EU Danube Region Strategy
PA 8 LIGHTHOUSE

# DIGITALIZATION, ARTIFICIAL INTELLIGENCE, METAVERSE & VIRTUAL WORLDS

# CITADELS

University of Belgrade, Serbia
- School of Electrical Engineering

Co-funded by the European Union

# Basics

**Acronym:** CITADELS

**Name:** Cultivating Industry 5.0 Talents: Academia-industry collaboration and empowerment through accessible deep technologies

**Key Project Data:**

2025 – 2029

2.937.337,50 EUR | Funded by Horizon Europe

**Country:** Czech Republic, Austria, Hungary, Slovenia, Serbia, Bosnia and Herzegovina

**Project Coordinator:**

University of Belgrade - School of Electrical Engineering

**Contact Person:**

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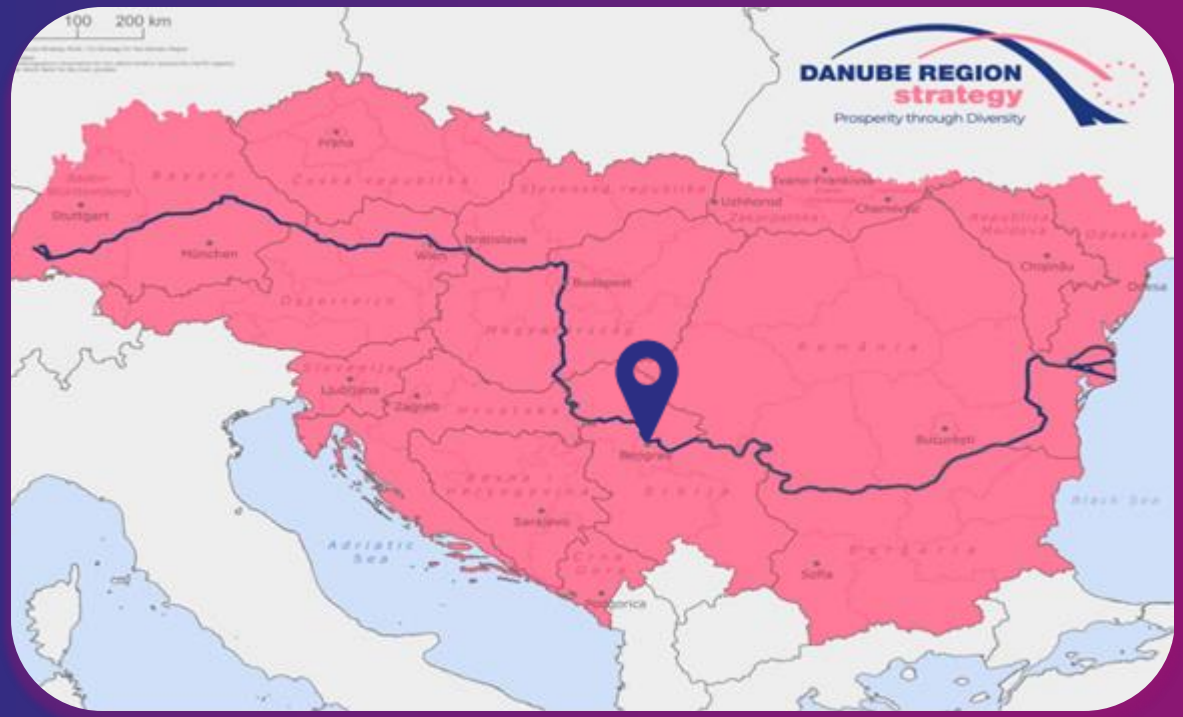
**Scoring:** 43/50

# Consortium




**Partners from the Danube Region:**

- EIT Manufacturing East Region, Austria
- Industrial Automation, Bosnia and Herzegovina
- XR Institute, Czech Republic
- Corvinus University of Budapest, Hungary
- Tecnalia, Serbia
- Pomurski Technology Park, Slovenia

*And other partners from outside of the Danube Region*

**Coordinator:**

School of Electrical Engineering University of Belgrade, Serbia

# About the project

The **CITADELS project** aims to **transform seven Widening countries into strongholds of human-centric Industry 5.0 development**. The project brings together a consortium of 10 partners from 9 countries, including leading academic institutions, DeepTech companies, and a science and technology park, where academia and industry converge to drive innovation.

