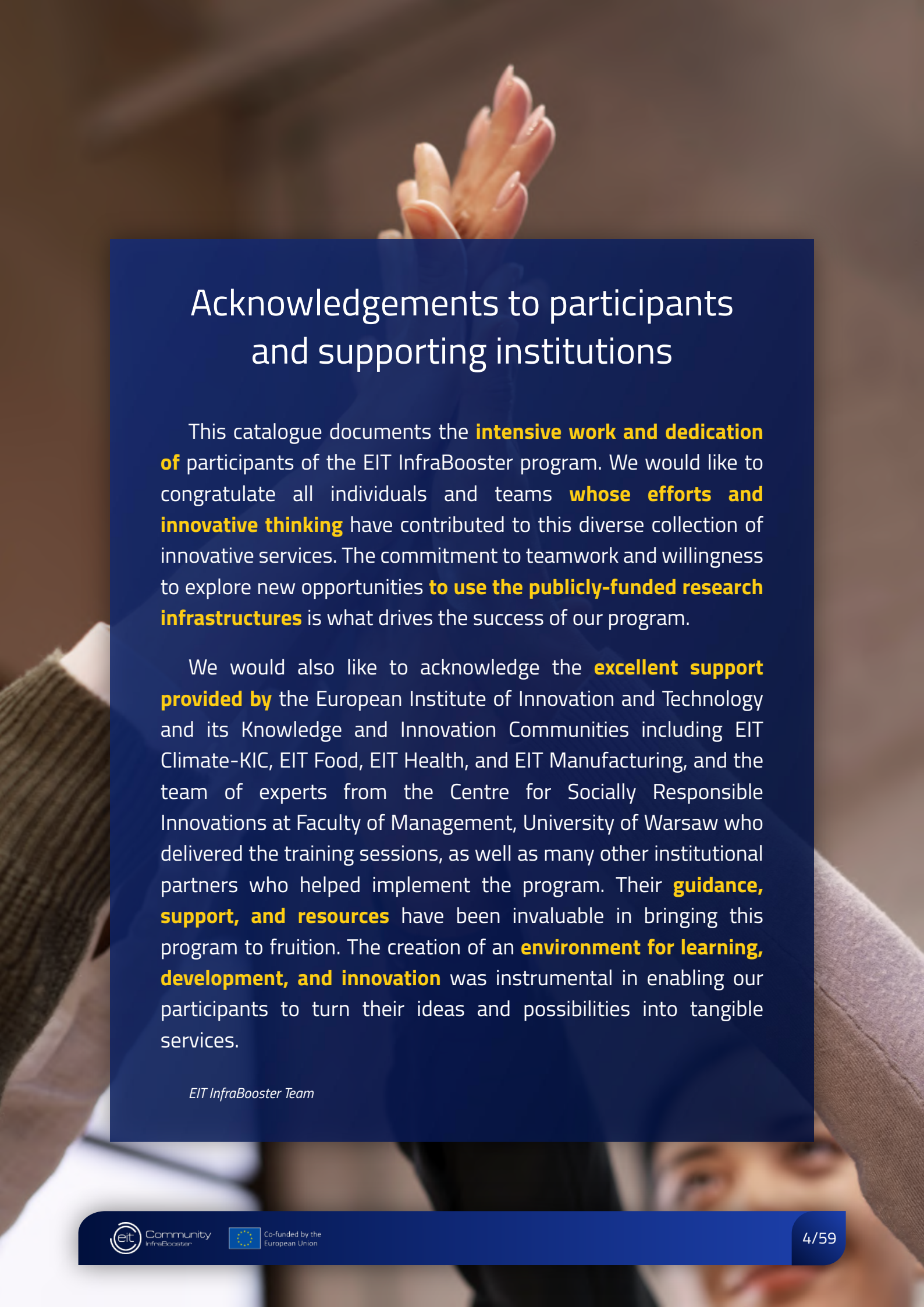
eit Community InfraBooster

Co-funded by the European Union



Acknowledgements to participants and supporting institutions

This catalogue documents the **intensive work and dedication of** participants of the EIT InfraBooster program. We would like to congratulate all individuals and teams **whose efforts and innovative thinking** have contributed to this diverse collection of innovative services. The commitment to teamwork and willingness to explore new opportunities **to use the publicly-funded research infrastructures** is what drives the success of our program.

We would also like to acknowledge the **excellent support provided by** the European Institute of Innovation and Technology and its Knowledge and Innovation Communities including EIT Climate-KIC, EIT Food, EIT Health, and EIT Manufacturing, and the team of experts from the Centre for Socially Responsible Innovations at Faculty of Management, University of Warsaw who delivered the training sessions, as well as many other institutional partners who helped implement the program. Their **guidance, support, and resources** have been invaluable in bringing this program to fruition. The creation of an **environment for learning, development, and innovation** was instrumental in enabling our participants to turn their ideas and possibilities into tangible services.

EIT InfraBooster Team

What is EIT InfraBooster?

EIT InfraBooster **promotes the effective use of** publicly-funded research infrastructures owned by universities or research institutes and relevant to the R&D efforts of private sector companies and startups.

EIT InfraBooster is a **modular training program** for representatives of scientific organisations that own research infrastructures. It was based on the **methodology** and experiences of RIS Research Infrastructure Network, **implemented** in 2021-2022 **by University of Warsaw**. It offers **capacity building** and **support** in designing infrastructure-based services that could be offered for companies.

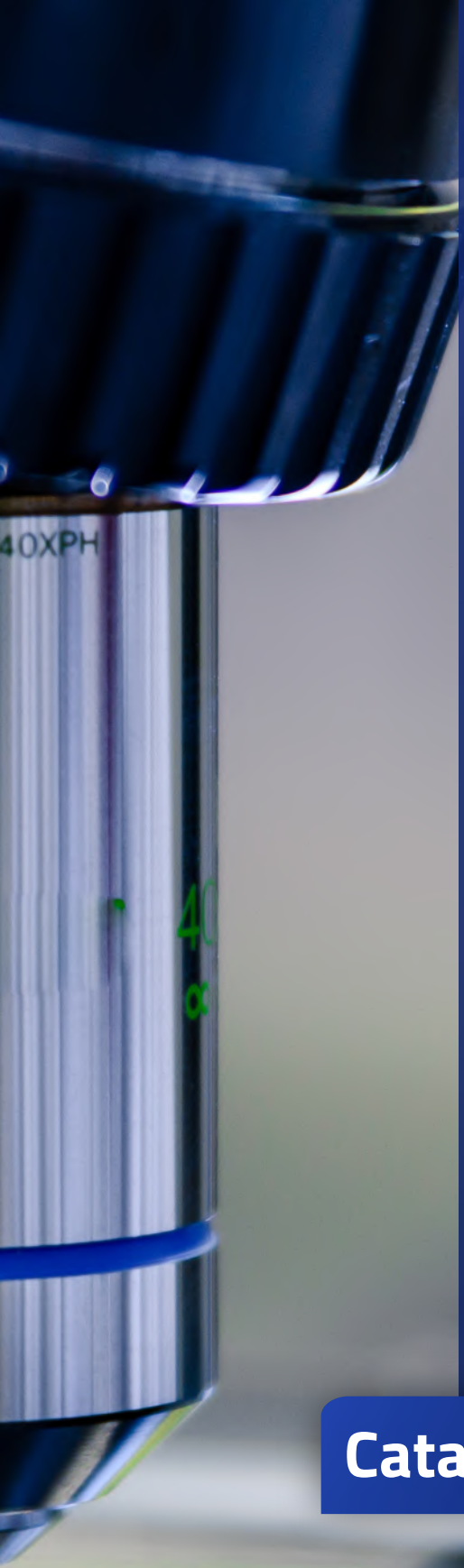
EIT InfraBooster brings closer to the industry, increasing the collaboration, international exposure and innovativeness of institution, and **helping establish new sources** of revenues.

EIT InfraBooster **Practitioner is the second level** of EIT InfraBooster educational modules **helping better understand** the competitive edge of research infrastructures, design innovative infrastructure-based services, identify potential industrial partners and start industrial outreach.

Practitioner **module helps prepare** marketing collateral that highlights differentiators and benefits important for their target clients, **understand the needs** of specific industries/companies, **identify** potential clients and **initiate** service sales processes.

Find out more information on:

https:/eit-ris.eu/infrabooster/



This catalogue is a **comprehensive showcase of services** developed by the participants of EIT InfraBooster Practitioner program. Our primary objective was to **present a diverse array of solutions and services** that have emerged during InfraBooster modules and **demonstrate the rich potential and capabilities** of our participants.

The scope of this catalogue extends beyond a mere listing of services. It **serves as a bridge** connecting innovators with potential users, stakeholders, and collaborators. Each section in this catalogue **provides a concise and informative glimpse** into the service offered, covering its core concept, potential applications, and the value it adds to its respective field.

EIT Infrabooster aims to **create a platform** that not only highlights these services but also fosters connections and collaborations, **fuelling further development**.

