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HI-EURECA-PRO

Industrial, Cultural and Mining Heritage in the Age of Digitalisation

Szymon Ogonowski
Silesian University of Technology

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Our **Mission**

The **HI-EURECA-PRO** project, funded by the European Union, builds on the potential of heritage-based innovation to drive sustainable economic and social development in rural and urban areas of Poland, Greece and Romania.

Leveraging the strengths of the **EURECA-PRO Alliance**, the project unites eight universities across Europe to develop innovative tools and measurable methods for material sustainability — showcasing industrial, cultural and mining heritage innovations.

It bridges academia with industry and governance to achieve research excellence and a greener, more digitally adept future.

AT A GLANCE

Horizon Europe

Coordinated by the Technical University of Crete

8 universities · 7 countries

3 heritage demonstration sites

Grant Agreement 101136779

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The **EURECA-PRO Alliance**

8 Partner universities

7 European countries

3 Heritage demo sites

- **Technical University of Crete** — Greece — Coordinator
- **University of Petroșani** — Romania
- **TU Bergakademie Freiberg** — Germany
- **Universidad de León** — Spain
- **Silesian University of Technology** — Poland
- **Montanuniversität Leoben** — Austria
- **Hochschule Mittweida** — Germany
- **Hasselt University** — Belgium

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Our **Goals**

1

Build a regional innovation ecosystem

Engage the full quintuple helix of heritage innovation: environmental, social, economic, political and academic.

2

Strengthen HEI–heritage collaboration

Open new roads between universities and the heritage sector to test sustainable materials, tools and methods.

3

Advance the green & digital transition

Develop educational tools and methods that support knowledge creation and transfer in the green and digital era.

4

Foster new research careers

Build research careers in heritage sustainability with hands-on industry, society and government experience.

5

Make upskilled knowledge accessible

Introduce new and upskilled knowledge available to all heritage stakeholders.

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Implementation: **Three Demonstrators**

Each widening country leads a heritage demo site, supported by Alliance partners from Germany, Belgium, Austria and Spain.

ROMANIA
Mining Heritage

Location
Jiu Valley

Flagship output
Digital Mining Museum

GREECE
Cultural Heritage

Location
Crete

Flagship output
Empowering Capacity & Skills

POLAND
Industrial Heritage

Location
Gliwice

Flagship output
Digital Transformation Hub

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Romania — **Mining Heritage**

Jiu Valley · a landscape shaped by Dacian, Roman, Austro-Hungarian and modern Romanian mining heritage, transitioning towards a sustainable future.

1. Promote research excellence and innovation — transition, circularity and sustainability
2. Build new skills and transfer knowledge through summer schools and workshops
3. Support sustainable development while preserving mining heritage in the Jiu Valley
4. Create a Digital Mining Museum with the Mining Museum and Planeta Petrila Association
5. Strengthen links with the local innovation ecosystem
6. Facilitate knowledge transfer and intellectual property management

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Greece — **Cultural Heritage**

Crete · a cultural mosaic of Minoan, Greek, Roman, Byzantine, Venetian and Ottoman legacies inspiring modern innovation.

1. Advance research excellence by leveraging Greece’s academic and cultural heritage through innovation and international collaboration
2. Foster interdisciplinary upskilling and empower young talents for the green transition
3. Develop, test and integrate sustainable materials, green energy practices and smart tools for cultural heritage preservation
4. Accelerate the green and digital transformation through co-creation across research, policy, cultural sectors and society

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Poland — **Industrial Heritage**

Gliwice · a historic hub of engineering, shaped by Piast, Prussian, Austro-Hungarian and Polish traditions, now blending heritage with cutting-edge research.

1. Achieve research excellence — leverage Poland's academic and industrial heritage through innovation and local collaboration
2. Support sustainable industrial transformation — green and digital, guided by Responsible Consumption & Production
3. Enhance global competitiveness of researchers via training, industrial internships and workshops
4. Foster interdisciplinary collaboration between science, industry and policy actors
5. Develop a Digital Transformation Hub — a central platform for research, training and digitalisation
6. Engage local communities with upskilling courses and public seminars

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Digital Transformation **& Digital Competences**

Industrial heritage today means navigating a continuous chain: **Industrial Revolutions → Digital Transformation → Digital Competences.**

Effects of transformation

Weighing the positive and negative impacts of rapid digital change on industry and society.

