# k.LAB: The AI technology to drive 21st century science

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Sources:

1) k.LAB Technical Note (2021): <u>https://docs.integratedmodelling.org/technote/;</u> 2) The global environmental agenda urgently needs a semantic web of knowledge (2022): <u>https://environmentalevidencejournal.biomedcentral.com/articles/10.1186/s13750-022-00258-y</u>

#### **CLUSTER**

# • Artificial Intelligence (AI)

The science and engineering underlying the development of machines, especially computer programs, capable of performing activities normally thought to require intelligence.

# Interoperability

The ability of data/tools from independent resources to integrate or work together with minimal effort.

# • Knowledge integration

The process of appropriately combining independently produced scientifc data and models, by knowing when, where and how to appropriately re-use them.

# • Machine learning

The use of various algorithms to uncover patterns (e.g., correlation or clustering) in large datasets.

#### • Machine reasoning

Applied to a semantically annotated knowledge base, machine reasoning can support automated validation and linking of data and models using logic to assemble them into useful structures for computation.

#### Semantics

The formalization of knowledge in terms of logical declarations and axioms, collected into ontologies (which define concepts and the relations between them), breaking knowledge into modular components.

#### HOW TO READ IT

**Size:** N. of occurrences in the Paper (1) Color: Semantic Cluster

Word

