De-TECH

EIT Higher Education Initiative

Tech Challenge Guideline

Welcome to the De-TECH Innovation Tech Challenge 2026!

Leibniz Universität Hannover · Universidad Politécnica de Madrid · İTÜ · Estonian Business School · technoport technology business incubator · EFFECTIA Consultoría Estratégica · Istanbul Metropolitan Municipality · Tech Istanbul

Welcome

The *De-TECH Innovation Tech Challenge 2026* offers the opportunity to develop innovative solutions for real-world industry challenges. As part of the EU-funded EIT Higher Education Initiative, the program connects students and researchers with companies and leading European universities.

Participants develop an innovative an innovative concept for a scalable product, technology, or business model on a real industry challenge. The focus lies on agri-food technologies, circular economy, and sustainable bioeconomy.

No lab work, no hardware prototypes:
Instead, you use literature reviews, simple models, market analyses, and a clear validation process to develop well-founded and actionable concepts.

Key Contacts

Generally, you will work as a team independently and without one-on-one supervision.

Do you have questions about materials, understanding the text, or organizational matters? If so, please contact:

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If you have any questions about the content of the Tech Challenges, we will, if necessary, put you in touch with our industry partners.

Who Can Participate?

- Students and academic researchers (Bachelor, Master, PhD, and Postdocs) from all disciplines
- Affiliated with one of the De-TECH partner universities:
  Leibniz University Hannover (LUH), Technical University of Madrid (UPM), Istanbul Technical University (ITU), and Estonian Business School (EBS)
- No specific prior knowledge required
- Teams of three participants
- Gender diversity is encouraged

How it works

1. **Form a Team**
   Build an interdisciplinary team of three participants.
2. **Select a Tech Challenge**
   Choose one of the three industry-provided challenges
   (The three *Tech Challenges* are described here).
3. **Develop Your Concept**
   Design an innovative, feasible, and scalable solution based on scientific research and market insights.
4. **Submit Your Proposal**
   Submit your solution as a PDF by **May 20, 2026, 23:59 CET** to:
   de-tech@ite.uni-hannover.de

Timeline

April – May 2026:	Teams select one Tech Challenge and develop solution concepts
May 20, 2026:	Submission deadline
May 25, 2026:	Selection of the best teams
July 6–7, 2026:	Final Workshop and Presentations in Hannover, Germany

The best teams will be invited to present their solutions at the final event. Participation in the final workshop is mandatory for the selected teams.

Travel and accommodation costs to Hannover will be fully covered!

Submission Guidelines

- **Language**: English (required)
- **Format**: PDF
- **Length**: minimum 3 pages
- **Content**:
  - Description of the solution concept for the Tech Challenge
  - Team contacts (name, email, university, role/position)
- **Deadline**: May 20, 2026, 23:59 (CET)
- **Submit to**: de-tech@ite.uni-hannover.de

What to Expect

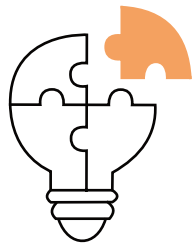
What you are expected to do at the Tech Challenge—and what you are not!

Expected...	Not Expected...
✓ ... structured thinking	X ... specialized prior knowledge
✓ ... well-founded assumptions	X ... laboratory work
✓ ... logical argumentation	X ... fully developed products
✓ ... understandable presentation	X ... extensive start-up experience
✓ ... evidence-based research	X ... complex mathematical models or experimental data
✓ ... creativity	

Evaluation Criteria

The submitted concepts for the Tech Challenges will be evaluated based on the following criteria:

- **Relevance to the challenge**
- **Innovation and feasibility**
- **Environmental or societal impact**
- **Implementation potential**
- **Interdisciplinary collaboration**
  (Technical & business perspectives encouraged)
- **Clarity and persuasiveness**
- **Gender diversity is encouraged**



Rules and Expectations

Concept over Completion

- The goal is to develop a plausible and well-reasoned concept—not a finished product.

Transparency of Assumptions

- All key assumptions must be clearly stated and justified.

Evidence-Based Research

- Internet and literature research are encouraged. Sources must be cited and critically assessed.

Creativity with Realism

- Be innovative while ensuring scientific and practical feasibility.

Time Management

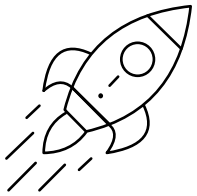
- Prioritize effectively—time is part of the challenge.

Team Collaboration

- All team members are expected to contribute equally.

Honesty and Critical Reflection

- Clearly distinguish between validated findings and open questions.



Recommended Work Structure

Problem Definition & Target Group

- Why is this challenge relevant?
- Who is affected by the problem—customers, users, or industry stakeholders?
- What market or societal need does your solution address?
- Who is your primary target group?

Scientific and Technological Foundations

- Which scientific or technological principles underpin your approach (e.g., biotechnology, process engineering, chemistry, data science, AI)?
- What evidence supports your concept?
- Which assumptions are you making, and why are they reasonable?

Solution Concept

- How does your proposed solution work in principle?
- What makes it innovative?
- What is the added value compared to existing solutions or processes?

Implementation & Impact

- How could your idea be implemented and scaled in a real-world context?
- Is the concept technically, economically, and regulatorily feasible?
- What are the expected environmental, economic, or societal benefits?