Catalogue introduction

Catalogue sections

ALEXANDRU IOAN CUZA UNIVERSITY of IAȘI

Service name:

Development of innovative fish feed

Responsible institution / team:

Alexandru Ioan Cuza University of Iasi,

CETACVA - Research and Technology Transfer Center

in Aquaculture and Aquatic Ecology

ALEXANDRU IOAN CUZA UNIVERSITY of IAȘI

Service name:

Development of innovative fish feed

Responsible institution / team:

Alexandru Ioan Cuza University of Iasi, CETACVA - Research and Technology Transfer Center in Aquaculture and Aquatic Ecology

Description:

This service involves the development of innovative fish feed recipes using plant-based ingredients, tailored to enhance the health and growth of various freshwater fish species. The University's CETACVA center, equipped with Romania's largest research recirculating aquaculture system (RAS), focuses on fish reproduction, water quality management, and broader aquaculture research. The service includes developing and testing these feeds in-house in both RAS and earthen ponds, as well as offering consultancy in aquaculture practices.

Potential applications and benefits:

- For fish feed companies: development of innovative feed recipes with local, plant-based, and bioactive ingredients, including testing and recipe improvement recommendations.
- For fish farmers: increased production efficiency, access to the latest aquaculture advancements, and training in advanced aquaculture techniques.
- For additives companies: support in the development and testing of natural bioactive compounds as feed additives products.

Contact to service providers:

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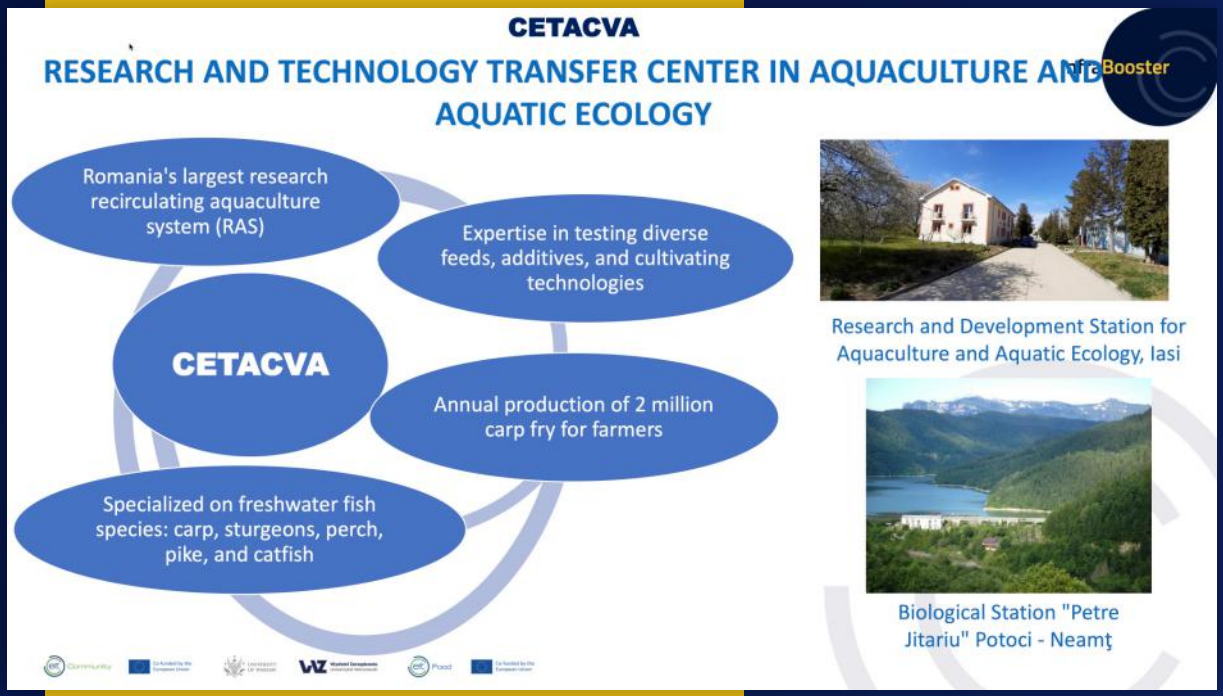
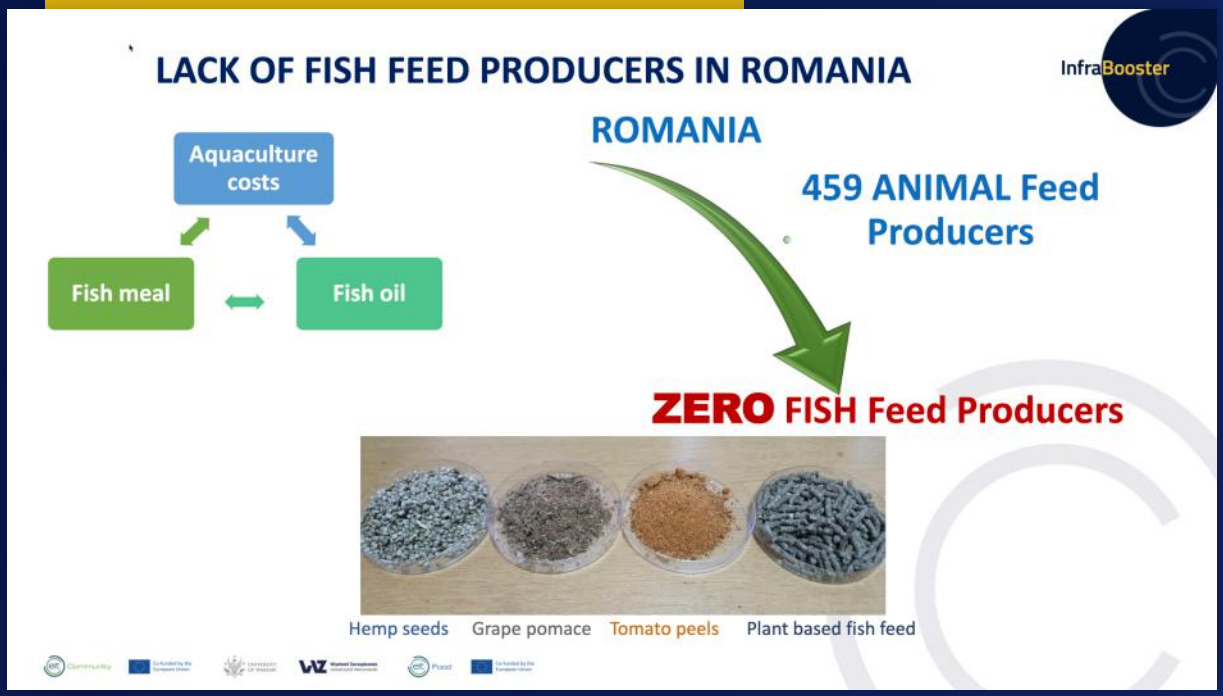
- Lenuta Dirvariu: lus22grigorica@yahoo.com

Pitch deck slides

Development of innovative fish feed

ALEXANDRU IOAN CUZA UNIVERSITY of IAȘI





Pitch deck slides

Development of innovative fish feed

ALEXANDRU IOAN CUZA UNIVERSITY of IAȘI

DEVELOPMENT OF INNOVATIVE FISH FEED FORMULAS

InfraBooster

- ✓ Customized Feed Formulas
- ✓ Pilot scale demonstrator
- ✓ Detailed Efficiency Reports
- ✓ Optimization Suggestions for Feed Producers

Innovative Feed Formulation

Recirculating Aquaculture System and Pond Testing

Target market and potential clients

InfraBooster

- ✓ 459 animal feed companies
- ✓ net turnover of 1,426 million euros
- ✓ Lack of employee and experts

CETACVA

Opportunity to expand into the market

Help to develop quality of fish feed

Service name:

Development of healthy bakery and pastry products

Responsible institution / team:

University of Life Sciences “King Mihai I” from Timisoara (ULST),
specifically the Bakery and Pastry laboratories (BPL) connected with the Interdisciplinary Research Platform (IRP)

Service name:

Development of healthy bakery and pastry products

Responsible institution / team:

University of Life Sciences "King Mihai I" from Timisoara (ULST), specifically the Bakery and Pastry laboratories (BPL) connected with the Interdisciplinary Research Platform (IRP)

Description:

This service focuses on the development and innovation of healthy bakery and pastry products, utilizing the expertise of BPL and IRP at ULST. The service includes training and mentoring in bakery and pastry product development, logistical and informational support in targeted nutrition, and consulting for customized technology formulas. The BPL's main goal is to provide research, innovation, and technological transfer services, aligning with the latest dietary trends and consumer needs, particularly in developing hypoglycemic, gluten-free, and keto-friendly products.

Potential applications and benefits:

- For bakery and pastry industries: assistance in developing technologies for functional/ dietary flouring products. This includes the development of new innovative products for healthy eating and support in the elaboration of technical flows, specifications, and documentation for trademarks and patents.
- For health-conscious consumers: focus on hypoglycemic, gluten-free, and keto-friendly products, addressing the needs of consumers with dietary restrictions and health concerns, such as diabetes and digestive disorders.
- Economic and environmental benefits: implementation of sustainable technologies based on the principle of circular economy, using natural, environmentally friendly raw materials, thereby increasing the economic efficiency and competitiveness of bakery units.

