

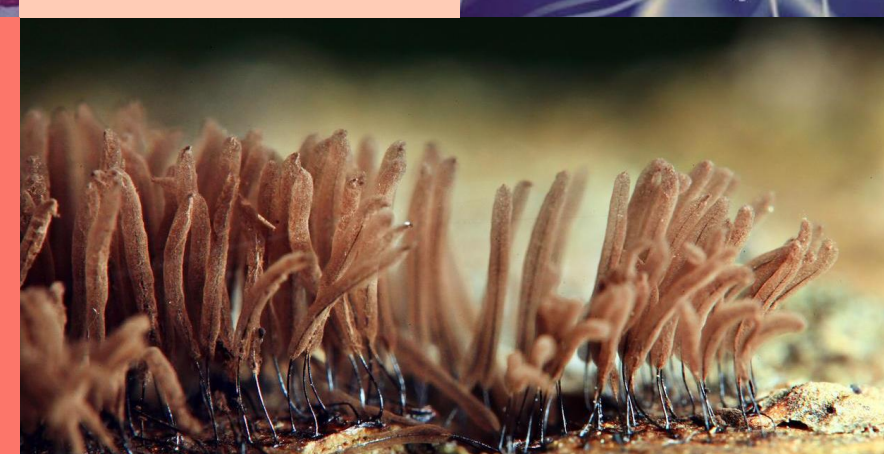
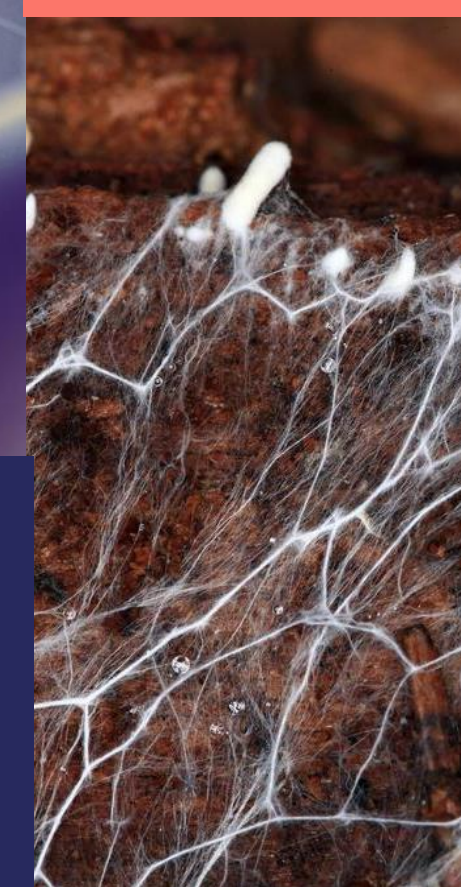
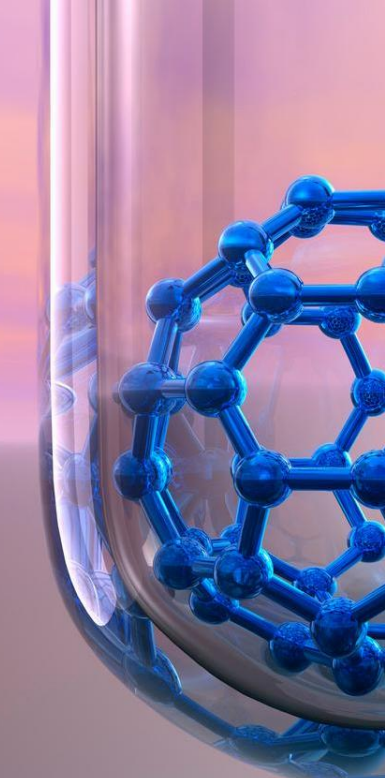


# Sbd Nano

SAFE BY DESIGN FOR NANO



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 862195.