Impact on stakeholders

Understanding how different groups, e.g. workers, learners, industry, are affected.

Education & outreach

Meeting the challenge of educating and popularising digital skills for all generations.

EU guidelines (DigComp)

Aligning with the European Digital Competence Framework for citizens.

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Our Response in the Project **(1/2)**

How the Industrial Heritage Demo turns digital transformation into action:

✓ **Seminars on digital transformation**	Good-practice seminars for researchers and society, including education and outreach.
✓ **Establishing the DTH network**	A science–business–government–society network on digital transformation.
✓ **Pilot visits & workshops**	Hands-on DTH sessions for students, pupils and industry, trainings, hackatons.
✓ **International internships**	Student internship programmes at partner institutions abroad.
✓ **IP & technology-transfer training**	Workshops on IP protection, good CTT practice, proposal writing and innovation methods.

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Our Response in the Project **(2/2)**

Building future skills and lasting research structures:

✓ **Future-skills panels**	Seminars and discussion panels on the competences and skills of the future.
✓ **Curriculum guidelines**	Recommendations to adapt study programmes towards future competences.
✓ **Cooperation with the Labour Office**	Pilot upskilling courses for people negatively affected by digital transformation at work.
✓ **Joint research structures**	Building shared research structures across the partner universities.

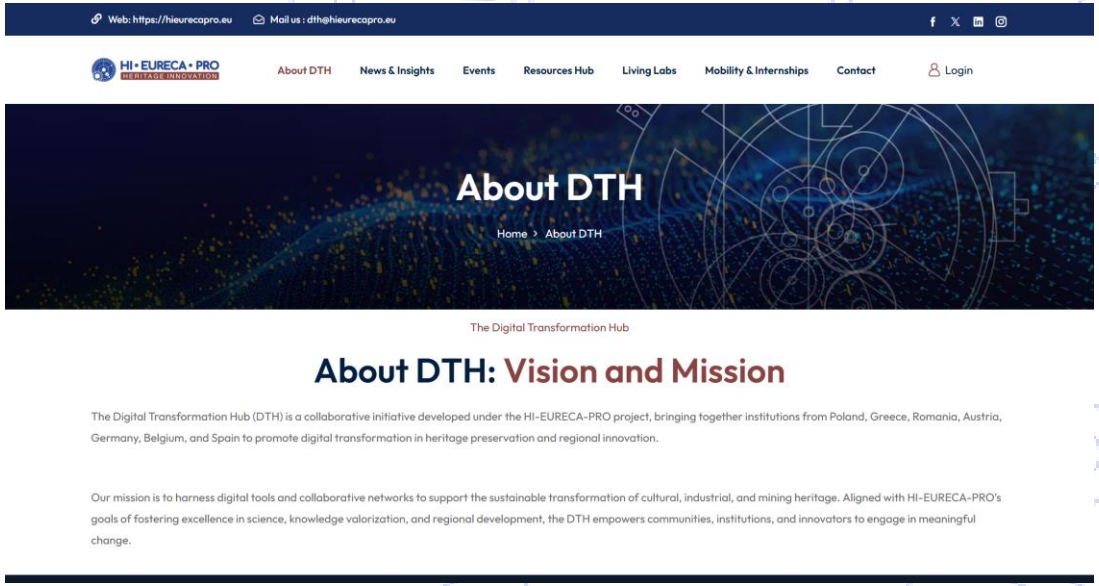
Teachers, pupils, future students — and simply the residents of Gliwice and the region — are warmly invited to take part.

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The **Digital Transformation Hub**

Connecting knowledge, technology and people — an online platform supporting the digital transformation of cultural, industrial and mining heritage.



1. **A shared gateway**
   For researchers, universities, heritage institutions, technology providers, businesses and other stakeholders.
2. **Built for collaboration**
   Research collaboration, knowledge exchange, access to infrastructure and new project ideas.
3. **Heritage meets technology**
   Heritage challenges connected with AI, digital twins, IoT, 3D digitisation and extended reality.

