

# Q1 Report – Institutional Setup, Methodological Foundations, and First Deployments

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## 1. Executive Summary

Llull Lab was legally established as a micro-company on 1 July 2025, with effective operational activity beginning on 1 October 2025. Accordingly, this report covers Operational Q1 (October–December 2025).

The first operational quarter was deliberately structured as a non-revenue, non-funding phase, dedicated to institutional formation, methodological consolidation, and the development of first deployable instruments.

All Q1 activities were fully financed through internal resources. No external funding or operating revenue was recorded during this period by design.

Despite its early-stage positioning, Q1 resulted in multiple operational releases, theoretical consolidations, and infrastructure-level designs that together define Llull Lab's core research and product trajectory.

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## 2. Organizational Focus and Research Structure

### 2.1 Institutional Priorities

The primary objectives of Q1 were:

- Establishing Llull Lab's institutional and research identity
- Structuring internal workflows and expanding expert collaboration networks
- Consolidating a coherent methodological core across all projects
- Producing first publicly deployable instruments

This quarter functioned as a foundational phase, prioritizing epistemic rigor, internal coherence, and long-term scalability over short-term monetization.

### 2.2 Artificial Mind Research Unit

During Q1, Llull Lab established its first dedicated research unit: **Artificial Mind Research Unit**.

This unit constitutes the laboratory's primary research nucleus and focuses on:

- Formal models of artificial cognition
- Computational representations of mental structures
- Theoretical and applied foundations for machine psychoanalysis
- Evaluation and synchronization mechanisms in human-machine interaction

All major Q1 research instruments — including Sync-Turing, Phi-Yo, Freud for Machines, and semantic geometry engines — are conceptually anchored within the Artificial Mind Research Unit.

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## 3. Research Instruments and Platforms

### 3.1 Sync-Turing

Llull Lab developed and deployed its first formal methodological instrument: **Sync-Turing**.

An evaluation method that measures the ability of humans and machines to utilize their communication capacities at maximum efficiency and high synchronization during interaction.

Sync-Turing functions as a cross-domain evaluative layer and serves as a shared methodological reference across Llull Lab's research, product, and experimental systems.

### 3.2 Tractatus de Musica

The first applied implementation of Sync-Turing was released through: **Tractatus de Musica: Ordine Geometrico Demonstrata**.

This work simultaneously serves as:

- The first concrete application example of Sync-Turing

- The theoretical backbone of the Tropus platform
- A structured demonstration of Llull Lab's approach to computational creativity, music theory, and formalized reasoning

### **3.3 Tropus Platform**

During Q1, Tropus was released in two operational stages:

- **Tropus V1 (Theoria):** A theoretical-pedagogical module designed for structured inquiry and conceptual exploration.
- **Tropus V2 (Generata):** A music generation module enabling automated composition based on the Tractatus de Musica framework.

Together, these modules establish Tropus as both a research platform and a public-facing experimental system.

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## **4. Computational Psychoanalysis and Semantic Engines**

### **4.1 Phi-Yo (Llull Machine)**

Llull Lab's long-term objective of machine psychoanalysis entered its first concrete phase through Phi-Yo, the initial version of the Llull Machine.

During Q1:

- The theoretical backbone intended for the Phi-Yo API was completed
- This work was developed in collaboration with domain specialists, ensuring disciplinary validity

### **4.2 Ambivalence-Centered Semantic Geometry**

Llull Lab designed the first version of its Ambivalence-Centered Semantic Geometry engine.

This engine is intended for use within Psychotherapy Support Tools and provides a formal structure for modeling ambivalence, semantic tension, symbolic instability, and affective bifurcation.

### **4.3 Freud for Machines**

During Q1, Llull Lab completed: **Freud for Machines: A Computational Psychoanalytic Ontology**.

This ontology is designed for:

- The training of AI agents
- The interpretative use of psychoanalytic structures in machine reasoning
- Future deployment across Phi-Yo and related systems

### **4.4 Reflective Judgment Engine**

Llull Lab also completed the design of a jury-modeled orchestration, multi-agent reflective judgment engine.

This system is intended for use within distributed reflective evaluation tools, enabling structured reflective evaluation through distributed agent deliberation models.

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## 5. Publication Infrastructure

As part of its transparency and knowledge-sharing strategy, Llull Lab completed the infrastructure for: **Q-PRE (Peer-Reviewed Edition: Journal of Combinatorial Practices)**.

While the technical and editorial infrastructure is in place, a strategic decision was made not to prioritize active journal publication at this stage, in order to preserve energy and focus for core research and platform development.

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## 6. Scientific Outputs (Research Publications)

During Q1, Llull Lab produced its first full-scale scientific research output, marking the initial entry of its research activities into formal scientific dissemination.

### 6.1 Llull Lab Scientific Research Report

#### Artificial Intelligence and the Problem of Representation: From Ontologies to Psychotherapy

- **Format:** Llull Lab Scientific Research Report
- **Nature:** An interdisciplinary conceptual and theoretical analysis
- **Status:** Completed during Q1
- **Scope:** Artificial intelligence, ontology engineering, representation systems, epistemic limits, and psychotherapy
- **Dissemination:** Institutional publication (<https://doi.org/10.5281/zenodo.18109686>)

This report establishes Llull Lab's core theoretical position regarding the limits of representation-based artificial intelligence systems and serves as a reference framework for subsequent research instruments and applied developments.

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## 7. Key Metrics (Operational Q1 Snapshot)

- **Tropus users:** approximately 6,000
  - | estimated based on platform access and interaction logs
- **Generated musical pieces:** 300+

These metrics were achieved without paid acquisition, advertising, or data-collection-based optimization.

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## **8. Next-Quarter Objectives (Q2)**

Planned objectives for the next quarter include:

- Public presentation of Sync-Turing in Paris
  - Release of Tropus V3, featuring longer durations and broader musical spectrum
  - Completion of theoretical work for Tropus V4, focused on ethnomusicology
  - Release of the first version of the Symptom Tracking – Semantic Mapping Engine
  - Publication of Freud for Machines: A Computational Psychoanalytic Ontology
  - Release of Phi-Yo v1, beginning with a dream-interpretation tool
  - Initiation of testing for the jury-modeled reflective judgment engine
  - Completion of the theoretical groundwork for the Modular Humor Machine
  - Transition into the seed funding phase
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## **9. Closing Note**

Operational Q1 positioned Llull Lab not as a speculative initiative, but as a method-driven research laboratory with:

- a clearly defined research unit structure,
- deployable instruments,
- coherent theoretical architecture, and
- early public traction.

The coming quarter will focus on controlled expansion, public articulation, and the first steps toward sustainable funding.

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## **10. Governance and Legal Structure (Forward-Looking)**

Llull Lab plans to transition from its current micro-company structure to a SASU (Société par Actions Simplifiée Unipersonnelle) to support external investment and a more robust governance framework. This transition will be implemented in alignment with the initiation of the seed funding phase.

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