Tech Challenge 1: Off-Season Infrastructure Utilization

Seasonal production cycles in the sugar industry result in extended periods during which industrial facilities remain inactive. This leads to economic inefficiencies and limits the contribution of existing infrastructure to sustainable value creation and the development of a bio-based economy. At the same time, sugar production sites are characterized by large-scale processing capabilities, established utilities and logistics systems, and experience in handling biomass and fermentation processes. These conditions create a strong foundation for alternative forms of production that are currently not sufficiently utilized.

The temporary inactivity of industrial assets reflects a structural gap between available infrastructure and its flexible use beyond core sugar production. Existing practices focus primarily on maintenance or idle operation and do not fully exploit the potential for adaptive, low-investment applications within existing systems. Against this background, there is a need to identify approaches that enable the continued use of infrastructure under technically, economically, and regulatorily feasible conditions.

The challenge therefore addresses the question of how existing facilities can be repurposed during the off-season for the production of bio-based products. The aim is to develop a concept for producing one or two bio-based products based on existing industrial infrastructure, requiring only minimal modifications. The concept should present a coherent and plausible rationale that integrates technical feasibility, economic viability, and relevant regulatory considerations.

Company Overview: Pfeifer & Langen KG
Corporate founded in 1870 (Germany)
One of Europe's leading manufacturers of sugar and sugar-based products

Tech Challenge 2: Unlocking Value from Press

The food industry faces increasing pressure to utilize by-products more efficiently to reduce environmental impact and unlock economic value. In the production of plant-based oils, cold pressing generates large amounts of press cake, in which many valuable plant compounds remain due to the gentle process. However, these residues are mostly used in low-value applications.

Press cake contains proteins, fats, carbohydrates, and dietary fibres, as well as bioactive compounds with potential applications in the food, cosmetics, and pharmaceutical industries. While demand for natural and bioactive ingredients is growing, only limited efforts exist to develop high-value products from these side streams.

For example, cumin press cake contains compounds such as cuminaldehyde, terpinene, and pinene, which could be used in functional foods, natural cosmetics, or pharmaceuticals. As there are currently no established products based on such materials, this represents a promising opportunity for innovation and first-mover advantage.

This challenge focuses on developing sustainable and economically viable concepts for utilizing press cakes from high-value oil seeds and fruits (e.g., cumin, milk thistle, camelina, or hemp). The goal is to identify valuable components and suitable processing approaches for their use as natural, bio-based alternatives in different industries: food, natural cosmetics, or the pharmaceutical industry. This approach can establish a natural and biobased raw material foundation for various industrial sectors, which could potentially supplement or replace synthetic (and often fossil-based) starting materials.

Company Overview: Natura Altaica GmbH
Start-up founded in 2020 (Germany)
Specializing in the processing and commercialization of natural foods and wild-harvested products.

Tech Challenge 3: AI-Driven Soil Health

The increasing demand for sustainable agricultural systems requires reliable methods to assess and monitor environmental performance, particularly in relation to soil health and regenerative practices. However, existing approaches to data collection and evaluation are often fragmented, costly, or lack scalability, limiting their applicability across different regions and farming systems.

At the same time, advances in digital technologies, including satellite-based remote sensing, low-cost sensor systems, and artificial intelligence, offer new opportunities to capture and analyze environmental data at multiple spatial and temporal scales. The integration of these heterogeneous data sources remains a central challenge, as it requires the alignment of technical, analytical, and practical considerations to generate meaningful and usable insights.

Against this background, there is a need for systems that can combine diverse data inputs into coherent monitoring frameworks that are both reliable and accessible. In particular, Monitoring, Reporting, and Verification (MRV) systems play a key role in enabling transparency, comparability, and evidence-based decision-making in the context of sustainable land management.

The challenge therefore focuses on the design of a scalable, AI-powered MRV system for monitoring soil health and evaluating regenerative agricultural practices. The aim is to develop a concept that integrates satellite data, low-cost sensors, and field observations into a unified platform, providing actionable insights while ensuring technical feasibility, cost-effectiveness, and applicability across different use contexts.

Company Overview: GraCity Start-up (Spain)
Developed a Climate Tech and Deep Tech platform that enables cities to measure, verify, and finance their climate resilience

Programme – Final Event in Hannover

Pre-Event | July, 6 2026

16:00	**Get-Together at Leibniz House in Hannover** Participant arrival and welcome
16:30	**Visit to Leibniz University of Hannover** including: "Einstein Elevator"
18:30	**Guided City Tour of Hannover** with a hop-on-hop-off bus
20:00	**Drinks and Food at "Schützenfest"** Informal networking in a traditional setting

Competition & Demo Day | July, 7 2026

09:00	**Welcome & Registration** Participant check-in | Morning coffee and networking
09:45	**Opening Remarks** Welcome words | Introduction to the Deep Tech European Venture Builder Competition 2026 | Overview of the day's agenda
10:30	**Keynote Session** Inspirational talk by a leading figure in deep-tech innovation
11:00	**Coffee Break**
11:20	**Tech Challenge Workshop Session | Part I** Teams work with industry experts on their concepts
13:30	**Networking Lunch**
14:30	**Tech Challenge Workshop Session | Part II** Teams work with industry experts on their concepts
15:45	**Coffee Break**
16:00	**Final Presentation & Cerenomy**
18:15	**Evening Reception** Informal networking dinner | Public viewing of World Cup matches