

## About our project

HARMLESS develops a novel, multifaceted Safe Innovation Approach to MCNM & HARNs by integrating a toolbox of New Approach Methodologies. To ensure that industries operating at differing scale, including SMEs, pick up our approach, we create a user-friendly decision support system and validate it iteratively at scale in different case studies.

Public and private researchers spent great efforts on nanosafety research in the past decade. This helped to establish nanotechnology on key markets and it inspired nano-specific regulatory approaches. Still, current product designs and regulations may be outpaced by the development of next generation complex nanomaterials.



## Partners

The HARMLESS' team consists of **19 international partners** distributed across **12 countries**.

The partners are from the following countries: Austria, Bulgaria, Denmark, Finland, France, Germany, Netherlands, Poland, Spain, Sweden, Switzerland, UK. All partners contribute actively to the project, ensuring the flow of ideas and projects results to the wider community.



Get in touch with us!

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# Advanced High Aspect Ratio and Multicomponent materials:

## towards comprehensive intelligent tEsting and Safe by design Strategies

To learn more visit:  
[www.harmless-project.eu](http://www.harmless-project.eu)



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## Objectives & Impact

### Seven interconnected objectives define our goals

**Objective 1** - Establish Mode-of-Action based Integrated Approaches to Testing and Assessment (IATAs) for advanced materials (AMs) by integrating conventional and New Approach Methodologies (NAMs)

**Objective 2** - Comprehensive data analysis to support adverse outcome pathways and NM grouping

**Objective 3** - Support data analysis with big data management solutions

**Objective 4** - Safe-Innovation-Approach for advanced materials

**Objective 5** - Provide validated, user-friendly SbD tools for advanced materials

**Objective 6** - Verify and facilitate SIA and SbD tools in real-world industry scenarios

**Objective 7** - Engage with stakeholders and establish collaboration with national and international initiatives

## Case Studies

### Implementation in real-life industrial innovation processes

Performing case studies allows us to test, verify and improve our Safe-by-Design and Safe Innovation Approaches in different industrial sectors. Close collaboration with industry from the beginning of the project enables continuous feedback to better target our decision support system.



#### CS 1 - Papermaking

**Material:** silica additives

**Sector:** construction – dirt repellent facades



#### CS 2 - Paint formulations

**Material:** silica additives

**Sector:** manufacturing – accelerated dewatering



#### CS 3 - Catalysts

**Material:** perovskites

**Sector:** catalysis – oxidation



#### CS 4 - Facade insulation

**Material:** aerogel fibre

**Sector:** construction – insulation



#### CS 5 - Agriculture

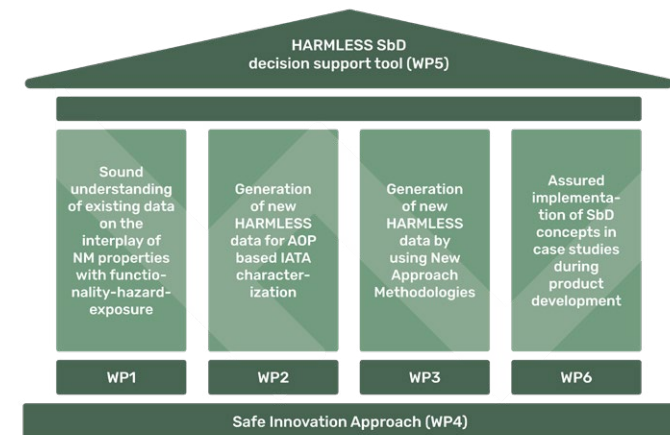
**Material:** imogolite nanotubes

**Sector:** agriculture – environmental friendly alternatives for pesticides

## Work Plan

### From theory to practice: action plan

To achieve our ambitious goals until January 2025, we structure our activities around several Work Packages that interact with each other and allow an efficient project implementation.



**WP1:** Data Collection and Data Management, Lead IDEA

**WP2:** Safety Assessment Strategies, Lead NRCWE

**WP3:** New Approach Methodology - in vitro and in silico data generation, Lead KI

**WP4:** Safe Innovation Approach, Lead BfR

**WP5:** Tool Development, Lead TNO

**WP6:** Safe-by-Design Case Studies, Lead BASF

**WP7:** Stakeholder Engagement, Dissemination and Exploitation, Lead BNN

**WP8:** Coordination & Management, Lead HMGU