FIVE PRACTICAL AREAS

1. **Resources Hub**
2. **Funding Match AI**
3. **DTH Network**
4. **News & Insights**
5. **Mobility Opportunities**

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Resources Hub: **Discover Research Capacity**

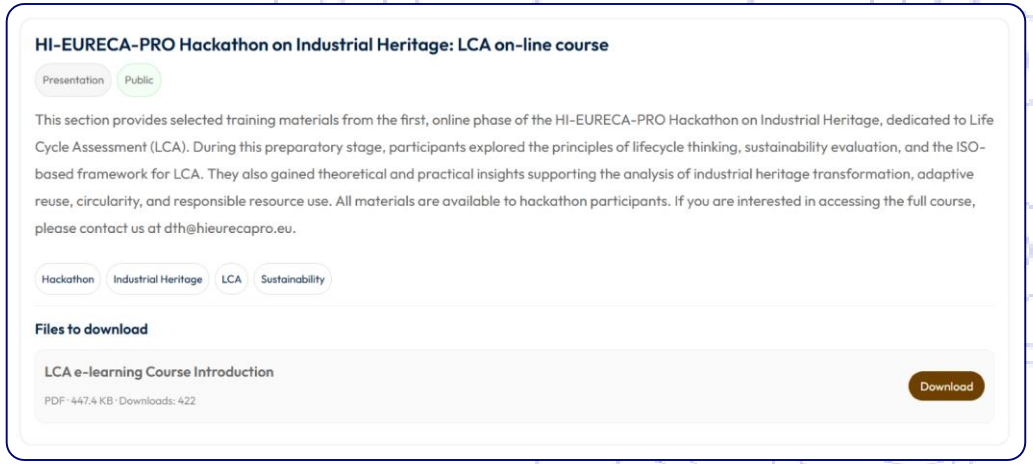
Structured access to research infrastructure, expertise and knowledge resources across partner institutions.

1	**Laboratories Database**	Discover research laboratories and their capabilities.
2	**Equipment Database**	Identify specialised scientific and technical equipment.
3	**Articles Database**	Explore research publications and relevant literature.
4	**Researchers Database**	Find expertise and collaborators, with researcher-level filtering.
5	**Training & Event Materials**	Educational content, workshop materials and presentations.

Access: *public portal content is open to everyone; the restricted databases currently require registration and approval for eligible EURECA-PRO Alliance and DTH partners.*

WHAT YOU CAN DO

- Identify available expertise
- Explore research infrastructure
- Prepare joint activities
- Find resources for digital innovation



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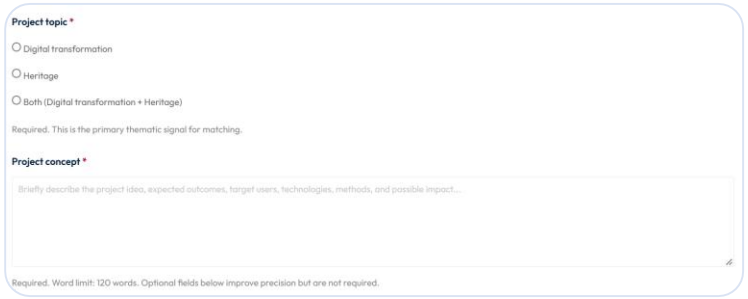
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Funding Match AI: **From Idea to Funding**

AI-assisted search for EU funding calls that match your idea — a first step, not a substitute for eligibility checks.

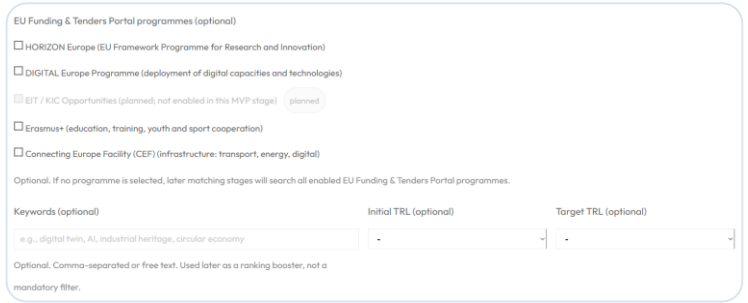
STEP 1
Describe your idea

Enter a short project concept and choose its focus: digital transformation, heritage, or both.



STEP 2
Refine the search

Optionally add keywords, EU programmes, initial and target TRL, and the preferred consortium profile.



STEP 3
Explore the matches

Receive an AI-assisted ranking of relevant funding calls and review the recommendations.

