

**Coordinator: Tecnalía**Website: [www.scaffold.eu-vri.eu](http://www.scaffold.eu-vri.eu)

Grant Agreement no. NMP4-SL- 2012-280535

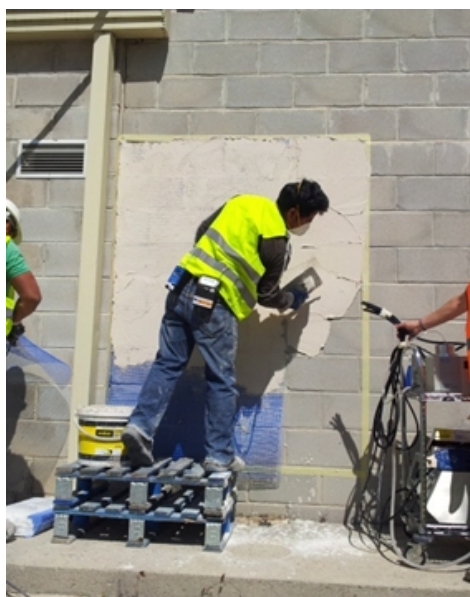
Start date: 1<sup>st</sup> May 2012End date: 30<sup>th</sup> April 2015

Budget: 3.7 M€- EC contribution: 2.5 M€

## Project Summary and outputs

The use of Manufactured Nanomaterials (MNM)s and nanocomposites in the construction industry and related infrastructure industries is a reality, mostly in cement or concrete products, coatings or insulation materials and to a lesser extent in road-pavement products, flame retardant materials or textiles. Despite the current relatively high cost of nano-enabled products, their use in construction materials is likely to increase because of highly valuable properties imparted at relatively low additive ratios, rapid development of new applications and decreasing cost as MNMs are produced in larger quantities (\*).

A recent survey (\*) shows that a majority of workers and their employers in the construction sector (~75%) are not aware that they work with nano-products.



Measurement during the application of depollutant mortar ( $\text{nanoTiO}_2$ )

Occupational exposure to MNMs may occur at different stages of the construction industry life cycle, accidentally or in normal operations. Due to their specific properties, these nano-products might pose new and so far poorly understood health and safety risks to workers. Detailed information about the product composition and their possible nano-specific health and safety issues is generally lacking and the information available for the raw material manufacturer is often lost while stepping down the user chain. As a consequence, it is very difficult for average construction companies to conduct a proper risk assessment and organize a safe workplace for its employees.

Consequently, there is a general uncertainty with respect to health and safety risks and how to properly manage them to protect workers and be in compliance with Occupational Health & Safety (OHS) legislation.