Contact to service providers:

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- Assoc. Prof. Diana Raba: diana.raba@usvt.ro
- Lecturer Monica Negrea: monicanegrea@usvt.ro
- Lecturer Diana Obistioiu: dianaobistioiu@usvt.ro

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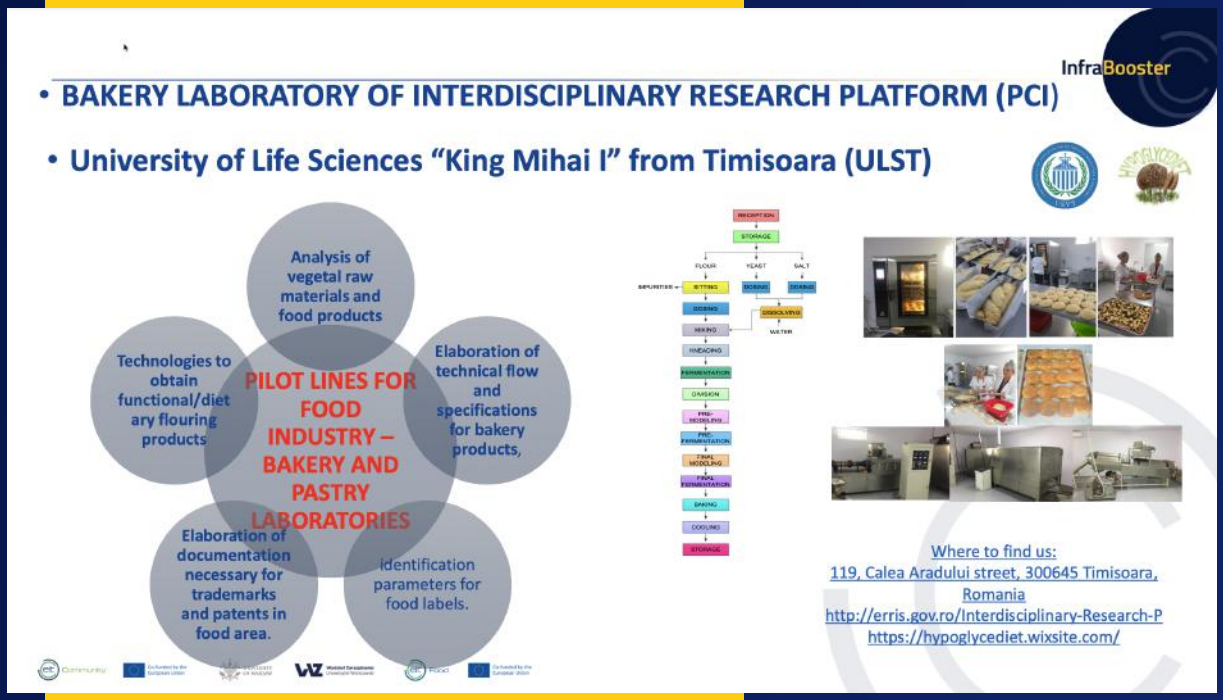
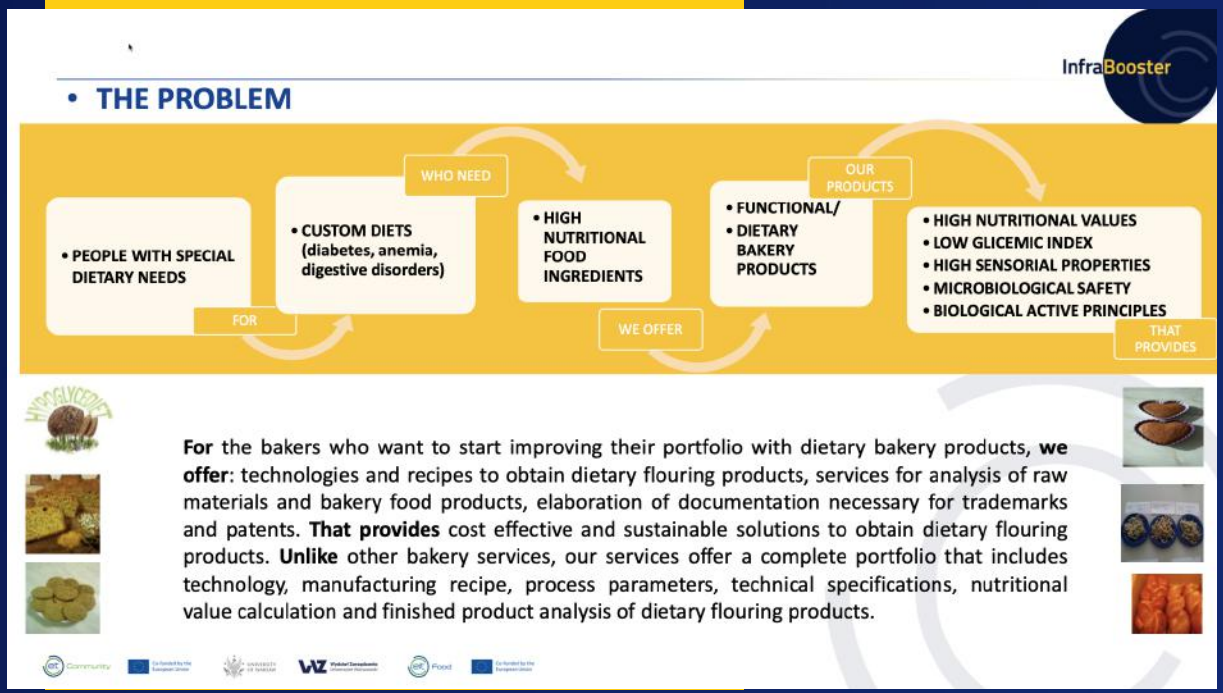
Development of healthy bakery and pastry products





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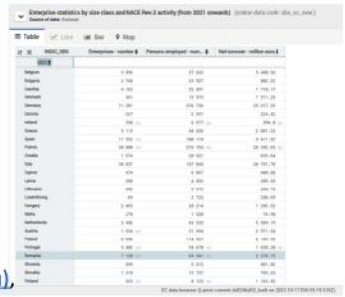
Development of healthy bakery and pastry products

• TARGET MARKET AND POTENTIAL CLIENTS

InfraBooster

- The target segments are represented by NACE COD C10.7. Manufacture of bakery and farinaceous products
- Segment 1. Fresh bread containing in dry matter <5% sugar and <5% fat, product considered low in carbohydrates and dietetic
- Segment 2. PRCCODE 11/4787 Bakers' wares, no added sweetening
- Segment 3. PRCCODE 12/4787 Cake and pastry products; other bakers' wares with added sweetening matter



Statistics | Eurostat (europa.eu),

CEO of Bakery Company

GAIN

- i) to obtain healthy products,
- ii) satisfied customers
- iii) increasing of the production
- , iv) profit

PAIN

- i) finding optimal technological solutions
- ii) preparation of recipes, technical specifications for functional and dietary products,
- iii) the choice of nutritionally and economical optimal ingredients

• COMPETITORS/ALTERNATIVES AND DIFFERENTIATORS

InfraBooster

DIRECT COMPETITORS	POTENTIAL COMPETITORS	INDIRECT COMPETITORS	DIRECT SUBSTITUTES
• other service providers in the field of DIETARY bakery products in ROMANIA (university, Research Institutes and Enterprises	other service providers in the field of DIETARY bakery products in other countries	• other service providers offering other types of services in bakery products	• other service providers offering other types of bakery products replacement (confectionery)

Unlike other bakery services, **our services** offer a complete portfolio that includes both technology, manufacturing recipe, process parameters, technical specifications, nutritional value calculation and finished product analysis of dietary flouring products.

That provides cost effective and sustainable solutions to obtain dietary flouring products.

Service name:

Development of innovative pesticide products

Responsible institution / team:

University of Belgrade,

specifically the Chemical Laboratory for Pesticides at

the Faculty of Agriculture

Service name:

Development of innovative pesticide products

Responsible institution / team:

University of Belgrade, specifically the Chemical Laboratory for Pesticides at the Faculty of Agriculture

Description:

This service focuses on developing innovative pesticide products, leveraging the expertise of the Chemical Laboratory for Pesticides. The laboratory, accredited and equipped with modern equipment for pesticide analysis, aims to strengthen the capacities of domestic companies in developing effective, safer, and environmentally friendly pesticide products. The team's experience in plant protection product analysis, testing, registration, product certification, and consulting services forms the backbone of this service.

Potential applications and benefits:

- For producers of plant protection products: the service primarily targets small and medium-sized enterprises developing new pesticide products, offering expertise in developing effective and environmentally responsible products.
- For the agriculture industry: enhancing market competitiveness and positioning of domestic and regional plant protection products.
- Operational and developmental benefits: up to 40% time savings in product testing and analysis, access to external resources and expert services, and optimization of the product development process due to redistribution of internal resources.

Contact to service providers:

- Kristina Stevanović: kristina.stevanovic@rect.bg.ac.rs
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- Nedeljko Milosavljević: nedeljko.milosavljevic@rect.bg.ac.rs

Pitch deck slides

Development of innovative pesticide products

Industry segment – pesticide manufacturers

(NACE: C 20.20 Manufacture of pesticides and other agrochemical products)

InfraBooster

Head of product development

GAINS/EXPECTATIONS:

- Redistribution of workload with other people experienced in the field
- To lower operational costs
- More time to focus on product development
- More funding for product development
- No overtime labour

PAIN RELIEVERS:

- Up to 40% time savings related to product testing and analysis
- The lack of internal resources compensated with external resources
- No need for purchasing and maintaining expensive equipment for testing
- Shortening the time needed for procurement and financial planning

GAIN CREATORS:

- Collaboration with the experts in the field of product testing and analysis
- Available expert services that are more affordable than in-house solution
- Product development process optimized due to redistribution of internal resources

InfraBooster

Out of 51 companies on the market of plant protection products in Serbia, only 6 produce their own products!

