# The LIFE-VERMEER Project

## Moving towards substitution of risky chemicals

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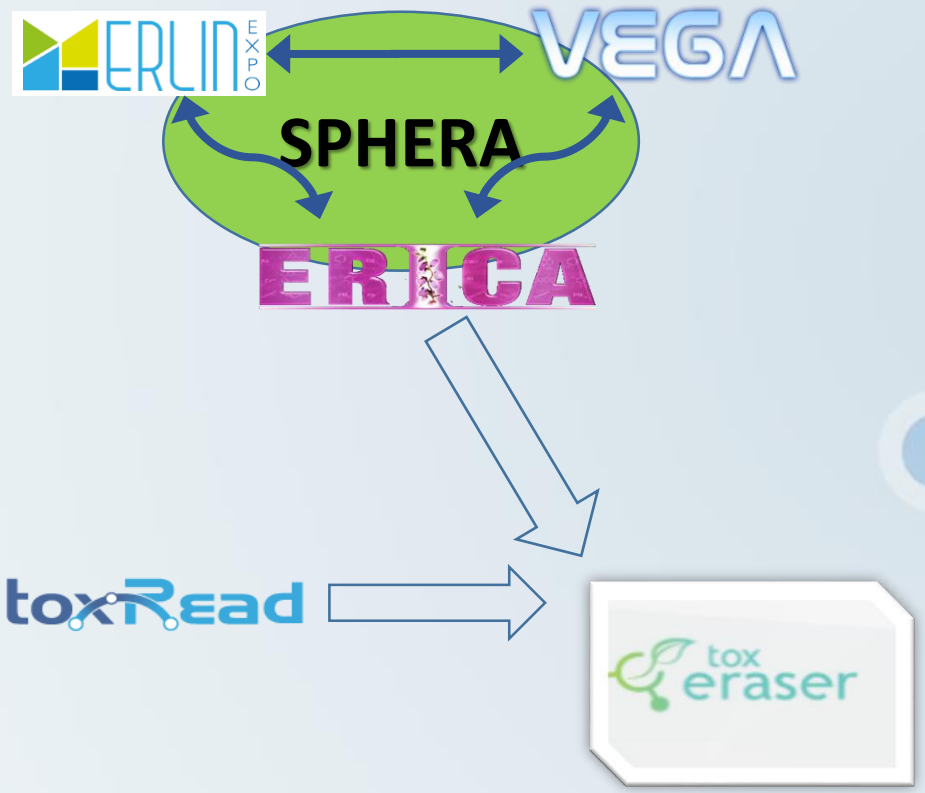


Integrating **VEGA**, **ToxRead**, **MERLIN-Expo**, and **ERICA** in a **platform for risk assessment and substitution** of risky substances

**Towards substitution:**

1. Identification of the risky substances
2. Identification of possible substitutes
3. Application to **6** case studies

# Beneficiaries

- Coordinating beneficiary:

  ✓ *Istituto di Ricerche Farmacologiche Mario Negri IRCCS*

- Associated beneficiaries

  ✓ *Angel Consulting SAS*

  ✓ *Federal Institute for Risk Assessment (BfR)*

  ✓ *Electricitè de France (EDF)*

  ✓ *ÅF Making Future.*

  ✓ *Institut National de L'Environnement Industriel et de risques (INERIS)*

  ✓ *KODE srl*

  ✓ *SC Sviluppo Chimica S.p.a*

  ✓ *SCIENSANO*

# Problems for substitutions

- **Multitask problem**
- **Multiple perspectives:** adverse properties and functional use
- **Adverse properties:** related to both hazard and exposure, *public* and *private* context
- **Functional use:** specific industrial interest

# VERMEER: the context

- **VERMEER:** adverse aspects, not functional uses; only one case study as proof of principle
- **Strong reference to in silico models:** no need of tests, experiments, multiple endpoints

# Problems in the use of in silico models

- **Lack of single system for hazard and exposure**
- **Lack of Official Guidance**
- **Models availability:** where to find “my” model”
- **Models redundancy:** which model should I use?
- **Integration of the results (Weight of evidence):** how to solve conflict?
- **Interpretation of the results:** applicability domain, documentation…
- **Easiness of the tools:** a tool for the purpose

# The solution

- Reference to VEGA and MERLIN-Expo (ECHA, EFSA)
- One-shop system, specific for target (FCM, cosmetics, etc.)
- Multiple models wrapped for hazard and exposure
- Weight of evidence implemented
- Interpretation of the results: applicability domain, documentation, uncetainty
- Easiness of the tool: VERMEER Tools, a living platform

# The Case studies

- *Food Contact Materials*
- *Biocides*
- *Oil fractions*
- *Solvents*
- *Dispersants*
- *Cosmetics*

# The strategic view

- The VERMEER Tools are focused on specific case studies
- Past approach: collections of models for separate endpoints
- New vision: the ontology is much closer to the real application: clusters of tools for a specific purpose
- Common system for industry and authorities, for assessment of adverse characteristics
- Regulatory framework and thresholds in the system
- Functional use to be inserted in ToxEraser

# Today and future steps

- The VERMEER Tools exist. They are for risk assessment. A common system for authorities and industry

- ToxEraser is for substitution: it opens the door

- It is up to industry to continue the journey
- The same IT system should be used: for the risk and for the beneficial properties

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# thanks!