



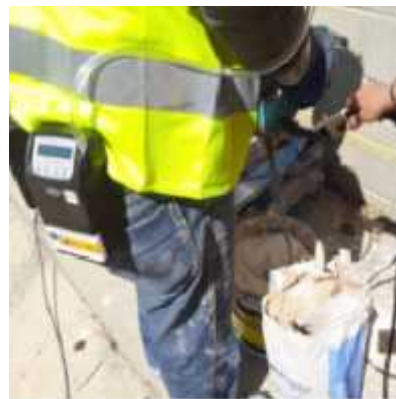
Innovative strategies, methods and tools for occupational risks management of manufactured nanomaterials (MNM)s in the construction industry

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Scaffold Objective

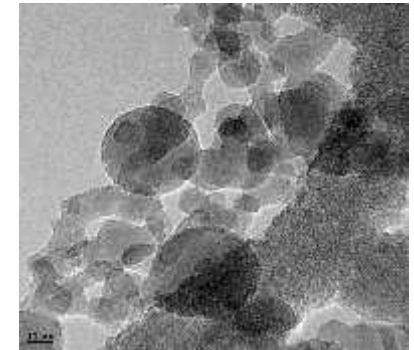
The aim of the SCAFFOLD project is to develop, test, validate in **real conditions** and disseminate a **new holistic, consistent and cost effective Risk Management Model (RMM)** to manage occupational exposure to MNMs in construction.

This will be done by **integration** of a set of **innovative** strategies, methods and tools developed by the project into consistent **state-of-the-art safety management systems** (OSHAS 18001 + ISO 31000).



- **Six applications of MNMs in construction:**

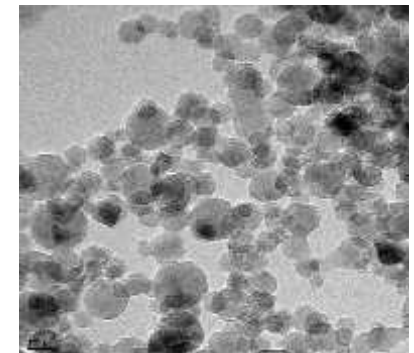
1. Depollutant mortars
2. Self-compacting concretes
3. Stabilised, bituminous road-surface (Coating laminates)
4. Self-cleaning external coatings
5. Fire-resistant panels and
6. Insulations