- Time-consuming process of product testing and analysis
- Not enough internal resources (human, financial, equipment, material)
- Costs of purchasing and maintaining testing equipment are high, and the equipment is not used in full capacity

Pitch deck slides

Development of innovative pesticide products

OUR OFFER

InfraBooster

For SMEs that develop and produce plant protection products, who suffer from a time-consuming and expensive product development process that requires adequate, often non-existent or insufficient internal resources, we offer laboratory services that save up to 40% of our clients' time due to the testing and analysis that we do instead of them. Unlike other public and private chemical laboratories, we offer a unique methodology and necessary equipment for pesticide testing and development ensuring complete safety and maximum efficiency of newly developed products thanks to the high sensitivity and incomparable specificity of the equipment we use and the ability to analyze even the smallest concentrations of active substances.

PESTICIDE INNOVATION UPGRADE

- The analysis of active ingredients of pesticides
- Help in the process of developing and testing new products
- Help in bringing new products to the market
- Knowing all important regulations
- A safe, efficient, and reliable process

COMPETITIVE ANALYSIS

InfraBooster

	Price	Number of analyzes	Expertise	Accuracy of results	Accreditation	Availability	R&D	Customized solution	Unique methodology
Other public labs within faculties and institutes									
	X		X	X			X		
		X			X	X			
Labs/R&D departments in private companies									
	X			X	X				
		X	X						
						X	X		
OUR SERVICES									
		X	X	X	X		X	X	X
	X					X			

WHY US?

- Customized solutions and services
- Innovative methodology
- Up to 40% time savings related to product testing and analysis
- The lack of internal resources compensated with external resources
- No need for purchasing the additional equipment
- More cost-effective than the in-house solution
- No after-hours related to product testing and reporting

Service name:

R&D services in boosting production with gene-assisted selection

Responsible institution / team:

University of Sarajevo: Institute for Genetic Engineering and Biotechnology (UNSA – INGEB)

Service name:

R&D services in boosting production with gene-assisted selection

Responsible institution / team:

University of Sarajevo: Institute for Genetic Engineering and Biotechnology (UNSA – INGEB)

Description:

This service focuses on leveraging predictive genetic modelling to develop resilient crop varieties suited to changing environmental conditions, thereby contributing to sustainable agriculture and biodiversity preservation. UNSA-INGEB, equipped with sophisticated equipment and bioinformatic tools, offers services including genetic sequencing of food samples, disease resistance analysis, and crop yield forecasting. The institute's drive for commercialisation of research outcomes aligns its scientific pursuits with market needs, benefiting various sectors including food, pharmaceuticals, agriculture, and healthcare.

Potential applications and benefits:

- For the fish-farming sector: precise, low-risk breeding and harvesting strategies supported by comprehensive genetic testing services, offering best practice options for breeding and propagation.
- For fruits and vegetables production and processing sector: enhanced crop quality and yield predictions, improved communication and collaboration with partners, and tailored solutions for specific environmental conditions.
- For governmental services sector: support in joint projects at national and international levels, contributing to broader societal and economic well-being.

Contact to service providers:

- Prof. Dr. Lejla Kapur-Pojskić: lejla.pojskic@ingeb.unsa.ba
- Prof. Dr. Maja Arslanagić-Kalajdžić: maja.arslanagic@efsa.unsa.ba
- Ms. Nina Begović: nina.begovic@unsa.ba

Pitch deck slides

R&D services in boosting production with gene-assisted selection

Introduction

InfraBooster

- **University of Sarajevo - Institute of Genetic Engineering and Biotechnology (UNSA - INGEB)** leads the way of research and innovation in BiH for 35 years with:
  - Integrated and advanced **research infrastructure** (molecular analysis and synthetic biology)
  - Application possibilities for various sectors (**agriculture** to **healthcare**)
  - Contributing to **sustainable development goals**
  - Concrete **innovation** (by holding three patents)

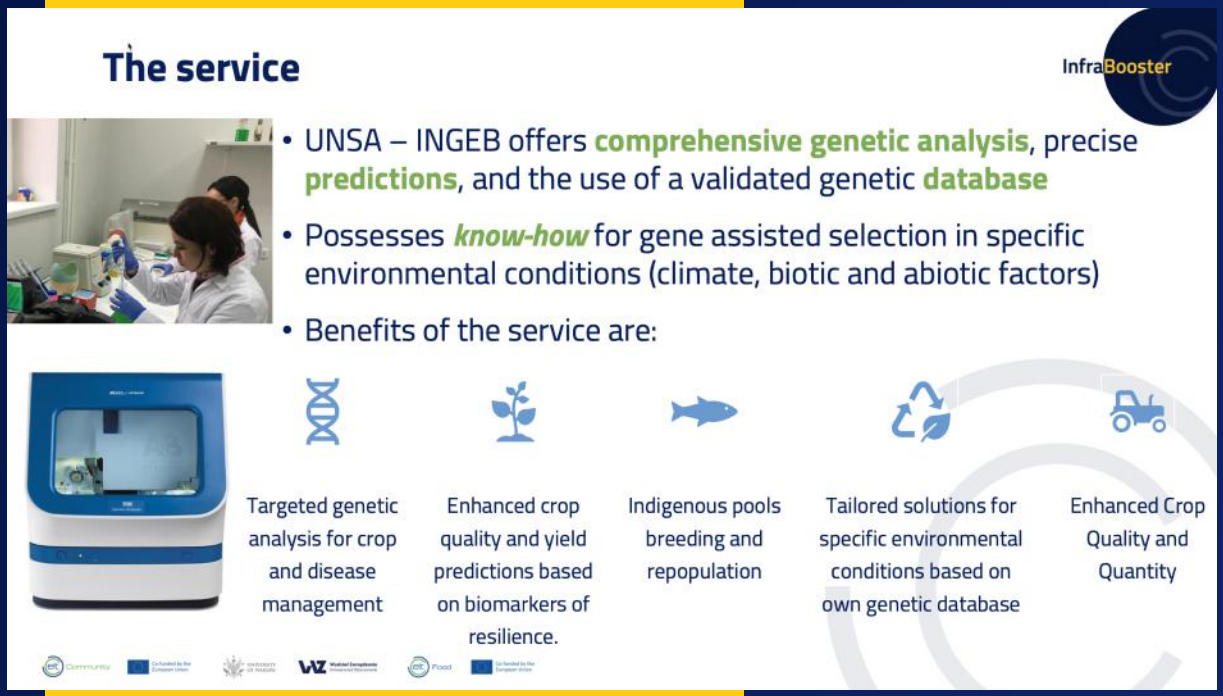
The problem

InfraBooster

- **Agricultural producers** face critical **sustainability** issues
- **Fisheries and aquaculture producers** deal with **resource depletion**
- **Food industry managers** tackle face complexities in logistics and quality assurance

Pitch deck slides

R&D services in boosting production with gene-assisted selection



Service name:

Complete solution for digital transformation in manufacturing

Responsible institution / team:

Smart Learning Factory – Skopje,

Ss. Cyril and Methodius University in Skopje

Service name:

Complete solution for digital transformation in manufacturing

Responsible institution / team:

Smart Learning Factory - Skopje, Ss. Cyril and Methodius University in Skopje

Description:

SLFS focuses on creating a physical simulation environment for learning production concepts, with an emphasis on Lean Management and Industry 4.0. The facility is equipped with a Smart Kanban supermarket, smart Poka Yoke station, working station transporter, 2D machine vision, and a SCARA robot. Envisioned as a showroom, laboratory, training center, and innovation hub, SLFS aims to introduce new technologies and upskill individuals for the future of industry.

Potential applications and benefits:

- For academia: provides an environment for hands-on learning and skill development in digital manufacturing and Industry 4.0 technologies. Offers opportunities for research and experimentation in advanced production concepts.
- For industry: aids manufacturing companies in implementing digital transformation and lean manufacturing practices. Supports companies in improving production efficiency and adopting modern manufacturing technologies.
- For individuals: offers training and upskilling opportunities in cutting-edge manufacturing technologies and lean management. Enhances individual competencies and employability in the evolving industrial sector.

Contact to service providers:

- Bojan Jovanoski, PhD: bojan.jovanoski@mf.edu.mk
- Robert Minovski, PhD: robert.minovski@mf.edu.mk
- Aleksandar Argilovski, MSc: aleksandar.argilovski@mf.edu.mk

Pitch deck slides

Complete solution for digital transformation in manufacturing

SMART LEARNING FACTORY SKOPJE

The need

InfraBooster

For the manufacturing companies that are **struggling with digital transformation** of their production processes – we are UNLOCKING THE FUTURE OF MANUFACTURING by providing **comprehensive approach to digital transformation** consisted of:

- all-in-one,
- tailored according to the specific case, and
- hands-on

TRAINING, RESEARCH and **INNOVATION SERVICES.**

The service

InfraBooster

Comprehensive approach to digital transformation in the manufacturing sector

OUR INFRASTRUCTURE

Showroom
to discover new technologies for Lean and Industry 4.0.

Training centre
for upskilling and reskilling future industry personnel.

Laboratory
for experimenting with new technologies and scenarios.

Development hub
for integrated solutions for the industry.

OUR TRAINING SESSIONS

Pitch deck slides

Complete solution for digital transformation in manufacturing

Target market and potential clients

InfraBooster

Our target groups include:

- academia;
- industry;
- individuals.

