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TECHNO-ECONOMIC ANALYSIS OF CARBON MITIGATION TECHNOLOGIES
CA21127

Call for Virtual Mobility (VMs)

Call for VM Applications

Fourth Grant Period, 1 November 2025 – 31 October 2026

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Scope of TrANsMIT COST Action

TrANsMIT proposes a COST Action to advance the techno-economic analysis (TEA) of the full CO_2 Capture, Utilisation, and Storage (CCUS) value chain. It aims to unite academia, research institutes, and industry in a cutting-edge, pan-European knowledge network. The Action will move CCUS TEA from fragmented, discipline-specific research towards a harmonized, holistic, and coordinated European approach. By standardizing methods and tools and leveraging knowledge from national and international projects, TrANsMIT will accelerate the development of the most technologically, economically, and commercially viable CCUS systems. The focus is on holistic chain assessment and key innovation areas such as direct air capture and CO_2 utilization. TrANsMIT also prioritizes knowledge sharing and career development, addressing disparities in expertise and opportunities across Europe.

For further details and specific objectives, please read the Memorandum of Understanding (MoU) of the TrANsMIT COST Action available at: https://www.cost.eu/actions/CA21127/

Description

Virtual Mobility (VM) grant consists of a collaboration in an online setting among researchers or innovators within the COST Action, to exchange knowledge, learn new techniques, etc. Virtual Mobility grant benefits to:

- COST Action: uses a flexible tool to implement online activities inside the network, achieve the MoU objectives and significantly increase their impact and reach. Contributes to European leadership in knowledge creation and increasing its innovation potential;
- VM grantee: develop(s) capacity in online collaboration and networking in a pan-European framework.

Proposed VMs need to align with one or more scientific objectives of TrANsMIT COST Action, which emphasizes the techno-economic analysis and life-cycle assessment (LCA) of the comprehensive CO_2 Capture, Utilisation, and Storage value chain (including carbon dioxide removal options). Information on these objectives can be found on the TrANsMIT website. **In particular, this grant period's VMs need to contribute to development of the TrANsMIT database (next section).**

Purpose of the VM

During this Grant Period (running until October 2026) we would like to highlight the importance of developing an **open-access database to support the CCUS** community. It is the most important deliverable of the TrANsMIT Action this year. We're inviting interested members to contribute by reviewing the literature and collecting key data from published studies on CCUS technologies and adding this to the database. In first instance, only VM proposals contributing to development of the database will be considered.

The database will focus on key parameters across three core areas:

- **Process Modelling**: Includes data for model calibration and validation, such as modelling objectives, techniques, software used, key parameters (e.g., flow rates, concentrations), assumptions, and validation data. Of critical importance is also data for validation, i.e., experimental measurements, either at laboratory, pilot, or commercial scale.
- **Techno-Economic Analysis**: Contains information on capital and operating costs, economic parameters (e.g., interest rate), profitability indicators (e.g., payback periods), revenue streams, market size, cost-benefit analyses, and details on the process system and units considered. It also notes whether externality costs were considered and, if so, which methodology was used.
- **Lifecycle Assessment**: Includes data related to the process system, system boundaries (e.g., cradle-to-gate), and key assumptions (e.g., geographic location, technology, specific product category rules). It specifies the LCA approach used (attributional, consequential, or dynamic), the functional or declared unit, material and energy flows across system boundaries, data sources (e.g., primary process data, simulations, inventory lifecycle databases), allocation rules (if any), environmental impact categories (e.g., carbon footprint), and regulatory compliance.

As VMs are focusing on the development of the CCUS database during this Grant Period, the following can be listed as the expected roles and responsibilities:

- **Attend online community meetings:** Engage in regular virtual sessions to collaborate with fellow project members, discuss progress, and share insights into the CCUS database development.
- **Identify and facilitate data sources:** Search for diverse data repositories and guide fellow participants in locating and gathering accurate information.
- **Literature-based data collection:** Gather relevant data from academic papers, technical reports, and other reputable sources to populate the database.
- **Data validation and review:** Verify the data submitted by other contributors, ensuring its quality and reliability before inclusion in the CCUS database.

