

Horizon Europe Cluster 4 2026-2027

We have sorted the calls for projects from Horizon Europe Cluster 4 2026-2027 according to the impact that microfluidics can have on the calls for 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 using microfluidic technologies for the topic cited. But also, to a lesser extent, what a microfluidic laboratory or SME could contribute to the topic (mainly for calls with low relevance to microfluidic technologies).

Relevance (%)	90-100	80-89	70-79	60-69	50-59
Relevance (*)	*****	****	***	**	*

Administrative dates per call (apply to all topics within each call):

- **HORIZON-CL4-2026-01-MATERIALS-PRODUCTION:** Opening: 6 Jan 2026; Deadline: 21 Apr 2026.
- **HORIZON-CL4-2026-04-DIGITAL-EMERGING, 2026-04-DATA, 2026-04-HUMAN, 2026-05-DIGITAL-EMERGING, 2026-05-MATERIALS-PRODUCTION:** Opening: 15 Jan 2026; Deadline: 15 Apr 2026.
- **HORIZON-CL4-2026-02-MATERIALS-PRODUCTION-21, 02-DIGITAL-EMERGING-51 & 53:** Opening: 16 Dec 2025; Deadline: 17 Mar 2026 (Stage 1), 13 October 2026 (Stage 2).
- **HORIZON-CL4-2026-space:** Opening: 10 Mar 2026; Deadline: 03 Sep 2026.
- **HORIZON-CL4-2027-01-MATERIALS-PRODUCTION:** Opening: 22 Sep 2026; Deadline: 02 Feb 2027.
- **HORIZON-CL4-2027-04-DATA, 2027-04/05-DIGITAL-EMERGING, 2027-04-HUMAN:** Opening: 17 Nov 2026; Deadline: 18 Mar 2027.
- **HORIZON-CL4-2027-02-DIGITAL-EMERGING-52-two-stage, 2027-02-MATERIALS-PRODUCTION-32-two-stage:** Opening: 22 Sep 2026; Deadline: 02 Feb 2027 (Stage 1), 02 Sep 2027 (Stage 2).
- **HORIZON-CL4-2027-space:** Opening: 09 Mar 2026; Deadline: 02 Sep 2027.

Quick shortlist (highest Microfluidics fit to prioritize)

1. **MATERIALS-PRODUCTION-01 (IAM-enabled sensing) - 92 %**
2. **MATERIALS-PRODUCTION-23-two-stage (AI & digital discovery) - 90 %**
3. **MATERIALS-PRODUCTION-05/-06 (Circular advanced materials, 2026/2027) - 88 %**
4. **MATERIALS-PRODUCTION-01/-02 (Advanced manufacturing, 2026/2027) - 85-84 %**
5. **DATA-06 (Efficient & compliant access to/use of data) - 78 %**
6. **DIGITAL-EMERGING-05 (AI-driven robotics) - 77 %**
7. **DIGITAL-EMERGING-51 (AI in factories) - 70 %**

******* HORIZON-CL4-2026-05-MATERIALS-PRODUCTION-25 - NEW OR ENHANCED INNOVATIVE ADVANCED MATERIALS (IAM)-ENABLED SENSING FUNCTIONALITY**

- **Type of action:** RIA
 - **Budget:** 24.00 M€ ; **Expected/project:** ~8.00 M€
 - **Estimated number of projects:** 3
 - **Scientific summary:** Develop innovative advanced-materials (IAM)-based sensing functionalities and demonstrate them in application-relevant environments.
 - **Microfluidics fit:**
 - Opto-/electro-chemical sensing embedded in chips for bio/chem analysis; integration paths for IAM coatings, membranes, and nanostructures.
 - Microfluidics can lead demonstrators (e.g., multiplex lab-on-chip for contaminants, cell secretome, bioprocess monitoring).
 - Provide scalable polymer microfabrication and packaging for sensor arrays; define in-flow calibration methods and drift compensation.
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******* HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-23- ACCELERATING THE DISCOVERY AND DEVELOPMENT OF CHEMICALS AND INNOVATIVE ADVANCED MATERIALS THROUGH DIGITALISATION AND AI**