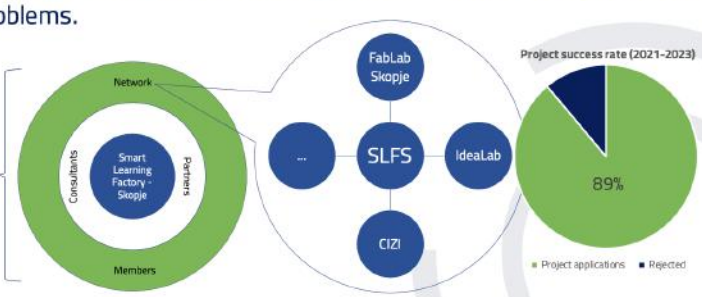
Download the one-pagers for each target group on our website!
learningfactory.mf.edu.mk

Competitors and our advantages

InfraBooster

- The Smart Learning Factory – Skopje **pioneered the concept of learning factories in North Macedonia**.
- Our competencies in the fields of Lean and Industry 4.0 are strongly support ed and enhanced by our **ecosystem of partners**.
- Most of our competitors are experts in specific technology or tool – we offer **comprehensive, holistic solution** to the problems.

PLC programming
Manipulation of robots
ERP systems
MES systems
AI & IoT
5G
Augmented reality
Additive manufacturing
Traceability
ANDON systems
Safety systems at work
Energy Efficiency solutions



Service name:

Blockchain testbed for testing ideas and concepts

Responsible institution / team:

Belgrade Metropolitan University's

Blockchain Technology Laboratory

Service name:

Blockchain testbed for testing ideas and concepts

Responsible institution / team:

Belgrade Metropolitan University's Blockchain Technology Laboratory

Description:

The Blockchain Technology Laboratory at Belgrade Metropolitan University is a hub for blockchain research and development. Equipped with state-of-the-art technology, the lab offers a secure and scalable environment for testing blockchain-based solutions in various domains, including healthcare, education, and supply chain management. The laboratory plays a key role in the regional innovation ecosystem, contributing to the development of high-tech Web3 solutions.

Potential applications and benefits:

- For software startups: a secure environment for testing blockchain applications, fostering innovation and validating ideas.
- For SMEs: expert-led training and tailored solutions to integrate blockchain into existing systems.
- For consulting agencies: reliable testing environments and technical guidance for crypto solutions.
- For independent researchers: a cost-effective testbed for blockchain experiments, promoting innovation without budget constraints.

Contact to service providers:

- Nemanja Zdravković (Laboratory Head): nemanja.zdravkovic@metropolitan.ac.rs
- Miloš Kostić (Researcher): milos.kostic@metropolitan.ac.rs
- Milica Mladenović (Researcher): milica.mladenovic@metropolitan.ac.rs
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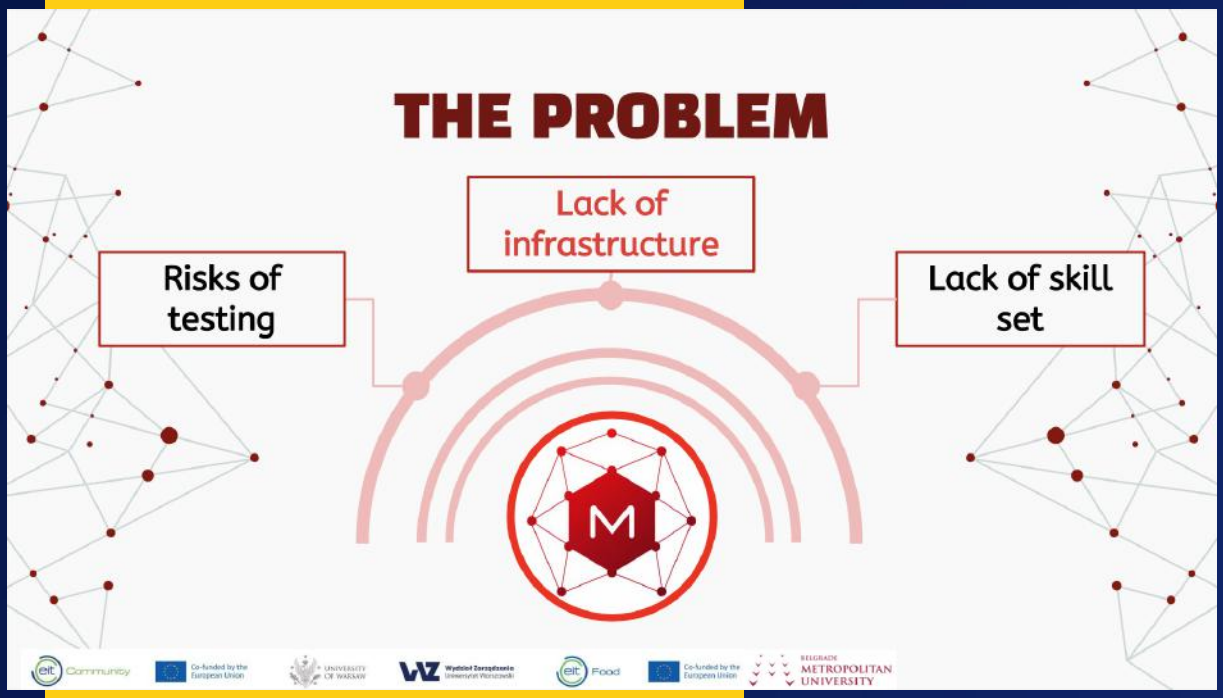
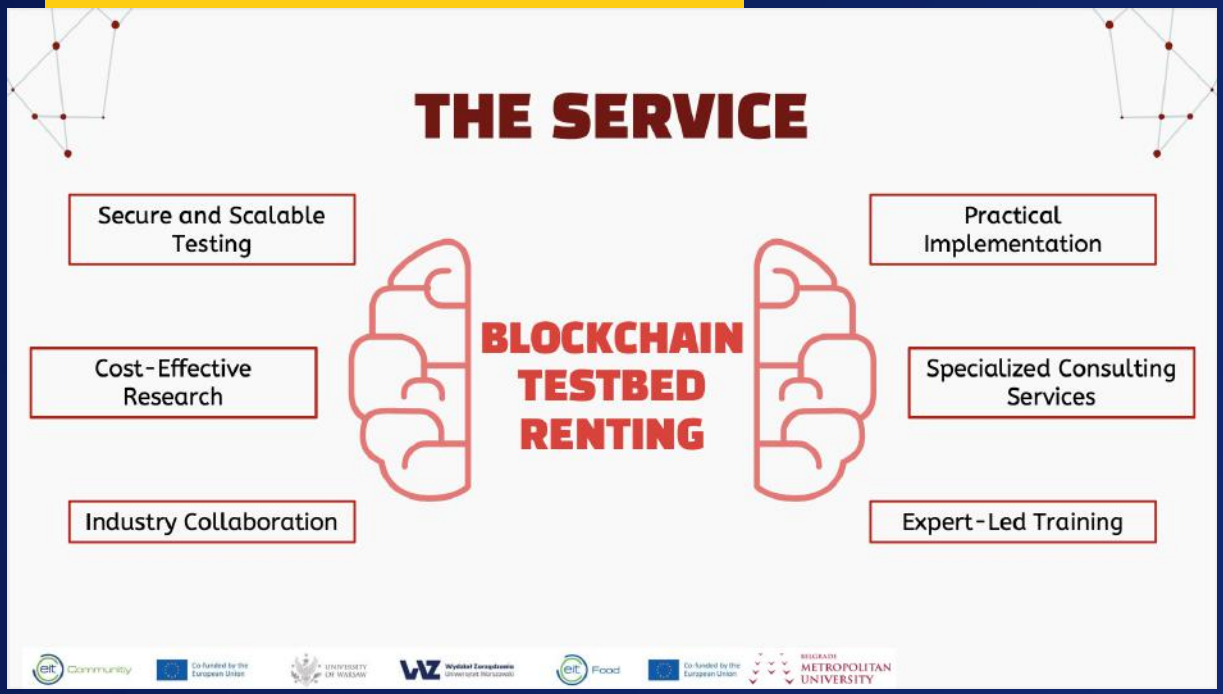
Pitch deck slides

Blockchain testbed for testing ideas and concepts





Pitch deck slides

Blockchain testbed for testing ideas and concepts

Service name:

Microbiological control of food products based on MALDI-TOF MS

Responsible institution / team:

Trakia University Stara Zagora

The Food Control Laboratory, part of the Department of "Food Quality and Safety and Veterinary Legislation" at the Faculty of Veterinary Medicine

Service name:

Microbiological control of food products based on MALDI-TOF MS

Responsible institution / team:

Trakia University Stara Zagora: The Food Control Laboratory, part of the Department of "Food Quality and Safety and Veterinary Legislation" at the Faculty of Veterinary Medicine

Description:

The laboratory specializes in microbiological control of food products using Matrix-Assisted Laser Desorption/Ionization Time of Flight Mass Spectrometry (MALDI-TOF MS). It focuses on biological and chemical hazards affecting food safety and quality, employing scientific-based methods for the safety evaluation of food based on microbiological, physical, or chemical composition. The lab has a broad inventory of food testing instruments and is experienced in providing training courses in animal welfare, HACCP, and molecular methods in food analysis.

Potential applications and benefits:

- For meat processing plants: offers rapid and accurate microbiological assessment throughout production, enhancing traceability and food safety.
- For dairy plants: identifies bacteria in the dairy environment, contributing to food safety management and eradication of microorganisms.
- For aquaculture farms: provides effective hygiene control and early recognition of aquatic microorganisms, aiding in disease prevention and ensuring product safety.
- General food industry: fast identification of bacterial pathogens causing foodborne illnesses, professional consultation, and management of veterinary-sanitary control for food products.