# SbD4Nano - Computing infrastructure for the definition, performance testing and implementation of safe-by-design approaches in nanotechnology supply chains

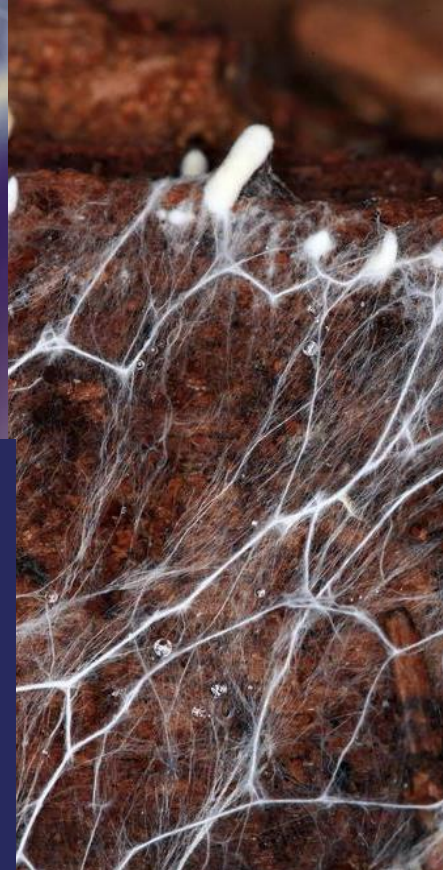
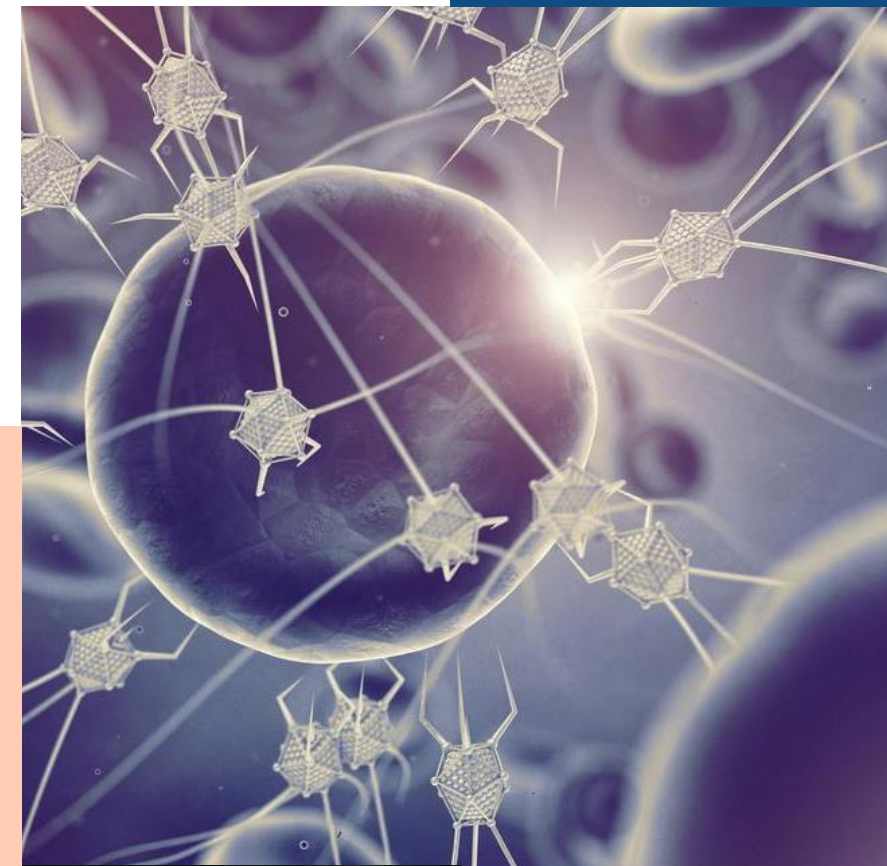
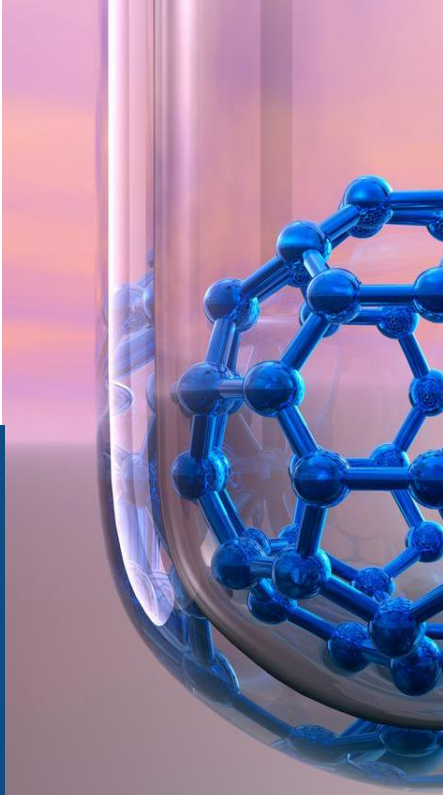
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Elements of SbD for sustainable development & innovation  
November 16<sup>th</sup>, 2020



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# Main objectives and overall concept

- The main goal of the project is to develop, validate in case studies and then implement at a larger scale a new software platform to assist and guide industry, regulators, and civil society in the design of well-balanced safety, functionality and cost strategies aimed at reducing possible risks from nanomaterials and nano-enabled products at an early stage of the development process.

