

Horizon Europe Horizontal activities Work Programme 2026 - 2027

We have categorized the calls from the work programme of horizontal activities 2026-2027 according to the impact that microfluidics can have on the projects and related topics. We are sharing our analysis in case it can help you with project funding efforts. And, of course, if our expertise can be of use to you, we would be delighted to discuss it further.



How to read the stars in terms of the % of microfluidic technologies' relevance for the call:

By microfluidic relevance, we mean the relevance of microfluidic technologies to the topic in question.

Additionally, we outline key points on how a microfluidic partner could contribute to the topic.

Relevance (%)	90-100	80-89	70-79	60-69	50-59	40-49	30-39	20-29	10-19	0-9
Relevance (*)	*****	****	***	**	*	—	--	---	----	-----

Administrative dates per call:

HORIZON-CID-2026: Opening 18 Dec 2025, Deadline 15 Sep 2026

HORIZON-RAISE-2026-01-01/02: Opening 06 Jan 2026, Deadline 21 Apr 2026

HORIZON-RAISE-2026-01-03: Opening 28 May 2026, Deadline 24 Nov 2026

HORIZON-RAISE-2027: Opening 22 Sep 2026, Deadline 02 Feb 2027

HORIZON-CID-2027: Opening 12 Jan 2027, Deadline 15 Sep 2027

******* HORIZON-RAISE-2027-01-01 - AUTOMATED SCIENTIFIC DISCOVERY (RAISE PILOT)**

- **Type of action:** RIA
- **Budget (topic, M€):** 30.00 M€, **Expected/project:** Around 10.00, **# projects:** 3

Scientific focus

- Build **closed-loop experimentation** that couples AI decision-making with lab automation and robust data infrastructure.
- Retrofitting is a key idea: add the “intelligence layer” to *existing* labs; ensure human oversight, safety, and ethics by design.
- Deliver prototype demonstrators; raise **efficiency, reproducibility, and throughput** in discovery cycles.
- Prioritize software and orchestration, but allow justified equipment; promote networked labs and real-time analytics.
- Initial focus proposed in materials science, with openness to extend to other disciplines in collaboration with clusters.

Why a microfluidic partner adds value

- Microfluidic **automated reactors, droplet screens, micro-chemostats, and organ-on-chip** systems naturally enable closed-loop AI control (fast cycles, small volumes, precise perturbations).
- Mature instrument control, valve/pump sequencing, and inline micro-sensing allow **AI agents** to plan, execute, and analyze without manual intervention.
- Chip-integrated **multi-omics sampling**, optical/electrochemical readouts, and **on-chip quality controls** reduce data noise - critical for reinforcement-learning or Bayesian optimization loops.
- Experience with **modular lab hardware**, SLAS/SiLA/LabOP-style interfaces, and data standards helps interoperability across labs.
- Microreactor arrays accelerate **materials, catalysts, electrolytes**, and **CCU reaction** screening, directly aligned with the call’s demonstrator ambitions.
- Strong fit for both microfluidics SMEs (hardware, control software, data pipelines) and academic labs (method development, validation).

******* HORIZON-RAISE-2027-01-02 - AUTOMATED SCIENTIFIC DISCOVERY - FOOD (RAISE PILOT)**

- **Type of action:** RIA
- **Budget (topic, M€):** 3.00 M€, **# projects:** 1

Scientific focus

- Same automation-plus-AI core as above, targeted to **biomass and precision fermentation** and **food R&D**.

- Envisages closed-loop control to optimize **alternative proteins/fats, bio-based materials, specialty carbohydrates, microbial cultures**, and ingredients.
- Emphasis on **data governance**, resource optimization (energy/reagents), and robust, secure systems.

Why a microfluidic partner adds value

- **Fermentation-on-chip** (droplet and continuous) enables rapid strain/condition optimization with minimal media.
- **Microfluidic emulsification/encapsulation** controls texture, release, and stability of food ingredients; micro-rheology readouts feed AI.
- Inline **metabolite sensing**, micro-calorimetry and optical growth/viability assays close the loop for autonomous optimization.
- Academic labs bring high-throughput **micro-bioprocess** methods; SMEs supply scalable chip platforms and instrument integrations.