Contact to service providers:

- Professor Todor Stoyanchev, PhD: todor.stoyanchev@trakia-uni.bg
- Assistant Professor Ralitsa Kyuchukova, PhD: ralitsa.kyuchukova@trakia-uni.bg
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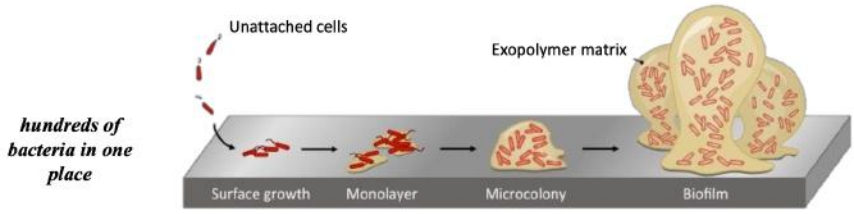
- Assistant Professor Rumyana Fasulkova: rumyana.fasulkova@trakia-uni.bg

Pitch deck slides

Microbiological control of food products based on MALDI-TOF MS

Problem driven solutions
Biofilms: urgent problem in the food industry

InfraBooster



hundreds of bacteria in one place

huge economic costs

persist and survive for long period of time

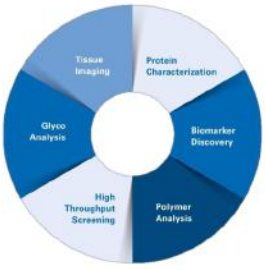
strong adhesion to surface

spoilage and foodborne pathogens

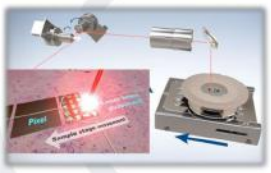
postprocessing contamination

MALDI-TOF Biotyper vs classical ISO methods

InfraBooster



Rapid and accurate identification	Analysis of multiple samples simultaneously
Cost-effective and time-saving	Early detection of pathogens or spoilage organisms, resulting in reduce product recall



Pitch deck slides

Microbiological control of food products based on MALDI-TOF MS

POTENTIAL CLIENTS

InfraBooster

- Food business operators
- Food retailers
- Quality control departments
- Regulatory agencies

UNIQUENESS

InfraBooster

- ✓ 20 years of experience in supporting food processing industry
- Multidisciplinary team of experts in food technology, microbiology, food safety and quality
- Laboratory for microbiological, physicochemical, molecular and sensory analysis

Service name:

Alternative proteins using ultrasound-assisted protein extraction

Responsible institution / team:

TÜBİTAK Marmara Research Center

Food Innovation Center (FIC), part of food research groups under the Life Sciences of TÜBİTAK MAM

Service name:

Alternative proteins using ultrasound-assisted protein extraction

Responsible institution / team:

TÜBİTAK Marmara Research Center: Food Innovation Center (FIC), part of food research groups under the Life Sciences of TÜBİTAK MAM

Description:

This service involves the development of plant-based alternative protein sources using ultrasound-assisted extraction techniques. The service aims to address challenges in the food industry related to sustainability, production efficiency, and nutritional quality. Utilizes state-of-the-art technology to enhance extraction efficiency, reduce processing time, and maintain high protein yields.

Potential applications and benefits:

- For vegan food producers: optimization of protein extraction protocols, characterization of extracted proteins, and training in ultrasound-assisted extraction techniques.
- For the food industry: offers innovative solutions for sustainable and nutritious product development, catering to the growing market of plant-based alternative protein sources.
- General benefits: increased production output and cost-effectiveness, addressing industry challenges such as supply chain disruptions and fluctuating raw material costs.

Contact to service providers:

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Pitch deck slides

Alternative proteins using ultrasound-assisted protein extraction

Introduction

InfraBooster

ABOUT US

TÜGİP Food Innovation Center (FIC) is an establishment of TÜBİTAK MAM Life Sciences institution.

Main objective of the FIC is developing innovative food products/processes.

FIC is ready to collaborate and co-create with private sector companies of all size.

FIC's facilities include;

- ✓24 laboratories
- ✓50 research personelle
- ✓9 pilot process lines with more than 300 food processing equipments.

The problem or need

InfraBooster

New challenge:

Finding new

«friendly!»

sources for proteins!

Enviromentally friendly!

Nutritional friendly!

Cost friendly!

Process friendly!

Taste friendly!

Pitch deck slides

Alternative proteins using ultrasound-assisted protein extraction

The service

InfraBooster

FIC's protein extraction laboratory **offers;**

- State-of-the-art solutions
- Cost-effective product development,
- Next generation processes
- Comprehensive analysis
- Protein characterization
- Support during setup of ultrasound extraction system at your company
- Taste optimization with sensory analysis!

Target market and potential clients

InfraBooster

Protein extracts can have a wide range of applications, and potential clients may come from various industries:

- Food industry (dietary supplement manufacturers, functional food industry, etc.).
- Sports and fitness industry

Service name:

Development of healthier foods through extrusion

Responsible institution / team:

Agricultural Technological Institute of Castile and Leon (ITACyL)

Service name:

Development of healthier foods through extrusion

Responsible institution / team:

Agricultural Technological Institute of Castile and Leon (ITACyL)

Description:

ITACyL specializes in small-scale extrusion solutions for healthier food products. The team has significant experience in food biochemistry, novel food processing, and the evaluation of health-related properties of food, with a focus on functional foods from vegetable matrices, targeted at various segments including processing and preserving of fruit and vegetables, grain mill products, and homogenised food preparations and dietetic food.

Potential applications and benefits:

- For entrepreneurs of SMEs interested in healthy food: provides advanced extrusion technology for developing innovative, healthy food products. Assists in product differentiation and market competitiveness through novel food offerings.
- For researchers in public research institutions: offers collaboration opportunities in food processing and preservation research. Enables access to novel extrusion technology for academic and applied research.
- For agriculture cooperatives: supports the preservation and processing of fruits, vegetables, and grain products, enhancing product quality and shelf-life. Facilitates the development of new food products, aiding cooperatives in diversifying product range.
- For managers of R&D departments in food ingredient companies: assists in the manufacture of homogenised food preparations and dietetic food, optimizing product development processes.

Contact to service providers:

- Ana Belén Martín Diana (Food Health Properties): ab.martin@itacyl.es
- Daniel Rico Bargues (Food Processing): dr.bargues@itacyl.es
- Elena Ordás Alesanco (Bioactivity Lab): e.ordas@itacyl.es
- María del Carmen García Gutiérrez (Processing and Sensory): mc.garcia@itacyl.es
- Iván Jesús Jiménez Pulido (Food Bioactive Properties): ij.pulido@itacyl.es.

Pitch deck slides

Development of healthier foods through extrusion

THE PROBLEM

InfraBooster

For enterprises with large amounts of low-value side streams and managing costs

We offer a product development service

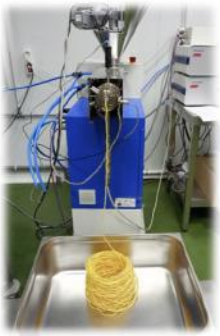
vegetable waste and by-products

↓

EXTRUSION

↓

tailored processes for food ingredients



InfraBooster

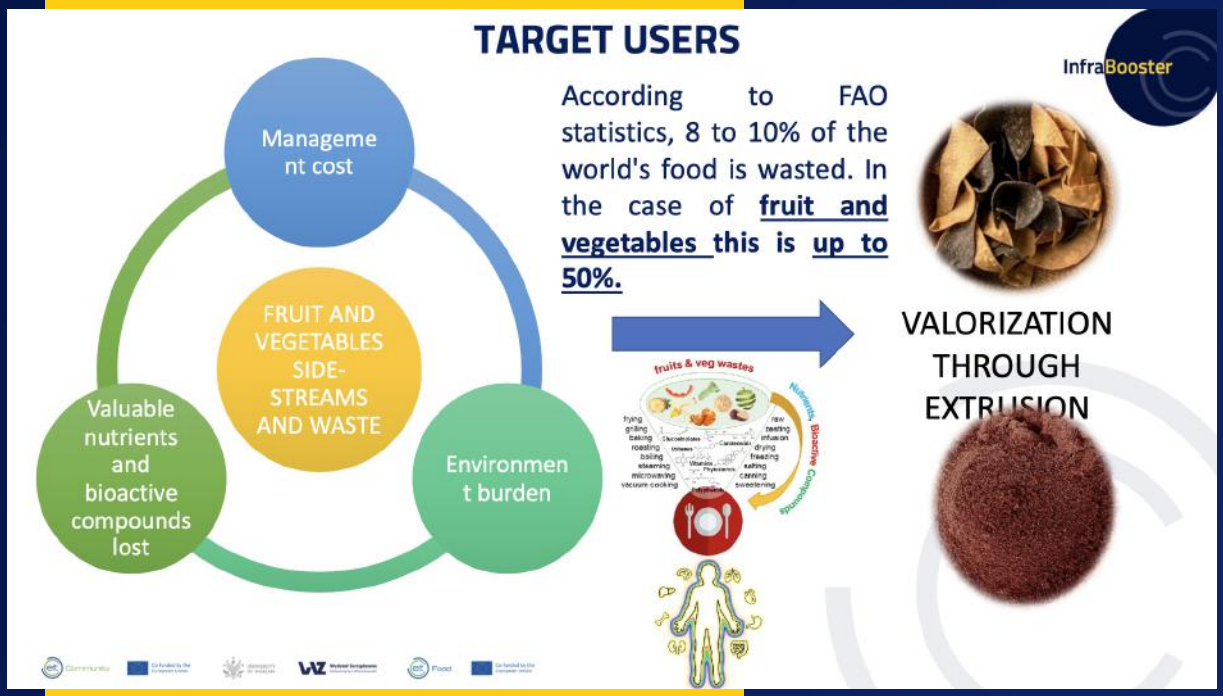
We focus on optimization process on maximizing the health-related properties of the extruded ingredients, increasing value to vegetable waste and by-products.