SUPPORTED PROGRAMMES

- Horizon Europe
- Digital Europe
- Erasmus+
- Connecting Europe Facility

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DTH Network: **Partners and Collaboration**

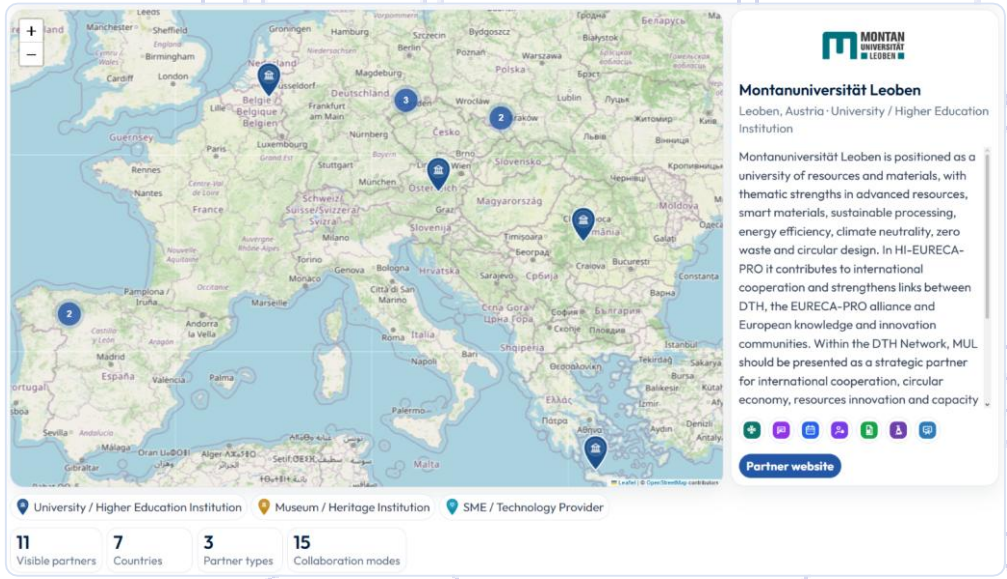
DTH is not only a repository of resources — it is a place to discover partners and join a wider innovation community.

DTH Network
Interactive map and directory of universities, heritage institutions and technology providers — filter by country, partner type and collaboration mode.

News & Insights
Articles, case studies, expert opinions and updates on digital transformation, heritage and innovation.

Mobility & Internships
International training and research mobility opportunities, published when available.

Get involved
Explore the network, contribute knowledge and resources, or contact the DTH team to discuss cooperation.



Explore DTH: **dth.hieurecapro.eu** · *Contact:* **dth@hieurecapro.eu**

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The **Joint Research Agenda**

A shared research framework endorsed by the HI-EURECA-PRO Steering Committee (August 2026).

10
Strategic Research Themes (SRTs)

3
miniCSA proposal-support actions (A–C)

2
phases: SUT pilot → consortium-wide upscaling

SDG 12
Responsible consumption & production

1 **Shared research priorities**
Ten Strategic Research Themes balancing technology and infrastructure with social sciences and humanities perspectives.

2 **From priorities to action**
A staged model: piloted first at the Silesian University of Technology, then scaled consortium-wide via an upscaling roadmap.

3 **DTH as the backbone**
The Digital Transformation Hub provides infrastructure visibility, governance assets and collaboration support.

4 **Proposal acceleration**
miniCSA actions A–C speed up consortium building and competitive submissions to Horizon Europe and other programmes.

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What Are **Strategic Research Themes?**

A coherent, fundable portfolio of shared research priorities, aligned with key European R&I agendas.

EACH SRT DESCRIBES

What — the scope: methods, tools and settings covered.

Why — relevance for the green & digital transition and expected impact.

Exemplary topics — six example research directions to inspire proposals.

Research outputs — past partner publications mapped to the theme — to help you find peers.

TEN THEMES, THREE PERSPECTIVES

Technology & infrastructure	SRT 1 · Heritage digital twins & operations optimisation SRT 2 · Predictive maintenance & condition monitoring SRT 3 · Circularity & sustainability toolkits SRT 4 · Sustainable materials, retrofit & conservation SRT 5 · Smart tools in heritage innovation
Implementation pathways	SRT 6 · Architecture & urbanism of heritage sites SRT 8 · Immersive, interactive & demonstrator-based innovation
Society, governance & skills	SRT 7 · Data, ethics & IP (governance-by-design) SRT 9 · Social & societal dimensions of heritage transformation SRT 10 · Skills of the future & citizen upskilling

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Strategic Research Themes **SRT 1–4**

Making heritage sites smarter, safer and more resource-efficient.