**** HORIZON-RAISE-2026-01-01 - THEMATIC NETWORKS OF EXCELLENCE FOR AI IN SCIENCE (RAISE PILOT)

- **Type of action:** RIA
- **Budget (topic, M€):** 15.00 M€, # projects: 1

Scientific focus

- Create a **pan-EU network of excellent labs** applying AI to strategic scientific domains (a materials science network is proposed).
- Co-create a **strategic research agenda**, run collaborative projects with explicit milestones, and ramp up community **datasets, models, standards, and benchmarks**.
- Extensive **talent & mobility** schemes; membership broadened after year 1 via open excellence-based selection.

Why a microfluidic partner adds value

- Microfluidic labs produce **rich, structured experimental data** ideal for AI; SMEs can spearhead **benchmark datasets** for automated chemistry/biology.
 - Contributions to **instrument APIs, data standards, and FAIR pipelines** accelerate reproducibility across sites.
 - Demonstrators: **autonomous micro-synthesis, chip-based screening** for catalysts/electrolytes, and **organ-on-chip** readouts linked to AI model development.
-

****** HORIZON-RAISE-2026-01-02 - THEMATIC NETWORKS OF EXCELLENCE FOR AI IN SCIENCE - AGRICULTURE AND ENVIRONMENT (RAISE PILOT)**

- **Type of action:** RIA
- **Budget (topic, M€):** 13.00 M€, # projects: 1

Scientific focus

- Establish a network focused on **agricultural sciences and environmental pollution**, sharing data, infrastructure, and AI models; build common **standards and benchmarks**.
- Run coordinated research addressing **grand challenges** defined in a shared agenda; strong links to foundation-model efforts in the clusters.

Why a microfluidic partner adds value

- **Lab-on-chip environmental analytics** (nutrients, micro-pollutants, AMR markers) feed high-quality training data; **portable microfluidic samplers** bridge field and lab.
 - **Soil/plant-on-chip** and **aquatic micro-ecosystem chips** let AI test stressor/response hypotheses under controlled gradients.
 - Microfluidics entities can lead to **protocol harmonization** and **sensor/assay intercomparisons**, central to the network's standards mission.
-

***** HORIZON-RAISE-2026-01-03 - RAISE DOCTORAL NETWORKS FOR AI IN SCIENCE (RAISE PILOT)**

- **Type of action:** TMA Doctoral Networks (including **Industrial Doctorates** and **Joint Doctorates**)
- **Budget (topic, M€):** 30.00 M€

Scientific focus

- MSCA-model training networks where doctoral candidates **develop AI systems/models/tools** integral to domain science; all fellows receive **doctoral-level training in AI-for-science**.
- Proposals are submitted under **MSCA Doctoral Networks 2026** and, if aligned, flagged for RAISE; selected networks become part of the **RAISE community**.

Why a microfluidic partner adds value

- Microfluidics SMEs can host **industrial doctorates** on lab automation, chip-AI integration, and scientific data engineering; academic labs co-supervise fellows.
 - Joint work packages can target **autonomous micro-experimentation**, **standardized chip data schemas**, and **safe AI control** of fluidic instruments.
-

**** HORIZON-CID-2026-01-02 - R&I IN SUPPORT OF THE CLEAN INDUSTRIAL DEAL: CLEAN TECHNOLOGIES FOR CLIMATE ACTION**

- **Type of action:** IA
- **Budget (topic, M€):** 150.00 M€, **Expected/project:** 15.00 to 25.00, **# projects:** 8

Scientific focus

- Mature, market-ready **clean-tech demonstrations** towards **TRL 8**, strengthening EU value chains.
- Three areas (projects may integrate several):
 1. **Integrated net-zero energy systems** (grids, networks).
 2. **Zero-emission power technologies** (renewable electricity/heat).
 3. **Storage, renewable fuels & CCU** (batteries, H₂, advanced biofuels, synthetic fuels).
- Strong **industry-driven consortia**, clear business plans, and go/no-go gates before demonstration.