BENEFITS

- Improved nutritional properties
- Versatility in product development
- Innovation in ingredients
- Production efficiency
- Reduction of wastes
- Prioritisation of regional companies

Pitch deck slides

Development of healthier foods through extrusion



Service name:

Development of novel bio-based ingredients for pharmaceutical produce

Responsible institution / team:

Riga Technical University,

Water Research and Environmental Laboratory (WREBL)

Service name:

Development of novel bio-based ingredients for pharmaceutical produce

Responsible institution / team:

Riga Technical University Water Research and Environmental Laboratory (WREBL)

Description:

WREBL is dedicated to developing bio-based ingredients for pharmaceutical use. Utilizing a bioreactor, WREBL expertly cultivates photosynthetic microorganisms, such as microalgae and bacteria, for compound extraction. The bioreactor's precise control over cultivation parameters ensures optimal growth and extraction efficiency. WREBL combines expertise in water engineering and environmental sustainability to innovate in pharmaceutical ingredient production. History of industrial collaboration enhances WREBL's capability to produce novel, environmentally friendly pharmaceutical compounds.

Potential applications and benefits:

- For pharmaceutical and biotech companies: provides unique bioactive compounds from photosynthetic microorganisms for developing innovative pharmaceutical products and natural product-based therapies.
- For R&D in natural product-based therapeutics: facilitates research into natural, bio-based pharmaceuticals, enhancing the diversity of treatment options and natural health products.
- For small companies lacking infrastructure: provides crucial infrastructure and expertise in biosynthesis and extraction, crucial for product development and business growth.
- R&D support: assists companies in navigating the challenges of process optimization, innovative product development, and synthesis of new compounds.
- Sustainability and cost-effectiveness: offers a sustainable and cost-efficient alternative to traditional extraction methods, aligning with environmental and economic goals.

Contact to service providers:

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- Alina Dolmate: alina.dolmate@rtu.lv

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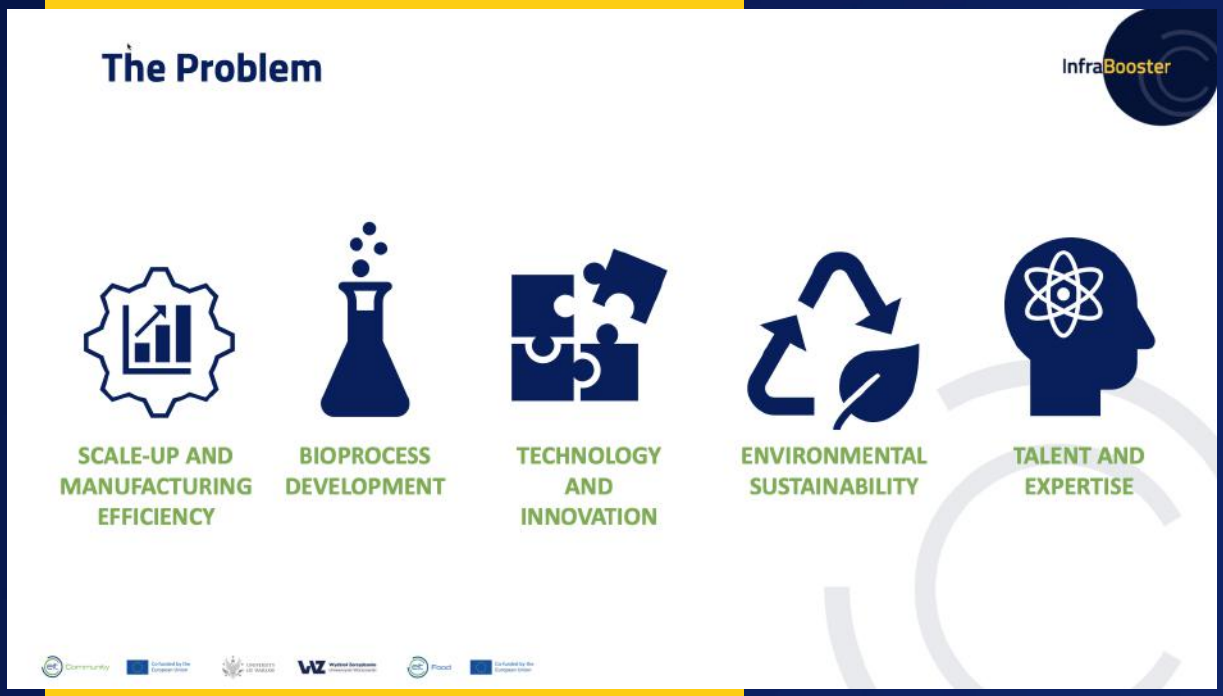
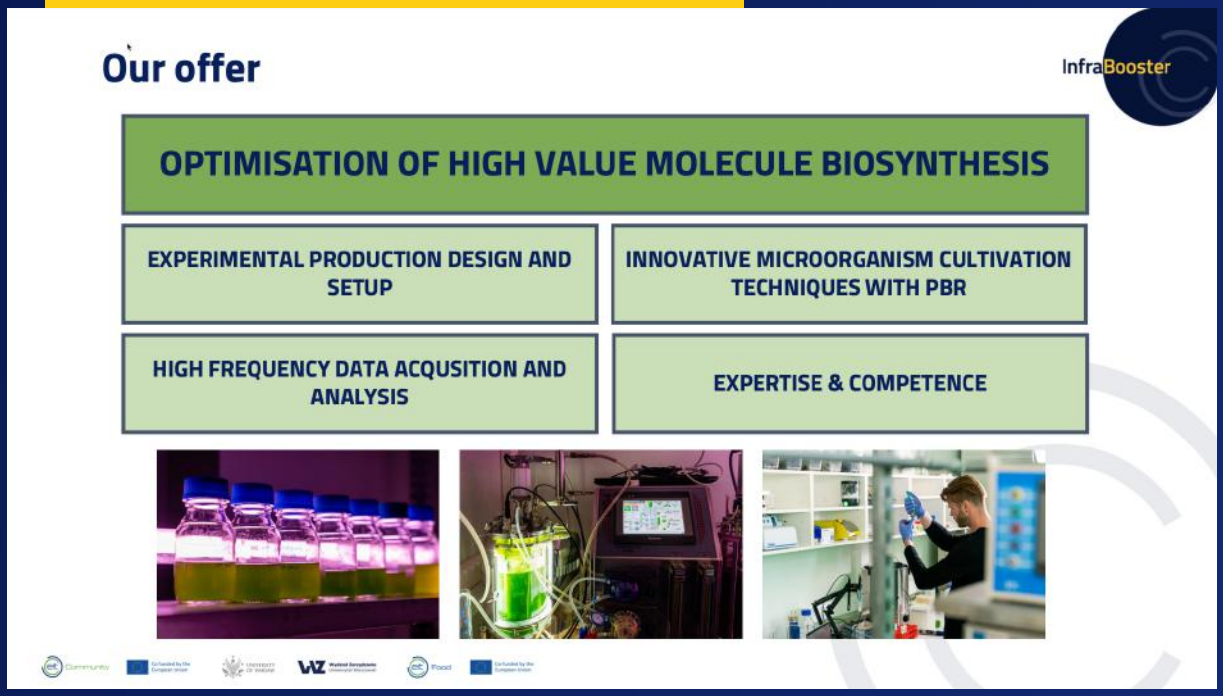
Development of novel bio-based ingredients for pharmaceutical produce





Pitch deck slides

Development of novel bio-based ingredients for pharmaceutical produce

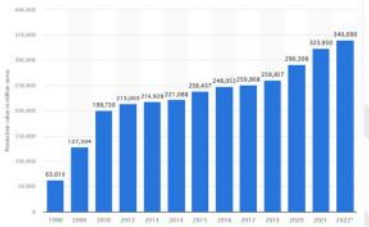
Target Market and Potential Clients

InfraBooster

PRODUCTION OF PHARMACEUTICALS PREPARATIONS

NACE 20.21.

KEY INSIGHTS	
Europe's share of global pharmaceutical revenues in 2022	22.4%
Projected 2022-2026 CAGR of the EU's pharma market	5.4%
Projected pharmaceutical sales of the EU in 2026	295 bn USD



Our Advantages

InfraBooster

ADVANTAGES OF RTU WREBL SERVICE	
Operational efficiency	Data resolution of PBR processes
Preparatory activities in <2 weeks	Biomaterial post-processing and analysis
Personnel expertise	Service provision period
Process scalability	

Service name:

Seed quality control and plant health analysis

Responsible institution / team:

University Ss. Cyril and Methodius in Skopje,

Institute of Agriculture

Service name:

Seed quality control and plant health analysis

Responsible institution / team:

University Ss. Cyril and Methodius in Skopje, Institute of Agriculture

Description:

The leading institute specializes in seed quality control and plant health analysis, employing modern equipment and methods. Offers comprehensive services including physical, serological, and molecular analysis of seeds, and detection of diseases or contaminants. The lab aims to ensure seed and plant health, contributing to higher agricultural yields and market sales. Services include regular inspections, sampling, testing, and certification, improving overall seed material quality backed by extensive research experience, modern technology, and a focus on addressing industry challenges..