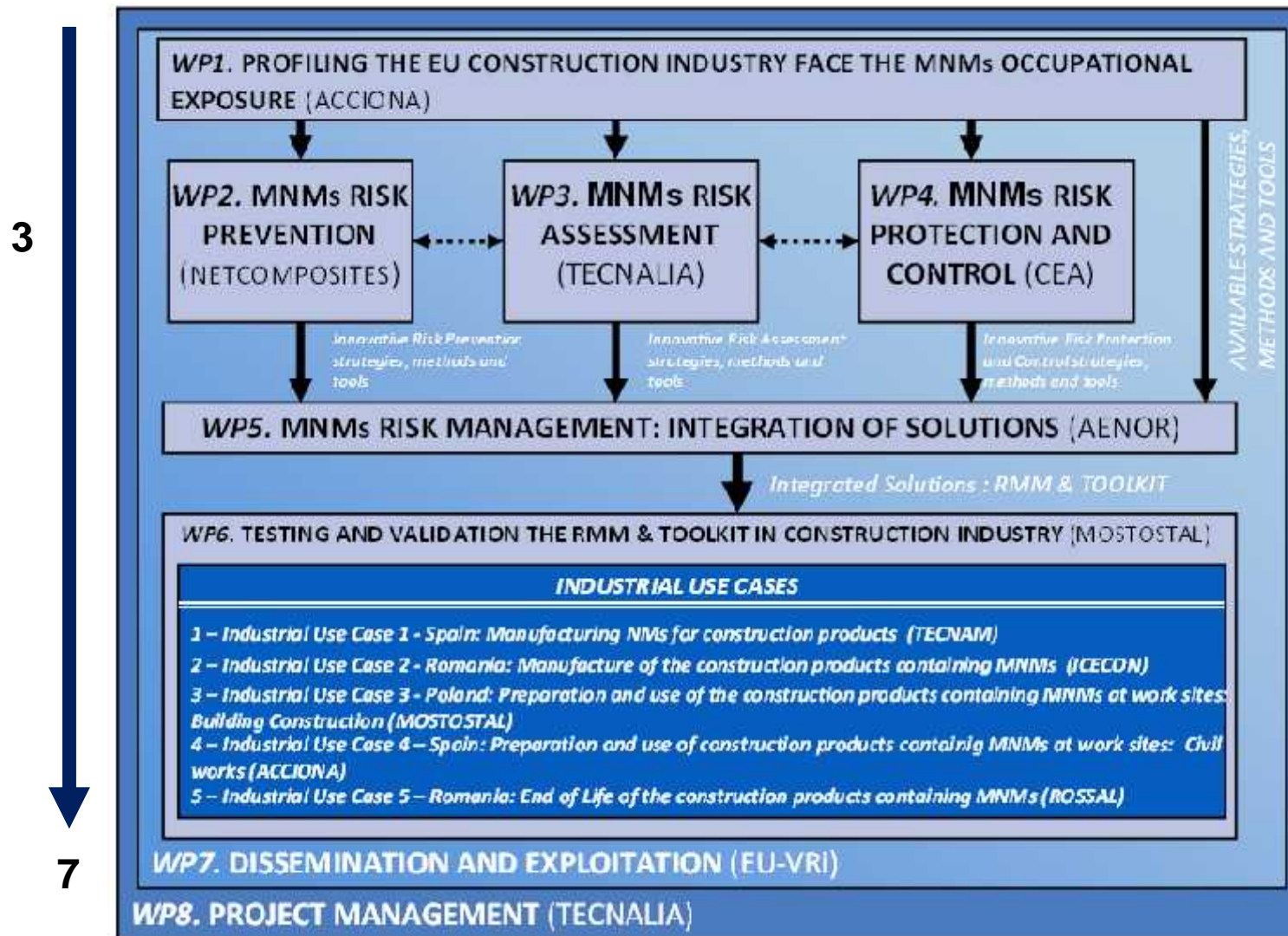


- **Five MNMs:** TiO_2 , SiO_2 , Cellulose Nanofibres, Carbon Nanofibres and Nanoclays

- **Six categories of exposure scenarios** (lab, pilot and IUC scales):

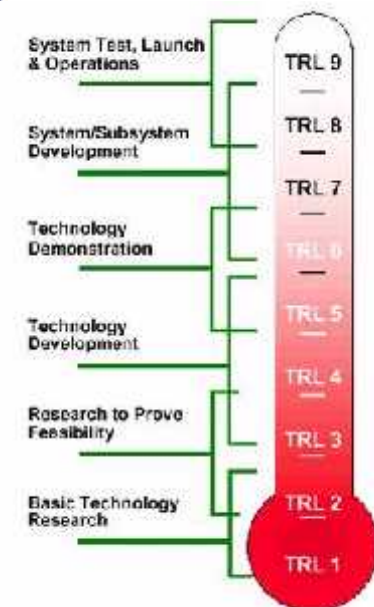
1. Manufacturing NMs
2. Manufacturing products containing MNMs,
3. Preparation, mixing, and application on site
4. Assembly and machining
5. Demolition and disposal
6. Accidental fires (Combustion of MNMs)





May 2012

TRL



April 2015

Some Significant results (Project on going))

1. **Safer nano-enabled products for construction:** new dispersions (TiO_2 , SiO_2), formulations for fire-retardant panels, concretes, bituminous pavements, coatings, insulations.
2. **General quantitative** (CB ISO 12901-2) and **qualitative approaches for Risk Assessment**, including specific procedures, strategies and methods for measuring exposures (TiO_2 , SiO_2 , CNF, CNF and nanoclays), proposals for OELs, models,,etc (5 IUCs on-going)
3. Assessment of **18 specific exposure scenarios at lab, pilot and IUC scales (Database)**, involving on-line equipment (portable + advanced), personal samplers, chemical-SEM-EDX .. analysis of samples, ...
4. Evaluation of the **efficiency of collective protections** (LEV, glove-box, ..) and **PPEs** typically used in construction (suits, respirators, gloves) .
5. **New device** for trapping nanoparticles
6. **Library of solutions** for risk management (Handbook, Quick guides, Toolkit, NWI)

Thank you very much for your attention

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(<http://www.scaffold.eu-vri.eu/>)