- **Type of action:** IA (two-stage under blind-evaluation pilot)
 - **Budget:** 60.00 M€ ; **Expected/project:** 20.00 M€
 - **Estimated number of projects:** 3
 - **Scientific summary:** Digital workflows (AI, self-driving labs, FAIR/Materials Commons) to speed design-make-test-learn cycles, risk assessment and SSbD uptake; projects must include demonstrators.
 - **Microfluidics fit:**
 - Microfluidics can supply high-throughput droplet/platforms and continuous-flow microreactors feeding ML loops.
 - On-chip toxicity & SSbD screening accelerates risk assessment; integrated data capture simplifies FAIR compliance.
 - Provide adapters to Materials Commons and DIGIPASS-compatible tooling from chip instrumentation.
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****** HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-05 - CIRCULAR INNOVATIVE ADVANCED MATERIALS: FACILITATING THE TRANSITION FROM DESIGN TO MARKETS**

- **Type of action:** RIA
 - **Call:** INDUSTRY (HORIZON-CL4-2026-01)
 - **Budget:** 40.00 M€ ; **Expected/project:** 5.00-6.50 M€
 - **Estimated number of projects:** 7
 - **Scientific summary:** Design-for-circularity (recyclable polymers/composites, magnets), scale-up to manufacturing, digital/FAIR tools, and SSbD across value chains including **medical devices**. Portfolio ensures coverage across energy, mobility, and medical.
 - **Microfluidics fit:**
 - Polymer formulation and processing routes for recyclable microfluidic cartridges; solvent-free bonding, disassembly and material recovery.
 - Life-cycle testing rigs (leachables/extractables) and design rules for chip reuse/refurbishment.
 - Microfluidics can bridge materials ↔ manufacturing ↔ device integration for medical diagnostics.
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****** HORIZON-CL4-2027-01-MATERIALS-PRODUCTION-06 - CIRCULAR INNOVATIVE ADVANCED MATERIALS: FACILITATING THE TRANSITION FROM DESIGN TO MARKETS**

Type of action: RIA

- **Budget:** 40.00 M€ ; **Expected/project:** 5.00-6.50 M€
 - **Estimated number of projects:** 7
 - **Scientific summary & Microfluidics fit:** Same thrust as 2026 sister topic with renewed portfolio; strong opening for recyclable polymer microfluidic consumables, circular business models, and digital product passports for chips.
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****** HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-01 - ADVANCED MANUFACTURING FOR KEY PRODUCTS (INCLUDING USE OF ADVANCED OR SECONDARY RAW MATERIALS)**

- **Type of action:** IA
 - **Budget:** 40.00 M€ ; **Expected/project:** 5.00-7.00 M€
 - **Estimated number of projects:** 6
 - **Scientific summary:** European manufacturing excellence for key components (e.g., additive/hybrid manufacturing, polymer composite manufacturing, advanced surface structuring, in-line testing), with circularity and reduced CRM reliance. Automotive is guaranteed in the portfolio; **batteries excluded**.
 - **Microfluidics fit:**
 - Scale polymer chip manufacturing (roll-to-roll embossing, high-throughput laser structuring, hybrid additive-subtractive) and in-line metrology.
 - Substitute CRM-heavy parts with engineered polymers; integrate recycled feedstocks into chip bodies/fixtures.
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****** HORIZON-CL4-2027-01-MATERIALS-PRODUCTION-02 - ADVANCED MANUFACTURING FOR KEY PRODUCTS (INCLUDING USE OF ADVANCED OR SECONDARY RAW MATERIALS)**

- **Type of action:** IA
 - **Budget:** 40.00 M€ ; **Expected/project:** 5.00-7.00 M€
 - **Estimated number of projects:** 6
 - **Scientific summary & Microfluidics fit:** Continuation opportunity for manufacturing pilots/lines of **microfluidic devices**, including secondary raw materials and digital QA.
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****** HORIZON-CL4-2026-04-DIGITAL-EMERGING-01 - PILOT OF THE “SCIENCE FOR AI” PILLAR OF RAISE**