Technology & infrastructure
Implementation pathways
Society, governance & skills

1 **Heritage Digital Twins & Operations Optimisation**
Building and operating digital twins of heritage sites, production lines and museums to test scenarios, cut resource use and support everyday decisions.

2 **Predictive Maintenance & Condition Monitoring for Legacy Assets**
Non-invasive sensing and analytics that detect anomalies and estimate the remaining life of legacy machinery and building systems.

3 **Circularity & Sustainability Toolkits for Heritage Sites**
Practical indicators, dashboards and toolkits for material flows, embodied carbon, water and waste — measurable evidence of SDG 12 progress.

4 **Sustainable Materials, Retrofit & Conservation Methods**
Eco-materials and reversible, low-intrusion retrofit methods compatible with historic structures, validated in the lab and on site.

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Strategic Research Themes **SRT 5–7**

Smart tools, spatial transformation and trusted collaboration.

- Technology & infrastructure
- Implementation pathways
- Society, governance & skills

5 **Smart Tools in Heritage Innovation**
AI-enabled platforms and services — smart search, digital assistants, partner matching and decision dashboards — integrated with the DTH.

6 **Architecture & Urbanism for Cultural, Industrial and Mining Heritage**
Adaptive reuse, conservation-led redevelopment and climate-resilient planning that give heritage sites new life for education, tourism and business.

7 **Data, Ethics & IP for Heritage R&I (Governance-by-Design)**
Rulebooks, data and IP templates, provenance and attribution models that make cross-institutional sharing secure, fair and fast.

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Strategic Research Themes **SRT 8–10**

Experiences, communities and skills for heritage innovation.

- Technology & infrastructure
- Implementation pathways
- Society, governance & skills

8

Immersive, Interactive & Demonstrator-based Heritage Innovation

AR/VR/XR experiences, showrooms and living labs that make innovation visible, testable and ready for adoption by stakeholders.

9

Social and Societal Dimensions of Heritage Transformation

How communities, identities and governance shape — and are shaped by — heritage transformation; participation, inclusion and just transition.

10

Skills of the Future & Citizen Upskilling

Micro-credentials, PhD modules, mobility sprints and citizen courses linked to real infrastructure, with proposal and IP training built in.

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Three Actions to **Build Collaboration**

miniCSA actions fund the groundwork for strong joint proposals — not the future research project itself.

ACTION A
Research infrastructure

WHAT IT SUPPORTS

Building a consortium and a proposal to expand or upgrade DTH-relevant research infrastructure in widening countries.

COLLABORATION IT BUILDS

Visible, accessible labs and equipment — and more credible proposals.

ACTION B
Joint research proposals

WHAT IT SUPPORTS

Co-designing an ambitious research concept within any of the ten SRTs and bringing it to a submission-ready stage.

COLLABORATION IT BUILDS

International consortia and a reusable "proposal factory" method.

ACTION C
Joint PhD cooperation

WHAT IT SUPPORTS

Preparing joint doctoral initiatives — co-supervision, shared training and mobility — e.g. for MSCA Doctoral Networks.

COLLABORATION IT BUILDS

Durable doctoral networks and a pipeline of young talent.

Each action brings widening and non-widening HI-EURECA-PRO partners together around a shared SRT — supported by the DTH.

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Your Pathway to **Joint Projects**

How the JRA turns shared themes into partnerships — and what it offers to different members of the university community.

1 Find
Partners, labs and equipment in the DTH

2 Focus
Choose a Strategic Research Theme

3 Team up
Widening and non-widening partners

4 Prepare
With miniCSA support: Action A, B or C

5 Submit & grow
Horizon Europe, MSCA and other programmes

Doctoral candidates

Action C

- Joint supervision across partner universities
- Mobility and secondments, incl. widening-hosted placements
- Shared training and access to infrastructure

Researchers

Actions A & B

- Partners for international consortia
- Access to shared labs and equipment via DTH
- Support towards submission-ready proposals

TTO & project-support staff

All actions

- Governance packs: access, data/IP, compliance
- Expert clinics and reusable templates
- Traceable reporting of shared infrastructure via DTH

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Thank you for your attention

Heritage Innovation in the EURECA-PRO Alliance

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