## Specific Outcomes

- SbD computing infrastructure
- High-quality data and tools for SbD approaches implementation.
- New structure–property–function (SPF) and structure–property–hazard (SPH) relationships to refine available hazard profiling models.
- A library of well-balanced surface engineering approaches to design out hazard and exposure (validated in case studies)
- Refined tools for an exposure driven decision and libraries of release/emission/exposure-reduction factors.
- Nano-specific ECEL with a RMM efficiency modelling approach.
- SbD guidelines tailored designed to cover stakeholders needs and regulatory requirements



### Calculation of Severity scores by:

- Running existing predictive models: QSARs, grouping and read-acros
- Automated toxicity data acquisition and analysis tools

### TOXICOLOGY

### NANOMATERIAL PRODUCERS & SUPPLIERS

### EXPOSURE

### Calculation of Exposure scores by:

- Running refined existing models to estimate occupational exposure
- Applying exposure reduction factors calculated through new models developed to estimate the effectiveness of risk management strategies

### PRODUCT PERFORMANCE

### Calculation of prod.performance scores by

- Developing product technical performance criteria
- Defining algorithms to properly display product processability, applicability and functions.

### Calculation of Cost Index by:

Setting up an equation integrating monetary cost of approaches selected

### COST

### SbD PERFORMANCE INDEX

### Calculation of SbD Index by:

Setting up an equation integrating toxicity, exposure, cost and product performance data for well balance cost-benefit analysis

### NANO-ENABLED PRODUCTS PRODUCERS & SUPPLIERS

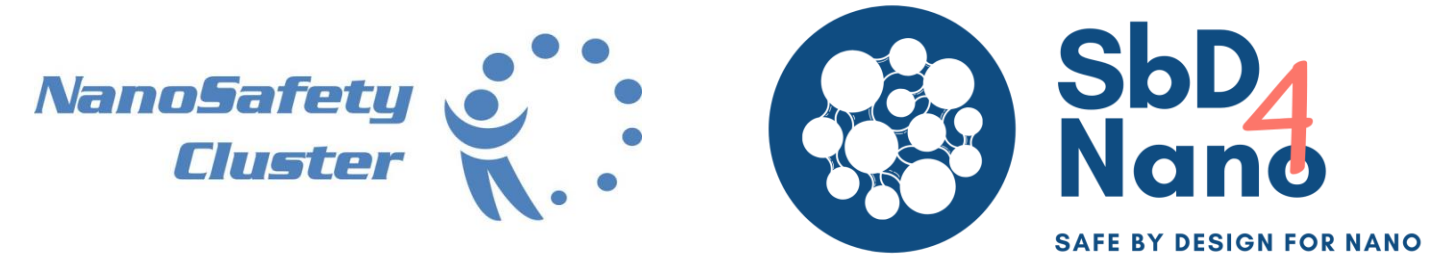


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# Timeline



Start / end date: April 2020/ March 2024



# Consortium

Safe-by-Design for Nano involves first class scientists from large companies, regulation, small and medium enterprises, and academia. These partners have been and are engaged in numerous research initiatives on a variety of subjects.

