

Bay Zoltán Nonprofit Ltd. for Applied Research (BZN), Hungary

Being Hungary's leading applied research institution, BZN **provides R&D services** to **companies** and strives to enhance **the competitiveness of SMEs through innovation and technology transfer**. BZN actively participates in the Hungarian and European innovation ecosystems. Its research divisions **offer complex scientific and technical solutions** to SMEs and large enterprises. **Our highlighted research topics are**

- **Mobility, Automotive, Drones**
- **Health, Epidemics Control and Medical Technology, e-Health**
- **Polymers and biopolymers**
- **Clean Production, Digitalisation**
- **Circular Economy, Raw Materials Sciences, Bioeconomy**

Mechanical and electrical engineers and IT experts and researchers offer their **know-how on material sciences and technology development**, materials characterisation, operational safety; logistics; **LCA**; **tech transfer** and innovation services. Our solutions apply cutting edge technologies including **Artificial Intelligence, Virtual Reality, Machine Vision and Learning, Data Mining or additive manufacturing**. In specific fields, **production** possibilities are also available. BZN is a Key Enabling Technology Centre, and also offers engineering services in materials sciences and laser technology; and industrial biotechnology.

Research Divisions and services:

Engineering Division

Biotechnology Division

Production Division

Knowledge Management Centre

Knowledge Management Centre is responsible for project management, grant writing, dissemination; and technology transfer. We have implemented several FP and H2020 projects (see next pages). The Centre organises trainings, events and builds research networks, offers R2M, B2B, and funding information.

Participation in national and international networks

International: **BIC** – Bio-based Industries Consortium; **Driving Simulation Association**; **EIT KIC Raw Materials**; **ERMA** European Raw Materials Alliance; **ELCA** European Lightweight Cluster Alliance; **EURAXESS** researchers' mobility; **EuMat** – European Techn. Platform for Advanced Engineering Materials and Technologies; **FEMS**, the Federation of European Materials Societies; **SNETP** Sustainable Nuclear Energy Techn. Platform; *associated to*: **Rosewood** network; **CircleLean** network (ind.symbiosis) and **RRING** (Responsible Res. and Innov.).

National: **EEN** Strategic Partner; **Industry 4.0** Platform, Hungary; **AI Platform**, Hungary; **BCSDH** - Business Council for Sust. Dev. in Hungary; Hungarian Innovation Association; **BIO-EAST**; **Hungarian Bioeconomy Cluster**; **LCA** Association.

Contact: Ms Katalin KURUCZ Katalin.kurucz@bayzoltan.hu; +36304121370 (Head of International Department)

Acronym	Full project title	Contract period	Keywords	Programme
BIOECONOMY				
BIOECO-UP	BioEconomy Market Uptake and Policy Support in Central Europe	2023-2026	bioeconomy, circular economy	Central Europe
Waste4Soil	Improving food systems sustainability and soil health with food processing residues	2023-2026	bioeconomy, circular economy	HORIZON EUROPE
MarginUp!	Raising the bio-based industrial feedstock capacity of Marginal Lands (GA No. 101082089)	2022-2026	bioeconomy, circular economy	HORIZON EUROPE
Engage4BIO	Better understanding, intensified engagement, training and development in regional bio-based systems (GA No. 101059565)	2022-2025	bioeconomy, engagement, art, responsive govnm	HORIZON EUROPE
CHIAM	Integrated CHIA and Oyster Mushroom System for Sustainable Food Value Chain for Africa (ID 2019-2.1.7-ERA-NET-2021-00020)	2021-2024	agriculture, value chains, trainings,	HORIZON 2020 Era-Net
Wateragri	Improving Water Management and Nutrient Recycling (GA No. 858375)	2020-2024	agriculture, water man., irrigation	HORIZON 2020
POWER4BIO	Empowering Regional Stakeholders for Realising the Full Potential for European Bioeconomy (GA No. 818351)	2018-2021	bioeconomy, business models, trainings, policy dev.	HORIZON 2020
AgriForValor	Bringing Added Value to Agriculture and Forest Sectors by Closing the Research and Innovation Divide (GA No. 696394)	2016-2018	biomass, R2M, EIP Agri, innov. partnerships	HORIZON 2020
Made In Danube	Transnational Cooperation to Transform Knowledge into Marketable Products and Services for the Danubian Sustainable Society of Tomorrow (Project Code: DTP1-072-1.1)	2017-2019	technology transfer, bioeconomy	DANUBE TNP
E-HEALTH, ACTIVELY ASSISTED LIVING SMART SYSTEMS				
CleverGuard	ICT solution based on energy data for protecting elderly at home, staying safe and independently (Contract No. 2019-2.1.2- NEMZ-2021- 00014)	2021-2024	ICT, e-health, assisted living	AAL Association
PerHeart	Personalized ICT solution to reduce re-hospitalization rates in heart failure elderly patients suffering from comorbides (Ref. No. ERAPERMED2019-168)	2020-2023	ICT, e-health, assisted living	HORIZON 2020
AAL fraAgiLe	Platform for detecting and preventing frailty and falls (Ref. No. aal-2018-5-152-CP)	2019-2022	ICT, e-health, assisted living	AAL Association
AAL INCARE	Integrated Solution for Innovative Elderly Care (Ref. No. aal-2017-4-059)	2018-2021	ICT, e-health, assisted living	AAL Association
AAL IONIS	Indoor and outdoor NITICSplus solution for dementia challenges (Ref. No. aal-call-2016-074)	2017-2020	ICT, e-health, assisted living	AAL Association
AAL VUK	Create and demonstrate the feasibility of an urban mobility ecosystem to support travelling and navigation of blind and visually impaired elderly by researching and developing an integrated ICT service framework. (Contract No. NEMZ_15-1-2016-0010)	2016-2018	ICT, e-health, assisted living	AAL Association
AAL OLA	Organisational Life Assistant (Contract No. NEMZ_15-1-2016-0003)	2015-2018	ICT, e-health, assisted living	AAL Association
SAFETY, MATERIAL SCIENCE, DATA SCIENCE				
DELISA-LTO	DEscription of the extended Lifetime and its influence on the Safety operation and construction materials performance – Long Term Operation with no compromises in the safety (GA No. 101061201)	2022-2026	nuclear safety	HORIZON EUROPE
FRACTESUS	Fracture mechanics testing of irradiated RPV steels by means of sub-sized specimens (GA No. 900014)	2020-2024	nuclear safety	HORIZON 2020
ENTENTE	European Database for Multiscale Modelling of Radiation Damage (RIA) (GA No. 900018)	2020-2024	nuclear safety	HORIZON 2020
STRUMAT-LTO	STRUctural MATerials research for safe Long-term Operation of LWR NPPs (GA No. 945272)	2020-2024	nuclear safety	HORIZON 2020
APAL	Advanced PTS Analysis for LTO RIA (GA No. 945253)	2020-2024	nuclear safety	HORIZON 2020
ADVISE	ADVanced Inspection of Complex StructurEs (GA No. 755500)	2017-2021	safety	HORIZON 2020
ATLASplus	Advanced Structural Integrity Assessment Tools for Safe Long Term Operation (GA No. 754589)	2017-2021	nuclear safety	HORIZON 2020
SmartResilience	Smart Resilience Indicators for Smart Critical Infrastructures (GA No. 700621)	2016-2019	resilience, critical infrstr.	HORIZON 2020