- **Type of action:** RIA
 - **Budget:** 17.00 M€ ; **Expected/project:** ~17.00 M€
 - **Estimated number of projects:** 1
 - **Focus:** EU pilot to apply AI to science at scale; strong emphasis on reproducible pipelines and compute/data integration.
 - **Why Microfluidics:** Microfluidic self-driving experimentation is an ideal “AI for Science” demonstrator (chemistry, materials, cell systems)
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***** HORIZON-CL4-2026-04-DATA-06 - EFFICIENT AND COMPLIANT ACCESS TO AND USE OF DATA (AI, DATA & ROBOTICS PARTNERSHIP)**

- **Type of action:** IA
 - **Budget:** 50.00 M€ ; **Expected/project:** 10.00-25.00 M€
 - **Estimated number of projects:** 3
 - **Focus:** Trusted data sharing/processing, governance, and compliance tooling across sectors (under ADR/ADRA).
 - **Microfluidics value:** Secure sharing of lab/clinical chip datasets
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***** HORIZON-CL4-2027-04-DIGITAL-EMERGING-05 - AI-DRIVEN ROBOTICS FOR INDUSTRY: ENABLING SYSTEM INTEGRATION & ADOPTION**

- **Type of action:** IA
 - **Budget:** 18.00 M€ ; **Expected/project:** ~9.00 M€
 - **Estimated number of projects:** 2
 - **Focus:** Integration/validation of AI-robotic solutions in real industry lines.
 - **Microfluidics:** Automating cartridge assembly, leak-test, optical alignment; retrofit cells for plastic micro-parts handling.
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***** HORIZON-CL4-2026-02-MATERIALS-PRODUCTION-21 - DEVELOPMENT OF SAFE AND SUSTAINABLE ALTERNATIVES TO SUBSTANCES OF CONCERN**

- **Type of action:** IA
 - **Budget:** 40.00 M€ ; **Expected/project:** 6.00-7.50 M€
 - **Estimated number of projects:** 6
 - **Focus:** SSbD alternatives to SoCs in energy, mobility, construction, electronics, and **health/medical devices**; full innovation cycle incl. manufacturing integration.
 - **Microfluidics:** Low-SoC polymer chips (e.g., PFAS-free surfactants, safer plasticisers), cleanroom-light processes, and biocompatibility dossiers for medical devices.
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***** HORIZON-CL4-2027-01-MATERIALS-PRODUCTION-22 – INNOVATIVE ADVANCED MATERIALS & NEW PRODUCTION PROCESSES – REDUCING DEPENDENCIES ON CRITICAL & STRATEGIC RAW MATERIALS**

- **Type of action:** IA
 - **Budget:** 40.00 M€ ; **Expected/project:** 6.00-7.50 M€
 - **Estimated number of projects:** 6
 - **Focus:** Substitution/reduction of CRMs through new materials and process innovations; co-development of materials+process, SSbD throughout.
 - **Microfluidics:** CRM-light valves/connectors, magnet-free actuation strategies, recyclable composites.
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***** HORIZON-CL4-2027-01-MATERIALS-PRODUCTION-03 - FACTORY PROCESSES & AUTOMATION FOR DE- AND RE-MANUFACTURING**

- **Type of action:** RIA
 - **Budget:** 40.00 M€ ; **Expected/project:** 5.00-6.50 M€
 - **Estimated number of projects:** 6
 - **Focus:** Inspection, AI-assisted disassembly, model-based systems/digital twins, on-site repair for high-value components.
 - **Microfluidics:** End-of-life strategies for microfluidic devices: sorting/cleaning of polymer stacks, gasket recovery, re-machining, remanufacturing guidelines.
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***** HORIZON-CL4-2026-02-DIGITAL-EMERGING-51-two-stage - AI-IMPROVED ADVANCED MANUFACTURING & PRODUCTION PROCESSES IN FACTORIES**

- **Type of action:** RIA
 - **Budget:** 30.00 M€ ; **Expected/project:** 4.00-6.00 M€
 - **Estimated number of projects:** 5
 - **Focus:** ADRA/Made-in-Europe topics on AI for robust, efficient factory operations.
 - **Microfluidics:** Vision+AI for micro-assembly/QC, predictive maintenance on pumps/valves, yield optimisation in chip fabrication lines.
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**** HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-31 - EFFICIENT CAPTURE / PURIFICATION / UTILISATION OF CO₂ FOR THE PRODUCTION OF COMPETITIVE PRODUCTS**