**! Number of members: 23 ( 10 companies)**

**! Advisory board:**

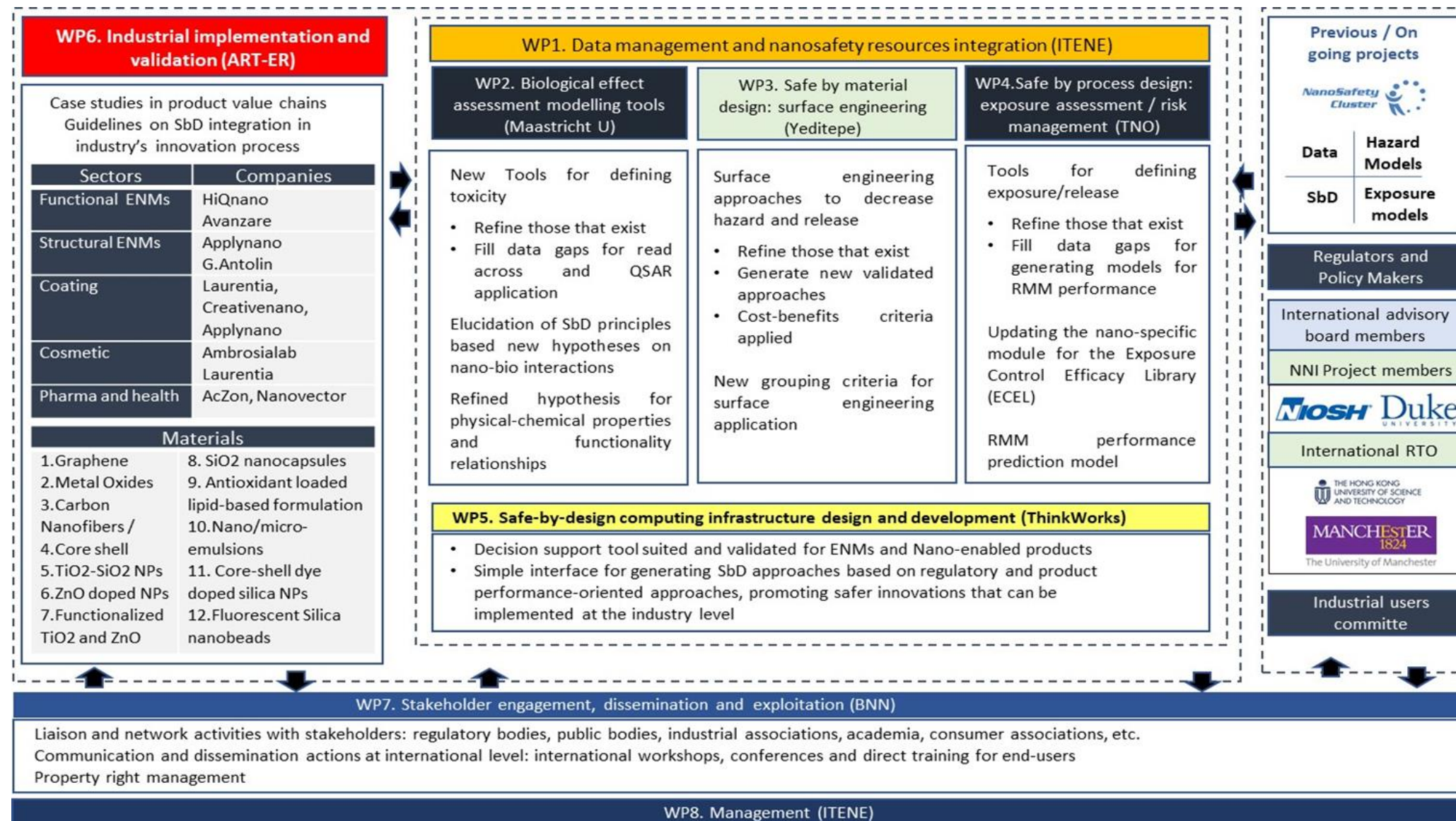
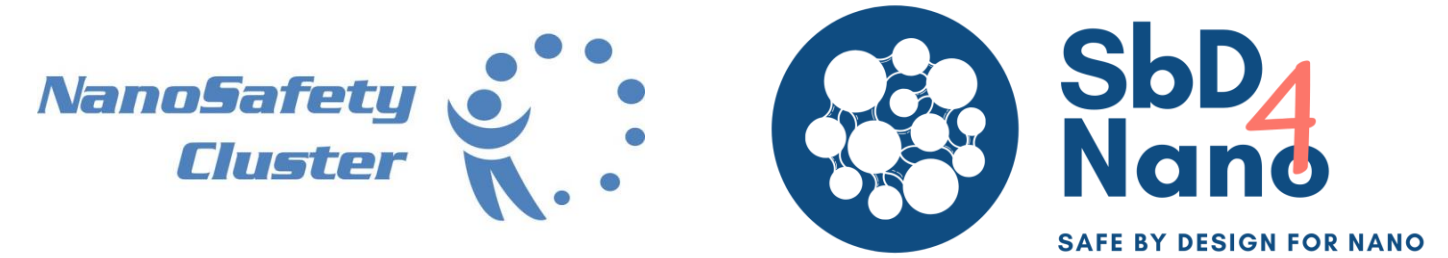
- U.S. National Institute for Occupational
- Hong Kong University of Science and Technology
- Duke University
- University of Manchester



