

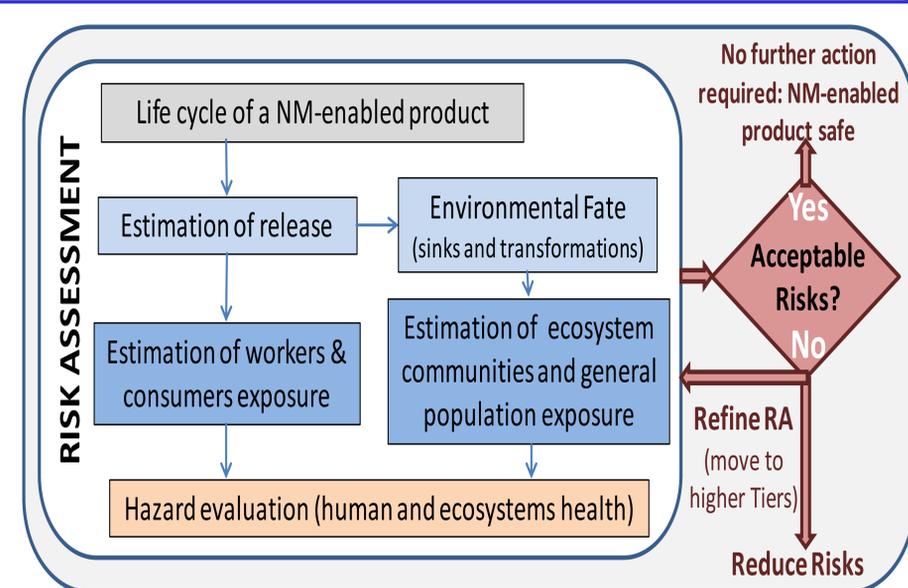
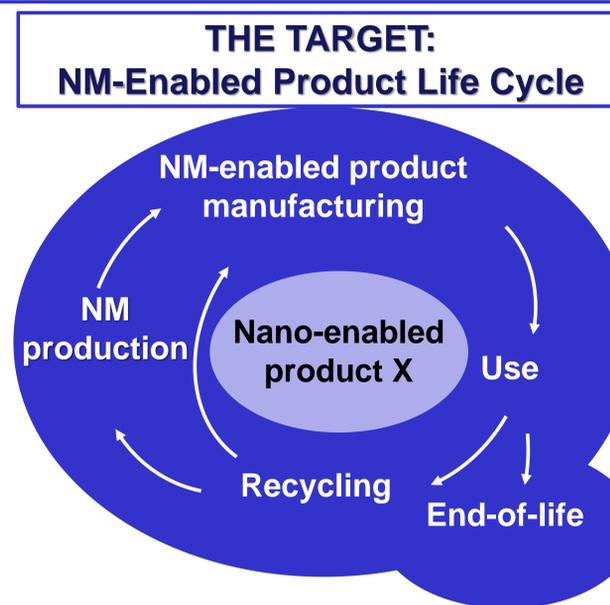
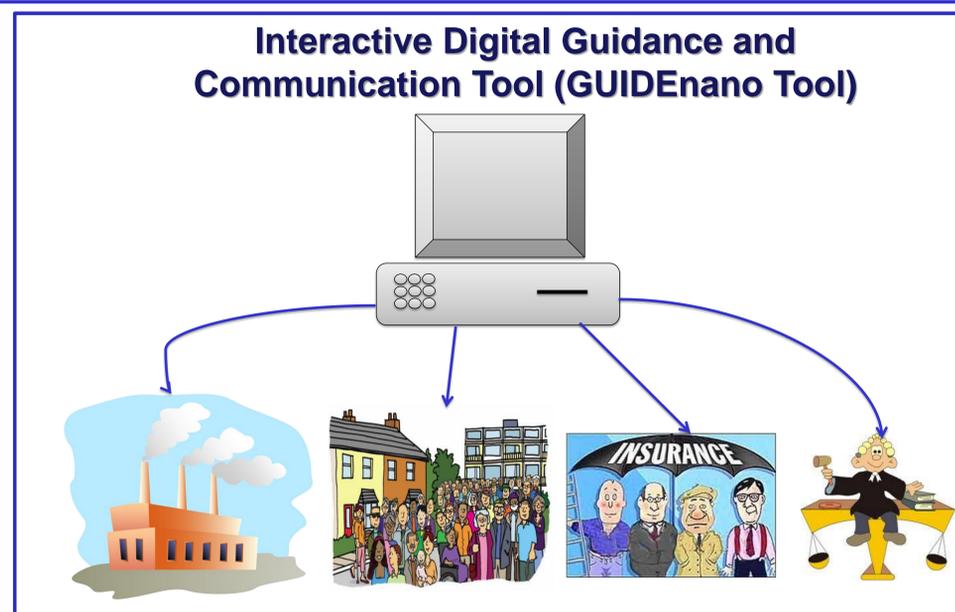
Assessment and mitigation of nano-enabled product risks on human and environmental health: Development of new strategies and creation of a digital guidance tool for nanotech industries (GUIDEnano)

Amro Satti, Gemma Janer and Socorro Vázquez, LEITAT Technological Center, Spain

(asatti@leitat.org)

Abstract

The main objective of GUIDEnano is to develop innovative methodologies to evaluate and manage human and environmental health risks of nano-enabled products, considering the whole product life cycle: synthesis of nanomaterials (NM), manufacturing of NM-enabled products, use, and end-of-life phase (including recycling). These developments will be incorporated into an interactive web-based Guidance Tool, which will guide the NM-enabled product developers (mainly industry) into the design and application of the most appropriate risk assessment & mitigation strategy for a specific product. The correct implementation of this guidance will ensure that the risks associated with a NM-enabled product, throughout its whole life cycle/ value chain, have been appropriately evaluated and mitigated to an acceptable level, according to the most recent knowledge at the time of implementation. The evaluation of a NM-enabled product using this Tool will also be useful for risk communication to regulators, insurance companies, and society.



8 Case Studies

Paints and Finishing	Construction	Food Industry	Textile	Infrastructure	Consumer Goods	Automotive	Environmental Remediation
ZnO	Al ₂ O ₃ -SiO ₂	NanoCellulose	Ag	TiO ₂	TiO ₂	CNT	nFe ⁰

Expected Results

- ❖ GUIDEnano Tool to be widely implemented within the industrial sector to evaluate and mitigate the risks associated with nano-enabled products
- ❖ Adaptation/optimization of hazard testing methods
- ❖ Development of new personal protective equipment (PPE) specific for handling nanomaterials
- ❖ New technologies and equipment that allow safe handling of nanomaterials with minimal release
- ❖ Novel safer-by-design strategies to generate safer nanomaterials
- ❖ Strategies for safe disposal and minimization of waste
- ❖ Reduction of environmental and human health impact by identifying hotspots for release and exposure of nanomaterials and implementation of appropriate mitigation strategies
- ❖ Influencing the standardization process to generate and update standards on the European and international level