



# NanolInformaTIX

## Development and Implementation of a Sustainable Modelling Platform for Nanoinformatics

[www.nanoinformatix.eu](http://www.nanoinformatix.eu)



@nanoinformatix

### THE AIM

NanolInformaTIX develops a web-based Sustainable Nanoinformatics Framework (SNF) platform for risk management of engineered nanomaterials (ENM) in industrial manufacturing. The tool will be based on the significant amounts of data on physico-chemical and toxicological and ecotoxicological properties of ENM generated over the last decades, as well as new data coming from research. The final aim is to provide **efficient user-friendly interfaces** to enhance accessibility and usability of the nanoinformatics models to industry, regulators, and civil society, thus supporting sustainable manufacturing of ENM-based products.

### AMBITION

NanolInformaTIX brings predictive toxicology knowledge to enable safe-by-design ENM's from the beginning of their development. NanolInformaTIX will help to deliver a strong, formal knowledge on the quantitative side of Nanosafety to allow material characteristics to be linked to their adverse outcomes to the health and to the environment. The online NanolInformaTIX SNF platform aims to **help shortening the path from lab bench to the market**, by providing:

- > a global hub for ENM safe-by-design,
- > a portal for manufacturers and scientists, for information on materials.

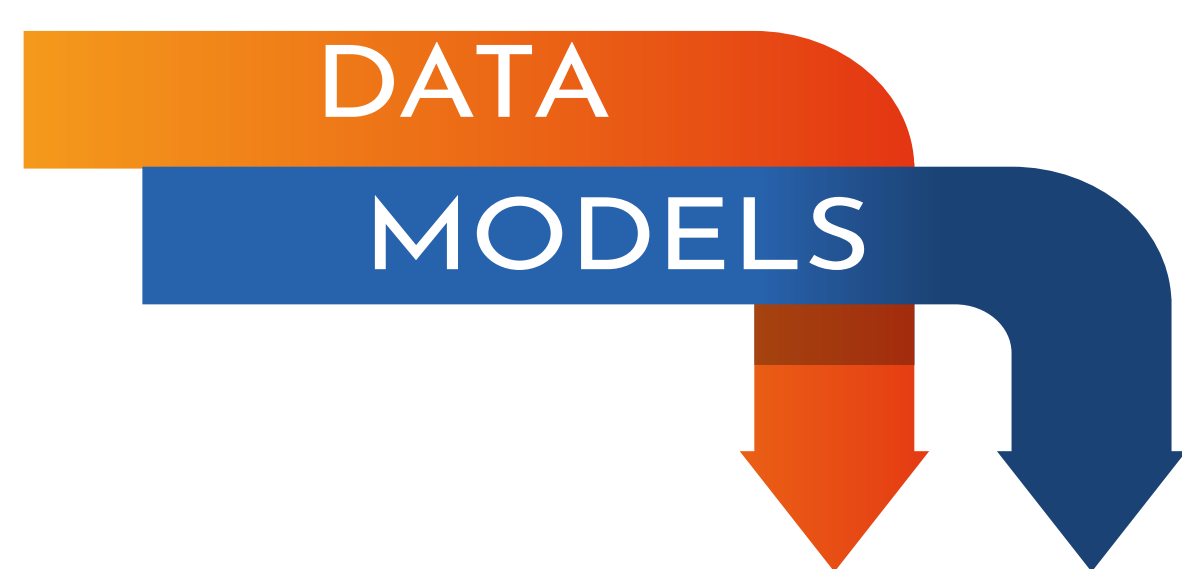
It will be based on predictive toxicology knowledge, thus enabling sustainable production of engineered nanomaterials (ENM) through:

- > **Reduction of animal experimentation**
- > **Safe-by-Design**
- > **Grouping/classifying ENM for risk assessment**

### OBJECTIVES

- Database**
  - > the database will be implemented by collecting and managing data from completed and ongoing projects;
- Material Modelling**
  - > to uncover the structure and rationale of reactivity of ENM, generating relevant advanced descriptors for toxicity and eco toxicity, enabling knowledge-based "Safe-by-Design" approach;
- Fate-Exposure Modelling**
  - > to develop models of ENM release and exposure, fate and environmental distribution, and bio-distribution;
- Dose-Response Modelling**
  - > top-down data mining and quantitative methods, to derive models of the ENM dose-response relationship for (eco)-toxicity, will allow ENM descriptors to be linked to adverse outcomes;
- Integration/linking of Models**
  - > chain data sources and models will enable specific operations needed for risk assessment as well as predictions of properties and e-effects for safer design of quality products;
- Model validation**
  - > to improve model prediction using advanced descriptors; validate models by comparing model predictions with data from EU and national projects.

### CONCEPT



Materials modelling  
Exposure modelling  
Bio-distribution modelling  
Dose-Response modelling

### IMPACTS

- INDUSTRY**
  - > anticipate uncertainties and risks early in the innovation process
- REGULATORS**
  - > sound, validated methodologies
- CONSUMERS**
  - > safer and better products on the market, transparency and trust
- RESEARCHERS**
  - > availability of tools to turn research into successful products

### SUSTAINABLE NANOINFORMATICS FRAMEWORK

### CONSORTIUM



### DETAILS

- > **TITLE:** Development and Implementation of a Sustainable Modelling Platform for Nanoinformatics
- > **ACRONYM:** NanolInformaTIX
- > **START/END:** Jan 2019 - Feb 2023
- > **DURATION:** 50 months
- > **TOTAL COST:** EUR 7,751,271.25
- > **EU CONTRIBUTION:** EUR 6,783,556.25
- > **TOPIC:** NMBP-14-2018
- > **PROJECT REFERENCE:** 814426



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 814426

### CONTACTS

- PROJECT COORDINATOR**  
Miguel A. Bañares  
Consejo Superior de Investigaciones Científicas CSIC  
✉ [miguel.banares@csic.es](mailto:miguel.banares@csic.es)
- DISSEMINATION**  
Lisa Bregoli  
Warrant Hub SpA  
✉ [lisa.bregoli@warranthub.it](mailto:lisa.bregoli@warranthub.it)