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# Project structure

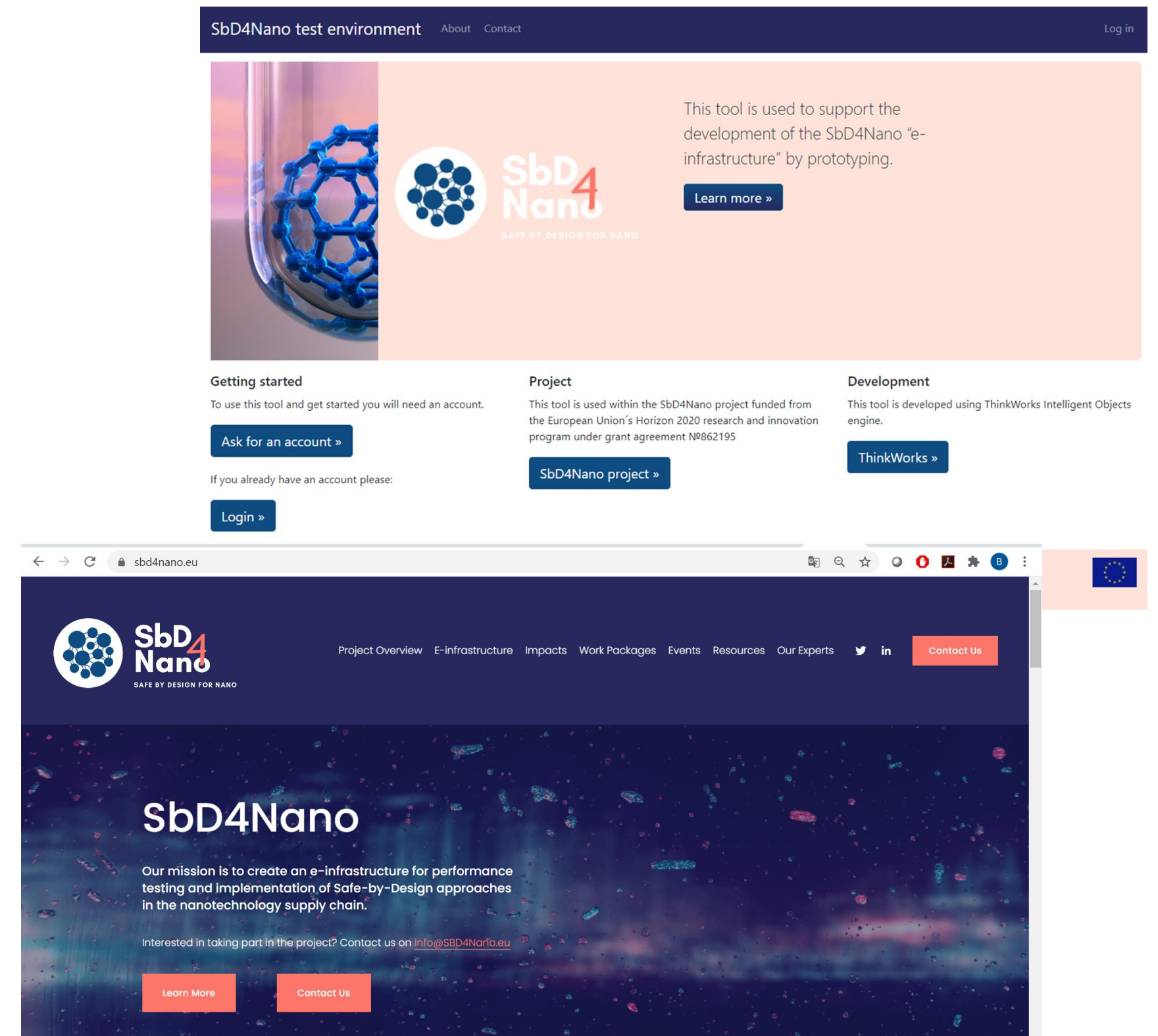
- The workplan is divided into 8 WPs and built upon the rationale for the construction of Safe-by-design computing infrastructure “e- infrastructure”, as well as the pillars to develop SbD approaches: information exchange, exposure, hazard and risk mitigation.