VMs criteria

The following criteria will be used to assess the eligibility of each VM:

- Each VM must have clear outputs that are aligned with the objectives and deliverables of TrANsMIT. These will be evaluated considering:
  - Scientific excellence: Proposed activities should advance the state of the art in one of the following three core TrANsMIT themes:
    - **Resource identification through systematic literature-based data extraction**, focusing on Techno-Economic Analysis, Life Cycle Assessment, or process modelling of CCUS systems. This includes structured engagement with relevant TrANsMIT Working Group leaders through multiple technical

meetings, with the objective of identifying and consolidating additional high-value data resources during the VM.
    - **Exploitation of Artificial Intelligence for data extraction**, building upon an existing AI-enabled extraction platform. The VM should contribute to expanding or refining AI-based approaches for automated extraction of CCUS literature, including proposing novel workflows, validation strategies, or use cases for AI-assisted data mining.
    - **Development of web-based infrastructure for an online CCUS database**, including both backend and user interface (UI) improvements. This covers enhancements to the existing platform (www.transmit-db.com), with emphasis on more intuitive, graphical, and user-friendly UI design, as well as backend development such as modifying the existing SQL database and integrating it with the AI-driven data extraction system.
  - Feasible plan of the application
  - Active participation in the Action
  - Contribution of the proposed VM to the Action outcomes
- All provisioned work must be carried out within a single grant period during the action lifetime.
- Following the completion of the VM, the recipient will be required to write and upload the VM report to e-COST platform not later than 30 days after the end date of the VM.

Grant funding

The total budget for VM in this call is €12 000 and the number of VM grants are anticipated to be around tw elve (12). Section A2-3 of the Annotated Rules for COST Actions defines a maximum limit €1500 of financial support for each VM, which should not be disregarded in any circumstance.

An VM Grant is a fixed financial contribution which takes into consideration the budget request of the applicant and the outcome of the evaluation of the VM application. The grant amount is determined by evaluating the VM application.

Grant funding will be released after the completion of the mission and upon approval of all necessary reports and documentation.

Period of VM and application deadlines

The period of the VM should be fully framed within the Grant Period and must conclude no later than **30 September 2026** to allow sufficient time for the submission and approval of the scientific report, as well as for the final payment process.

To facilitate greater flexibility for applicants, **a continuous application process** will be implemented, with **systematic evaluation rounds** conducted at regular intervals.

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VMs Application Procedure

The application procedure is legally bound to the Annotated Rules for COST Actions. Eligible VM applicants must submit their applications online at the following web address: https://www.cost.eu/VM_GrantApplication. Please **specify in your application your area of interest** (Process Modelling, Techno-Economic Analysis, Lifecycle Assessment) when developing an input to **CCUS database** and provide a reason for your choice. Moreover, VM applicants should be also registered at the Action e-cost system.

The following information is needed for the on-line application form:

- Action number (CA21127);
- Title of the planned VM;
- Start and end dates of the VM;
- Applicant's details, including academic profile and workplan;
- Applicant's bank details;
- Requested budget.

Selection committee

A scientific committee – VM Committee – composed of the Grant Awarding Coordinator, the Action Chair and/or Vice-Chair, the Database Coordinator and the Working Group leaders will evaluate all the VM proposals and define a seriation for the attribution of the grants. In case of conflict of interest, the member that is constrained in his duties should designate a substitute.

The evaluation will return a value between 0 and a maximum of 10 points. The criteria for evaluation will include scientific quality, alignment with Action objectives, expected impact, budget, etc.: up to 5 points; ITC participant: 0.5 point, Early Stage Researcher (up to 40 years old): 0.5 point; Academia-industry VM: 2 points; Contribution to CCUS database development: 2 points.

VM reporting and Payment

The VM Grantee has 30 calendar days from the end date of the mission to submit a scientific report to the VM Coordinator. Please note that failure to submit the scientific report within 30 days will effectively cancel the grant. The template of the scientific report can be downloaded at https://www.cost.eu/VM_Report; it includes:

- Purpose of the VM and framing in the TrANsMIT Action;
- Description of the activities carried out during the mission;
- Summary of relevant results;
- Future collaborations, including forthcoming publications resulting from the developed work and/or joint project proposals agreed during the stay.

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The payment of the Grant is subject to the approval of the VM scientific report by the VM Committee, on behalf of the Action's MC, and the final decision is uploaded in e-COST by the VM Coordinator. Based on this, the Grant Holder will execute the payment of the grant directly to the grantee as requested in the application.

Contacts

Grant Awarding Coordinator	Action Chair	Action Vice-Chair	Database Coordinator
Dr Daria Katla	Prof. Anna Skorek-Osikowska	Dr Mijndert van der Spek	Dr Mohammad Reza Ghaani
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