- **Type of action:** RIA
 - **Budget:** 55.00 M€ ; **Expected/project:** 5.00-7.00 M€
 - **Estimated number of projects:** 10
 - **Focus:** Smart integration of CO₂ capture-purification-conversion with reduced energy/capex; lifecycle economics; methanol/fuels **excluded**.
 - **Microfluidics angle:** Intensified microreactors for CO₂ conversion routes (e.g., catalysts screening, gas-liquid mass transfer), inline analytics, and thermal management.
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**** HORIZON-CL4-2027-02-MATERIALS-PRODUCTION-32-two-stage - EFFICIENT ENERGY INPUT FROM RENEWABLE SOURCES & ENERGY MANAGEMENT IN THE PROCESS INDUSTRIES**

- **Type of action:** RIA
 - **Budget:** 70.00 M€ ; **Expected/project:** 6.00-8.00 M€
 - **Estimated number of projects:** 9
 - **Focus:** Electrification/hybrid heat, high-T storage, energy fluctuation management, and advanced materials for heat capture/management; ≥20 % GHG reduction.
 - **Microfluidics role:** Thermal management materials/testing in micro-process intensification units; sensors for heat/flow in distributed pilots.
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****HORIZON-CL4-2026-02-DIGITAL-EMERGING-53-two-stage - INNOVATIVE AI METHODS & TECHNOLOGIES FOR THE PROCESS INDUSTRIES**

- **Action:** RIA • **Budget:** 15.00 M€ • **Expected/project:** 4.00-6.00 M€
 - **Estimated number of projects:** 5
 - **Focus:** AI for efficiency/quality in process industries.
 - **Microfluidics angle:** Micro-process intensification data and soft-sensors.
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*** HORIZON-CL4-2027-04-DATA-08 - DEMAND-SIDE 3C PILOT DEMONSTRATORS ON CONVERGED TELCO EDGE CLOUD INFRASTRUCTURE**

- **Type of action:** IA
 - **Budget:** 38.00 M€ ; **Expected/project:** ~19.00 M€
 - **Estimated number of projects funded:** 2
 - **Focus:** Converged edge-cloud pilots.
 - **Microfluidics value:** Low-latency control of distributed chip fleets and edge-analytics for screening rigs.
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*** HORIZON-CL4-2027-04-DATA-03 - NEW APPROACHES FOR DECENTRALISED, FEDERATED & SUSTAINABLE AI DATA PROCESSING**

- **Type of action:** RIA
- **Budget:** 35.00 M€ ; **Expected/project:** ~17.50 M€
- **Estimated number of projects:** 2
- **Focus:** Federated AI/data processing with lower energy overhead.
- **Microfluidics:** Federated learning on proprietary bio/chem datasets from chips without raw-data pooling.

*** HORIZON-CL4-2026-05-DIGITAL-EMERGING-03 – APPLY AI: NEXT-GENERATION AGILE & INTELLIGENT ROBOTICS PLATFORMS FOR INDUSTRIAL & SERVICE APPLICATIONS**

- **Type of action:** RIA
- **Budget:** 25.00 M€ ; **Expected/project:** 12.00-13.00 M€
- **Estimated number of projects:** 2
- **Focus:** Foundational platforms for next-gen robotics (perception, dexterity, trustworthy autonomy).
- **Microfluidics angle:** Micro-assembly & precision handling of chips/soft-litho parts; automated pipetting/connection for organ-on-chip testbeds.

*** HORIZON-CL4-2027-04-DATA-09 - ENERGY EFFICIENCY & SUSTAINABILITY OF AI DATA PROCESSING IN DATA CENTRES**

- **Type of action:** IA
- **Budget:** 39.00 M€ ; **Expected/project:** ~13.00 M€
- **Estimated number of projects:** 3
- **Focus:** Greener AI compute.
- **Microfluidics:** Indirect

*** HORIZON-CL4-2026-04-DIGITAL-EMERGING-08 – APPLY AI: ROBOTICS FOR MANUFACTURING: ADVANCING CORE SKILLS THROUGH TECHNICAL CHALLENGES**

- **Action:** RIA • **Budget:** 18.00 M€ • **Expected/project:** ~18.00 M€
 - **Estimated number of projects:** 1
 - Short-term fit via challenge tasks relevant to precision micro-assembly.
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