Potential applications and benefits:

- For seed companies: provides complete analysis services to assure the quality and health of seeds, aiding in market competitiveness.
- For agricultural export companies: offers certification and quality assurance, helping to meet regulatory compliance and market demands.
- For farmers: assists in optimizing crop production with reliable seed material, enhancing yield and crop quality.
- Overall benefits: top quality assurance, diverse testing capabilities, and worldwide recognized certificates.

Contact to service providers:

- Katerina Bandjo Oreshkovikj kbandzo@yahoo.com
- PhD Marija Gjosheva Kovachevikj: m.kovachevikj@zeminst.edu.mk
- Afrodita Ibushoska: ibusoskaa@yahoo.com
- Despina Popovska Stojanov: despina.popovska@yahoo.com

Pitch deck slides

Development of novel bio-based ingredients for pharmaceutical produce

The main problem and need

InfraBooster

- Identifying and managing unsafe and suspicious seed and plant material.
- Lack of time and human capacities for seed quality control and plant health crops demands.

What are we offering to address the problem?

InfraBooster

In **only one place** you can get the full service you need for your crop:

- Seed quality analysis
- Serological detection of viruses
- Molecular detection of viruses and virus-like organisms

One Stop Shop Services (sampling, transport, analysis and recommendations)

Pitch deck slides

Development of novel bio-based ingredients for pharmaceutical produce

Target clients of the laboratory

Priority	Segment
1	Seed companies
2	Big agricultural companies export oriented
3	Individual farm holdings
4	Governmental agencies in the field of Agriculture

Precise and time-saving analysis ⇨ Increased revenue

Introduction

Ss. Cyril and Methodius University

Institute of Agriculture - Skopje

Laboratory for Seed Control and Plant Health

- **The Institute of Agriculture** is the leading and one of the oldest scientific research organizations in the field of crop production in Macedonia, whose main domains are:
- Recently, there's a newly established research infrastructure – **Lab control and plant health analysis**

Service name:

ECO-VR - VR platform for green transition in education

Responsible institution / team:

Aleksander Moisiu University

Service name:

"ECO-VR" - VR platform for green transition in education

Responsible institution / team:

Aleksander Moisiu University

Description:

ECO-VR an innovative virtual reality (VR) platform developed at Aleksander Moisiu University, focusing on education and environmental awareness, offers immersive VR experiences for various school subjects, particularly in environmental science, sustainability, and urban planning. The initiative aims to raise awareness about eco and green issues worldwide and integrate these elements into educational content via a unique approach that involves creating personalized VR experiences.

Potential applications and benefits:

- For educational institutions: ECO-VR provides immersive learning experiences, enabling students to engage in simulations and experiments related to sustainability and environmental science.
- Enhancing learning styles: the platform caters to diverse learning styles by incorporating VR into the curriculum, thus creating a more inclusive and effective learning environment.
- Sustainability education: offers tools for students to design eco-friendly cities, experiment with renewable energy sources, and understand urban planning's environmental impacts.
- Competitive edge: differentiates from competitors by offering a comprehensive VR educational experience with affordable, user-friendly, and customizable VR applications, as well as support for educators in integrating VR into their teaching.

Contact to service providers:

- Uendi Cerma: uendicerma@uamd.edu.al
- Manjola Zeneli: manjolazeneli2@yahoo.com
- Frida Gjermeni: frida_gjermeni@hotmail.com

Pitch deck slides

"ECO-VR" - VR platform for green transition in education

Pitch deck slides

"ECO-VR" - VR platform for green transition in education

What does they consist?

ECOVR apps offer immersive 3D environments that users can explore using VR headsets. These environments may represent scenarios related to sustainability, environmental challenges, or other targeted themes (depending on client target).

For research and educational purposes, ECOVR apps can incorporate real time data visualization elements including, interactive lessons, and virtual tours that enhance users' understanding of environmental concepts.

Our potentional client are from the: EDUCATION SECTOR

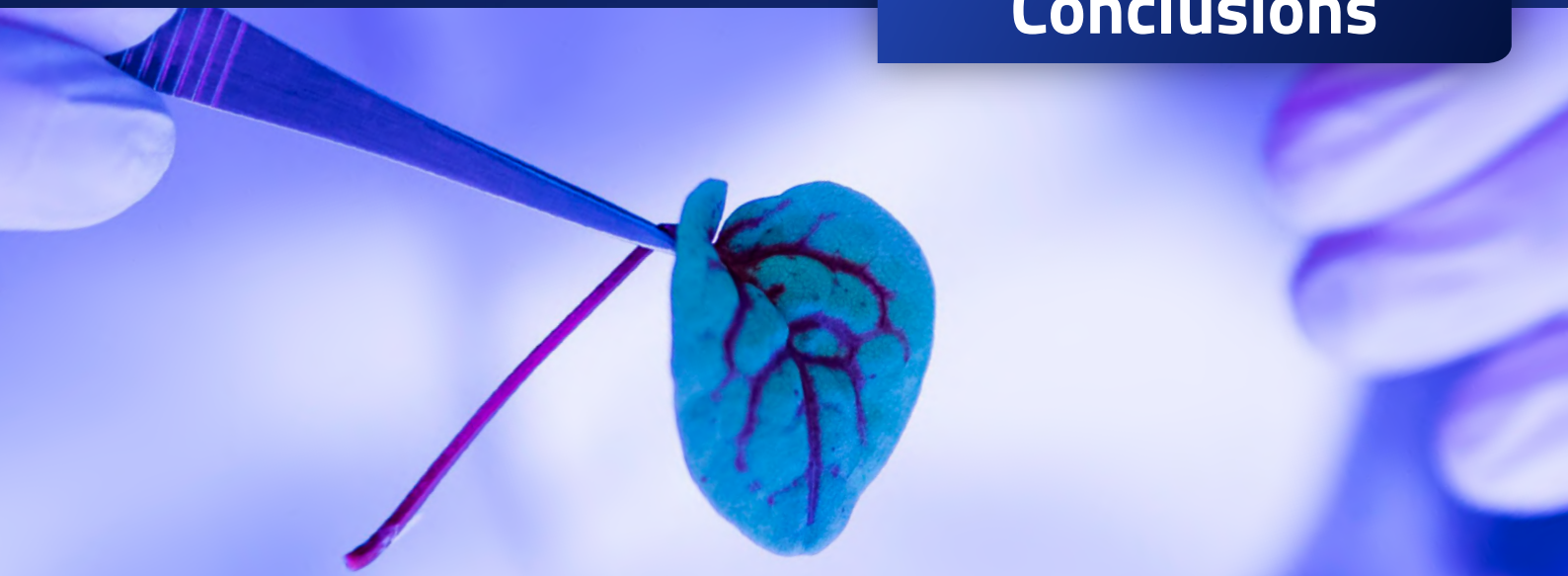
This catalogue presents a **diversified selection** of innovative services developed by participants of the EIT InfraBooster Practitioner program in 2023. Each service **addresses specific societal, environmental and economic challenges** encountered by potential industrial clients.

Looking ahead, we see the ambitious development trajectory of these services and plan further **support in their refinement and scaling up** to further enhance industrial collaboration, and to solve problems important from the industry. Key areas will include:

- Enhancing collaborations with academia and governmental bodies;
- Expanding the geographical reach of EIT InfraBooster;
- Integrating new fields of activity;
- Fostering continuous improvement of EIT InfraBooster by ongoing feedback and iteration of educational services;
- Nurturing a culture of innovation and excellence, aiming to not only support the current cohorts but also inspire future participants.

We are looking forward to **continuing our contribution to the development** of innovative services and enhancements of the competitiveness of publicly-funded research infrastructures owned by universities and research institutes in Europe.

Conclusions



Cooperation tips

For those interested in **learning more about the services** detailed in this catalogue or in collaborating with the service providers, please note the following **guidelines**:

- Each service listed in this catalogue has specific contact information to the responsible scientists. We encourage you to **reach out to them directly** for detailed inquiries, potential collaborations, or further information.
- When contacting the service providers, please be **clear** about the nature of your **inquiry** or interest **related to the service domain**. This will facilitate a more efficient and productive communication.
- Please **allow** some **time for responses**, as our service providers are often engaged in ongoing research and projects.

EIT InfraBooster:

- EIT InfraBooster Practitioner program, its objectives, and the details of the course have been sourced primarily from EIT InfraBooster website and related documents. For more comprehensive information, please visit the InfraBooster webpage: **https://eit-ris.eu/infrabooster/**
- For more inquiries related to EIT InfraBooster program, please contact us at: **infrabooster@wz.uw.edu.pl**. We are available to provide information about the program, participation requirements, and other general queries.
- All information presented in this catalogue is based on the data available as of the date of publication. We strive to keep our information accurate and up-to-date; however, we recommend **verifying** with the service providers for the **most current details**.
- The success stories, data, and outcomes mentioned in this catalogue are **attributed to the work of** participating **teams** of EIT InfraBooster Practitioner program **and their** respective **institutions**.

Our lecturers

Faculty of Management
University of Warsaw

EQUIS ACCREDITED · AMBA ACCREDITED · AACSB ACCREDITED

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