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KEY ENABLING TECHNOLOGIES FOR SMES				
Ket4Clean Production	Pan-European Access for man. SME on tech. services for clean production through a Network of premier KET Technology Centres with one stop shop access incl. EEN and discourse with policy makers on RIS3 (GA No. 777441)	2018-2021	Key Enabling Techn., SMEs, clean production, cascade funding	HORIZON 2020
KETGATE	Central European SME Gateway to Key-enabling Technology Infrastructures - Sparking a new Transnat. KET Innovation Ecosystem (Contract No. CE1188)	2017-2020	Key Enabling Technologies, SMEs, cascade funding	Central Europe
DIGITALISATION, CIRCULAR ECONOMY, ENERGY EFFICIENCY, INDUSTRIAL SYMBIOSIS, FOOD WASTE				
HPC EDIH	European Digital Innovation Hub, High Performance Computing	2023-2027	DIH, HPC	Digital Europe
STRIDE	Improved energy planning through the Integration of Smart Grid concepts in the Danube Region (Project Code: DTP3-289-3.2)	2020-2022	energy efficiency, smart grids	Central Europe
INNOVER-EAST	Building a more effective pathway from R2I through coop. bw the EU and Eastern Partnership countries in energy efficiency (GA No. 609570)	2015-2017	R2M, energy eff., EU Eastern P.	EU FP7
CIRCE 2020	Expansion of the CIRCular Economy concept in the CE local productive districts (Contract No. CE1125)	2017-2020	industrial symbiosis, recycling, MFA, LCA, LCC, raw materials	Central Europe
SURFACE	Smart Urban Re-Use Flagship Alliances in Central Europe (Subsidy Contract No. CE970)	2017-2020	circular ec., waste prev.	Central Europe
SMART GROUND	SMART data collection and inteGRation platform to enhance availability and accessibility of data and infOrmation in the EU territory on SecoNDary Raw Materials (GA No. 641988)	2015-2018	secondary raw mat., intelligent systems	HORIZON 2020
Strefowa	Strategies to Reduce Food Waste in Central Europe (Subsidy Contract No. CE192)	2016-2018	reducing food waste, LCA, recycling	Central Europe
CIRCULAR ECONOMY; RAW MATERIALS; RECYCLING; BIOREMEDIATION				
RESTORE	Evaluation of Red Mud tailings in ESEE Region (PA No. 19269)	2020-2023	bioremediation	EIT KIC Raw Materials
V4 Phosphorus	How to stay alive in V4? Phosphorus Friends Club Builds V4's Resilience (Grant No. 22110364)	2021-2024	industrial recycling	International Visegrad Fund
RIS-ALiCE	AI-rich industrial residues for mineral binders in ESEE region (PA No. 18258)	2019-2022	bioremediation	EIT KIC Raw Materials
BioLeach	Innovative Bio-treatment of RM (PA No. 18259)	2019-2022	bioremediation	EIT KIC Raw Materials
ReSiELP	Recovery of Silicon and other materials from End-of-Life Photovoltaic Panels (PA No. 16327)	2017-2020	industrial recycling	EIT KIC Raw Materials
RADIUS	Recycled automotive brake disks by upgrading metallic scraps (PA No. 17200)	2018-2020	industrial recycling	EIT KIC Raw Materials
NANOGREAT	Graphene NANOcomposites REActors at preindustrial Technology readiness (PA No. 15061)	2016-2017	industrial recycling	EIT KIC Raw Materials
PCRec	Network of Infrastructure on Product Centric Recycling (PA No. 15066)	2016-2018	transnational service network	EIT KIC Raw Materials
MetLight	Network of Infrastructure for Metal-based Lightweight Materials (PA No. 15064)	2016-2018	transnational service network	EIT KIC Raw Materials
STORM	Industrial Symbiosis for the Sustainable Management of Raw Materials (PA No. 15076)	2016-2018	transnational service network	EIT KIC Raw Materials
BioFlex	Flexible Biometallurgy Infrastructure and Expertise network (PA No.15050)	2016	transnational service network	EIT KIC Raw Materials
EXTREME	Substitution of CRMs in components and coatings used under extreme conditions (PA No. 15053)	2016-2018	raw materials substitution	EIT KIC Raw Materials
SCIENCE COMMUNICATION, RESEARCHERS' CAREER, KNOWLEDGE MANAGEMENT				
Nexus	Bridging Gaps in Research and Innovation Through Innovative Actions Through Inclusive GEPs	2023-2024	gender equality plans	HORIZON EUROPE