The project responds to the growing demand for **DeepTech expertise** by aligning academic excellence with industry needs, involving 20 research talents and 20 R&I support talents in cross-sectoral secondments and structured training. CITADELS **enhances talent circulation**, supports the **adoption of advanced technologies**, and strengthens **regional innovation ecosystems,** putting **Widening countries as competitive players in the global DeepTech landscape.**

## INNOVATION

The project increases DeepTech R&I excellence through human-centric RRI and create structured and attractive research careers.

## SUSTAINABILITY

CITADLES promotes knowledge exchange between sectors, countries and disciplines, thereby enhancing long-term sustainable research and knowledge valorisation within academia.

## SCALABILITY

The project provides industry access to the latest DeepTech and R&I infrastructure, which is an option for replicating and scaling.

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PBN advanced management
Gospodarska zbornica Slovenije Chamber of Commerce and Industry of Slovenia
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# Chronology with Activities

The CITADELS project is organized into **four substantive** (WP2, WP3, WP4, and WP5) and **two transversal** (WP1 and WP6**) work packages** and contains **3 implementation phases:**

| Phase 1 | Phase 2 | Phase 3 |
|---|---|---|
| **WP2**<br>Definition of cutting-edge **DeepTech TestBeds** to be used by talents.<br><br>**WP5**<br>Conceptualization of **talent career support mechanisms.** | **WP4**<br>Outputs of WP2 and WP5 are leveraged among Research Talents through a cross-sectoral, cross-border, and cross-disciplinary exchange.<br><br>**WP3**<br>R&I Support Talents are leveraged through comprehensive training and exchange. | **WP5**<br>Structured support to boost talent careers activities to ensure improved talent retention, fruitful academia-industry collaboration, and stronger DeepTech-based R&I ecosystems in widening countries. |

As for the transversal WPs, **WP6, devoted to Dissemination, Communication, and Exploitation**, will accompany the whole project with a comprehensive set of activities which, in the third phase, together with those of post-secondment, are aimed at **ensuring a strong and broad project impact on sustainable DeepTech talent careers**.

# Methodology

The project methodology is based on two academia-industry type of actions:

## Proof-of-Concept:

The Proof-of-Concept action reflects in-house DeepTech exploitation, where academia hosts industry talents to validate research concepts and ideas at a lower TRL (3-5) to enhance chances for commercial success.

## DeepTech Deployment:

The DeepTech Deployment action reflects an on-site DeepTech exploitation, where the industry hosts academia talents to deploy technology at a higher TRL (6-8).

Both types of action are working in combination with human capital and talent development. Therefore, CITADELS combines DeepTechs - collaborative robotics, extended reality, human-machine interfaces and AI - as pillars of new human-centric Industry 5.0.

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# Impact

The impact of the CITADELS project can be summarised in three categories:

| Scientific Impact | Economic Impact | Societal Impact |
|---|---|---|
| Enhancement of **institutional research system support** in widening countries | Upskilled R&I Support Talents will speed up **research valorization** | Target groups can thrive in the **evolving technological landscape** |
| Improving **access to excellence** by fostering industry-academia partnerships based on the FAIR principles and knowledge sharing | Strengthen **cross-sectoral partnerships and increase economic growth** through industry-driven research and new projects | **Bridge of the technological gap** between developed and widening regions |
| **Better global competitiveness of DeepTech human-centric innovation** through international collaboration and integration of SSH | Cutting-edge DeepTech solutions will **boost competitiveness, attract investments, promote technology transfer**, and **generate new revenue streams of local industries and startups** in widening countries and **enhance their access to global markets** | Fostering **socially responsible solutions** that align with societal needs, ethics, and sustainability goals |

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# Outcome

The CITADLES delivers significant results through its DeepTech-expertise approach. The table below shows how each objective aligns with specific outcomes:

| Objective | Outcome |
|---|---|
| Improvement of research and knowledge valorization in academia | Creation of 4 lifelong learning courses |
| Boost knowledge exchange between sectors, countries and disciplines | Involvement of 40 talents in secondments, including cross-sectoral R&I actions of 4 social science and humanities talents involved in DeepTech R&I actions |
| Provide industry access to the latest DeepTech and R&I infrastructure | Generation and publication of a Catalogue of 50 DeepTech TestBeds |
| Creation of more structured and attractive research careers | Creation of guidelines for DeepTech career plans (CPs) |
| Increase DeepTech R&I excellence through human-centric RRI | Creation of an intervention study on human-centric RRI aspects in DeepTech |