

MAIOS / ARTICLE

MAIOS Research - Agentic Systems That Learn Through Work

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Original page and updates:
<https://maios.it/insights/agentic-research/>

Research and perspective by Graziano Guiducci · 30 October 2026

Experience can change how an AI system observes, asks questions, uses competences and develops its capabilities.

MAIOS develops an operating system for AI-supported work. Knowledge, tools, competences and sources contribute to the actual context. An insight acquired during a task may change the method available in subsequent work.

This development comes from D-ND research and continues through kernels, laboratories, software evidence and new questions. In the author's formulation, alignment is a consequence of a coherent resultant: the research investigates how relational logic could participate in the formation of questions and methods from the context itself, without predetermining the outcome. This is a scientific direction; verified capabilities remain distinguishable from possibilities still under investigation.

A laboratory that forms research questions

The D-ND physics Lab was designed to choose the topics of its cycles from the field of observations and research seeds.

The public D-ND_LAB engine provides a portable organisation for agentic research in configured domains. It is an alpha distribution with sixteen movements covering investigation, experiment, verification, process observation, seed evolution and trajectory assessment.

From findings to new ways of observing

A negative result can also add scientific knowledge. A public example dated 16 May 2026 investigates a possible boundary signature in an Anderson 3D model. A control generated an equally strong or stronger signal in 112 of 128 trials, so the candidate remained a research constraint. The Lab preserved both the report and a separate observation about the experimental process.

MAIOS uses this distinction to explore a further question: when does a correction actually change how a system observes and acts in a subsequent situation?

Starting points for collaboration

Agentic scientific research. Trace the relationships among original sources, hypotheses, experiments, controls, findings and emerging research questions.

Research-process oversight. Identify global incompatibilities among locally plausible decisions, distinguish verified findings from claimed methods, and observe the formation of new competences.

These are entry points into a wider research programme, open to new questions and applications. These are research questions for qualified collaborators. Available evidence supports the technical cases described here; comparisons with actual LLMs and platforms require separate studies.

Research and support

The work includes foundational research, experimental development and investigation of competences that evolve through experience. Continuing it may call for researcher time, infrastructure, model compute, independent scientific review and collaboration. Support arrangements will follow the actual scope and recipient; no funding award is claimed here.

Public sources

- D-ND_LAB engine
- Physics domain and instruments
- D-ND research Lab
- Paper Zero - The Generative Incompleteness, revised 28 October 2026

To propose a research collaboration: D-ND contact.

The D-ND research direction · A Lab research process

Related reading

- AI alignment, field contamination and competences: the author's reflection on the relationship between context and inference.
- A company that learns from its own work: people, knowledge and capabilities in organisational work.
- The MAIOS System Map: concepts and relationships at different levels of detail.

References and links

Links from the text. The original page retains online functions and updates.

1. D-ND LAB engine

https://github.com/GrazianoGuiducci/D-ND_LAB

2. Physics domain and instruments

<https://github.com/GrazianoGuiducci/dnd-lab-physics>

3. D-ND research Lab

<https://d-nd.com/ai-lab/>

4. Paper Zero - The Generative Incompleteness, revised 28 October 2026

<https://doi.org/10.5281/zenodo.23735742>

5. D-ND contact

<https://d-nd.com/en/join>

6. The D-ND research direction

<https://d-nd.com/en/ricerca-agentica-conoscenza/>

7. A Lab research process

<https://lab.d-nd.com/research.html>

8. AI alignment, field contamination and competences

<https://maios.it/insights/ai-alignment-field-contamination-and-competences/>

9. A company that learns from its own work

<https://maios.it/insights/a-company-that-learns-from-its-work/>

10. The MAIOS System Map

<https://maios.it/system-map/>