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Era Talent	ERA Talent Platform for career development of researchers in Europe	2023-2025	researcher career development	HORIZON EUROPE
SECURE	Improve career development and solve part of the precarity of research careers in academia (GA No. 101094902)	2023-2025	sustainable researcher career development	HORIZON EUROPE
EURAXESS Hubs	Piloting EURAXESS talent hubs to support researchers' careers (GA No. 101035541)	2021-2022	career development services	HORIZON 2020
EURAXESS TOP IV	Open EURAXESS – To strengthen the effectiveness and optimize the services of all partners in an innovative and open EURAXESS network (GA No. 786133)	2019-2022	researchers' mobility, services	HORIZON 2020
Faworit 2018-2019	European Researchers' Night 2018-2019 (GA No. 818965)	2018-2019	research career, awareness	HORIZON 2020
SciShops.eu	Enhancing the Responsible and Sustainable Expansion of the Science Shops Ecosystem in Europe (RIA) (GA No. 741657)	2017-2020	research communication	HORIZON 2020
CARERA	Info Day for Hungarian students and young researchers on career possibilities in the European Research Area (GA No. 741500)	2017-2018	services for career development	HORIZON 2020
EURAXIND	EURAXESS for Industry (GA No. 710294)	2016-2018	career devlpm, coop. with industry	HORIZON 2020
Faworit 2016-2017	European Researchers' Night 2016-2017 (GA No. 722562)	2016-2017	research career, awareness	HORIZON 2020
REFLEX	Responsive and Flexible: Living and learning researcher career dev.framework (GA No. 643510)	2016-2017	services for career devlpm	EU FP7
EURAXESS TOP III	Making European research careers more attractive by developing new services and enhancing the current services of the EURAXESS network (GA No. 665934)	2015-2018	researchers' mobility, career dev. services	HORIZON 2020
RAW MATERIALS SCIENCES – EDUCATION PROJECTS				
RM@Schools	Raw Matters Ambassadors at Schools; (4 projects) (PA No. 15027), (PA No. 15098), (PA No. 17146), (PA No. 20069)	2016-2023	raw mat.science, education	EIT KIC Raw Materials
KIC RAISE	RAISE. RawMaterials Students Internships (PA No. 18032)	2019-2021	raw mat.science, education	EIT KIC Raw Materials
aRAWness	Enhancing European Society Awareness of Raw Materials (PA No. 15025)	2018-2020	research communication	EIT KIC Raw Materials
AWARD	A Series of RM Documentaries followed by Interactive Workshops (PA No.17210)	2018-2019	raw mat.science, education	EIT KIC Raw Materials
ORCERIS	Opportunity ReCognition and Exploitation in a Circular Economy for RIS (PA No. 17123)	2018-2019	circular economy, business model	EIT KIC Raw Materials
V4 RM@Schools	Visegrad Raw Materials Ambassadors at Schools (Grant No. 21810300)	2018-2019	raw mat.science, education	International Visegrad Fund
BusiSource	Waste From Companies as a Sec. Source (PA No. 16387)	2017-2019	circular economy, WEEE, SMEs trainings	EIT KIC Raw Materials
Refresco	Raw Materials Higher Education (PA No. 15002)	2016-2017	raw mat. science, higher ed.	EIT KIC Raw Materials

***Projects coordinated by BZN are in bold letters.**