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## Progress so far

- First version of the Sbd4nano Data management plan completed
- Setup SbD4Nano – eNanoMapper database
- Development of the templates for data sharing / reporting
- First characterization of the ENMs produced by the companies
- Data gaps and stakeholders' needs in available exposure measurement data and risk management measures finalized
- First proposal of the e-infrastructure design + functions
- Refined survey for stakeholders analysis
- Web site available (sbd4nano.eu)



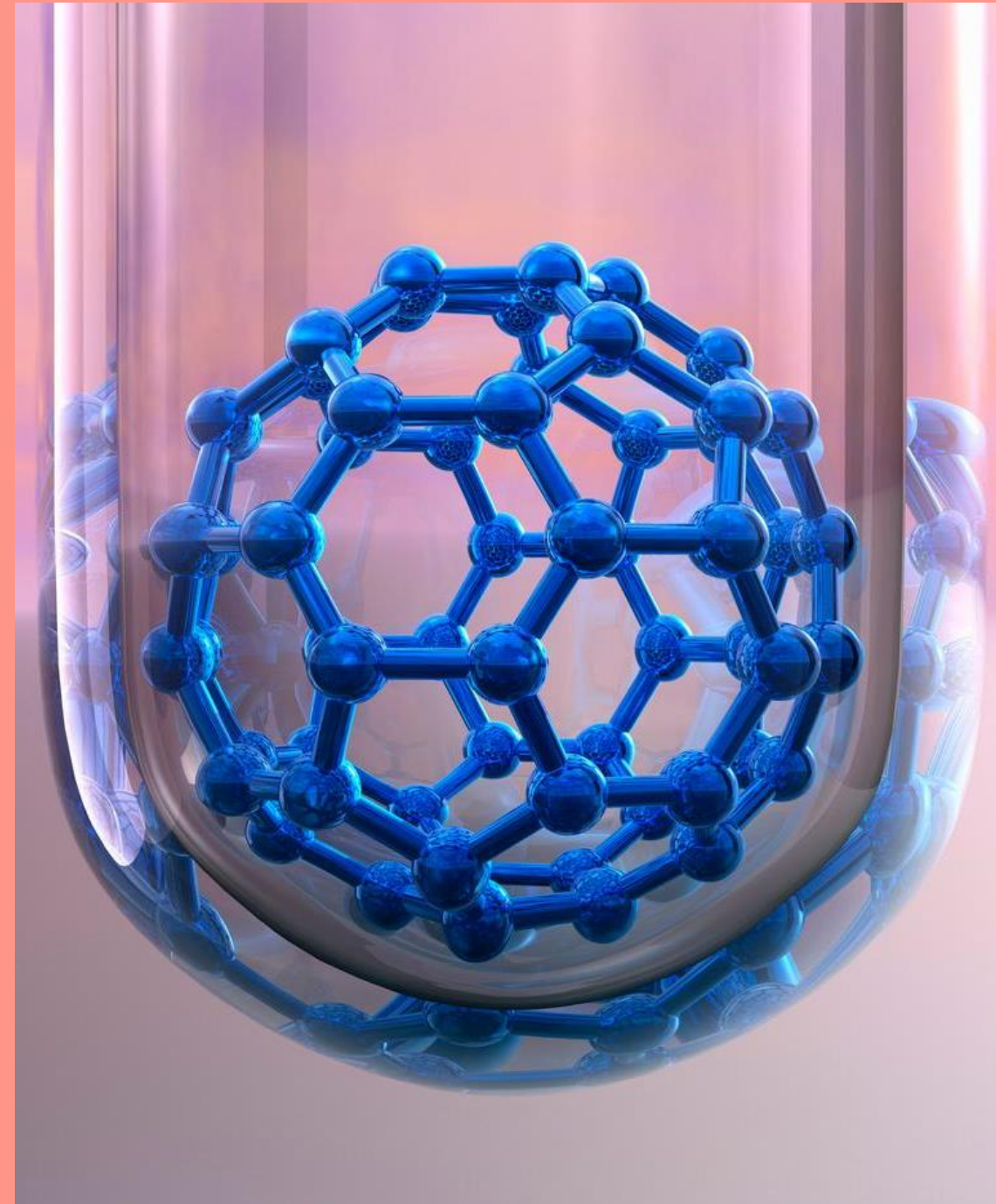
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**SbD  
Nano**

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# Thank you!



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