Why a microfluidic partner adds value

- **Micro-reactors and flow chemistry** accelerate **catalyst/electrolyte** discovery, and de-risk scale-up for batteries, power-to-X, and **CCU** pathways.
- **Inline micro-sensors** for gas/electrolyte speciation, fouling, and impurity tracking support plant-level control and **LCOE** reduction.
- **Process-intensified micro-heat-exchangers** and distributed **micro-electrolyser** testbeds help validate components before scale-out in NZIA-relevant value chains.

**** HORIZON-CID-2027-01-02 - R&I IN SUPPORT OF THE CLEAN INDUSTRIAL DEAL: CLEAN TECHNOLOGIES FOR CLIMATE ACTION**

- **Type of action:** IA
- **Budget (topic, M€):** 140.00 M€, **Expected/project:** 15.00 to 25.00, **# projects:** 8

Scientific focus

- Same overarching aim and structure as the 2026 edition, with emphasis on **electrification across end-use sectors** and **scale-up** across EU energy/transport networks (e.g., hydrogen, CO₂, batteries, refuelling).
- Requires **quantifiable competitiveness & GHG impacts**, robust business plans, and a credible **deployment pathway**.

Why a microfluidic partner adds value

- Provide **rapid component validation** (e.g., membrane/electrolyte screening) and **AI-assisted micro-testing** to inform plant designs.

- Contribute **circularity** via chip-based **recycling/solvent extraction** screening and **material fingerprinting** analytics.

*** HORIZON-CID-2026-01-01 - R&I IN SUPPORT OF THE CLEAN INDUSTRIAL DEAL: DECARBONISATION OF ENERGY INTENSIVE INDUSTRIES (PROCESSES4PLANET AND CLEAN STEEL PARTNERSHIPS)**

- **Type of action:** IA
- **Budget (topic, M€):** 125.00 M€, **Expected/project:** 15.00 to 25.00, **# projects:** 8

Scientific focus

- Industry-led demonstrators advancing to **TRL 8** in one or more of three areas:
 1. **Carbon cycle management (CCU/CCUS)** with ≥ 30 % capture-energy reduction vs. SoA and credible commercialisation/LCA;
 2. **Clean energy use** in production (electrification, hydrogen, waste-heat use, on-site storage) with major improvements by 2035;
 3. **Circularity & resource efficiency** with ≥ 30 % gains by 2035 and strong LCA.
- Mandatory **business & market-readiness strategy**, go/no-go gate before demonstration.

Why a microfluidic partner adds value

- Microfluidics can **de-risk CCU chemistries** (gas-liquid mass transfer, catalytic microreactors) and enable **high-throughput sorbent/membrane** testing.
- **Harsh-environment micro-sensors** (corrosion, species breakthrough, trace contaminants) provide real-time plant analytics.
- Fit is supportive/enabling rather than central, given heavy pilot-scale focus.

*** HORIZON-CID-2027-01-01 - R&I IN SUPPORT OF THE CLEAN INDUSTRIAL DEAL: DECARBONISATION OF ENERGY INTENSIVE INDUSTRIES (PROCESSES4PLANET AND CLEAN STEEL PARTNERSHIPS)**

- **Type of action:** IA
- **Budget (topic, M€):** 125.00 M€, **Expected/project:** 15.00 to 25.00, **# projects:** 8

Scientific focus

- Same pillars as 2026 (CCU/CCUS, clean energy in production, circularity/resource efficiency), with **first-of-a-kind operational demonstrators and market-tested use cases**.

Why a microfluidic partner adds value

- Provide **pilot-enabling analytics** (e.g., inline micro-chromatography/ion-selective micro-sensing) and **process-screening platforms** that shorten time-to-demo; role is complementary to core large-plant integrators.