

Research Data Management Summary — Ontology of the Simulated Universe v0.5

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Repository: *Quantum-Entangled-Ontology (v0.5 – 2025)*

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Abstract

This document provides a structured overview of data provenance, workflow reproducibility, and ethical data handling for the *Ontology of the Simulated Universe v0.5* research program. It serves as the formal data-management companion to the Zenodo whitepaper, outlining how open and restricted datasets are integrated, validated, and modeled to reproduce the moral-informational gradient $M(t)$. The framework is designed for transparent replication, interdisciplinary collaboration, and long-term archival in Zenodo and related scholarly repositories.

1. Overview

The OSIU-v0.5 repository provides a reproducible research framework for testing the informational–moral dynamics proposed in the “Ontology of the Simulated Universe” theory. It integrates quantitative proxies—governance, conflict, entropy, and well-being—into a unified pipeline that produces an evolving moral-informational gradient $M(t)$.

2. Repository Structure

osiuv05-data-scaffold/

— configs/	→ indicator and data-source configs
— data/	→ raw, interim, processed, metadata
— src/	→ etl, model, viz modules
— results/	→ figures and reports
— .github/workflows/	→ CI pipeline
— Makefile, README.md	

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3. Data Provenance

Source	Type	Access	Role
World Bank WGI / Health	Public	API	Governance, well-being
Our World in Data (OWID)	Public	Direct CSV	Energy intensity proxy
UCDP / PRIO	Restricted	License	Conflict metrics
IHME DALYs	Restricted	Agreement	Suffering (σ)
V-Dem	Restricted	License	Pluralism (φ)
EM-DAT	Restricted	Account	Disaster entropy

All public sources include automated fetchers; restricted data are placed manually in `data/raw/`.

4. Workflow Reproducibility

Reproducible on any system with Python ≥ 3.11 and `make`:

```
make fetch
make validate
make all
```

CI automation validates the process on every commit, generating artifacts under `data/processed` and `results/figures`.

5. Data Handling and Ethics

All datasets are aggregate and non-identifiable. Derived moral indices are structural proxies, not personal judgments. Each ETL step is logged; transformations are transparent and reversible.

6. Reuse Policy

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- **Code:** MIT License
 - **Data:** CC-BY-4.0 for public sources; others under original terms
- Recommended Citation**

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7. Future Work

- Integration of Φ and Ω operators as measurable extensions
 - Expansion of Bayesian inference for causal entropy flows
 - Validation using complex-systems benchmarks and historical data
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