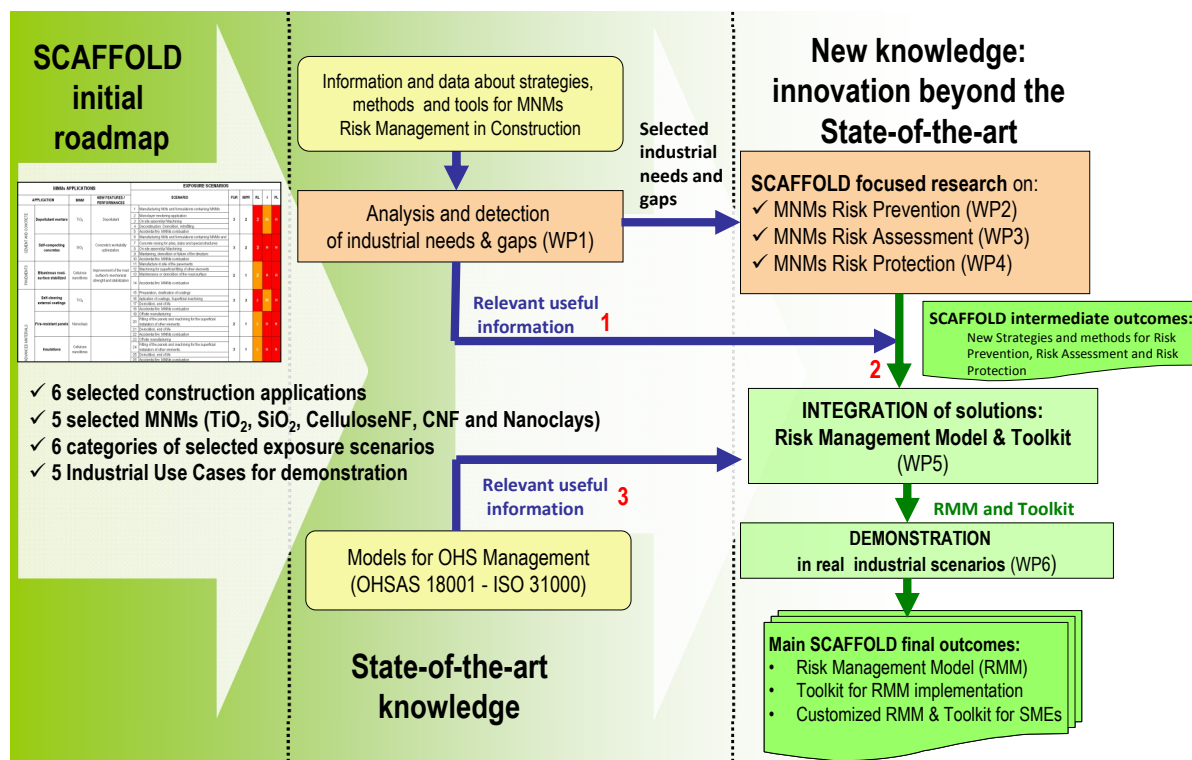
The SCAFFOLD research aims at providing practical, robust, easy-to-use and cost effective solutions for the European construction industry, regarding the prevention of occupational exposure to MNMs. This will be done by integrating a set of innovative strategies, methods and tools developed within the project into consistent state-of-the-art safety management systems (OHSAS 18001, ISO31000), building up an integrated Risk Management Model (RMM) and advanced software tools. This research is conducted in close collaboration with the industry.

\* IVAM, FIEC, EFBWW (2009). *Nano-products in the European Construction Industry*.

## Contact Person

## Workplan

Thanks to a review and analyse of the state of the knowledge, methods, tools and practices needs and gaps for proper risk management are identified (WP1). The research shall then fill selected gaps and provide innovative input on strategies, methods and tools to construct the integrated RMM and the software tools (WP2 to WP5). Following the analysis of the state of the art, this research focuses on chosen construction applications, MNMs, exposure scenarios and Industrial Use Cases. Testing and validation activities are carried out in real conditions with large and small partner-companies (WP6). Dissemination and exploitation activities (WP7) include pre-standardization and the development of training modules for the industry.



## Partners

1. **TECNALIA**, Fundación TECNALIA Research and Innovation, Spain
2. **CEA**, Commissariat à l'Énergie Atomique et aux Énergies Alternatives, France
3. **DEMOKRITOS**, National Centre for Scientific Research "DEMOKRITOS", Greece
4. **CIOP-PIB**, Centralny Instytut Ochrony Pracy - Państwowy Instytut Badawczy, Poland
5. **ACCIONA**, Acciona Infraestructuras S.A., Spain
6. **AENOR**, Asociación Española de Normalización y Certificación, Spain
7. **MOSTOSTAL**, Mostostal Warszawa S.A., Poland
8. **ROSSAL**, ROSSAL SRL, Romania
9. **TECNAN**, Tecnología Navarra de Nanoproductos S. L., Spain
10. **NETCOMPOSITES**, NETCOMPOSITES Limited, United Kingdom
11. **ICECON**, Institutul de Cercetari Pentru Echipamente si Tehnologii in Constructii, Romania
12. **EU-VRI**, European Virtual Institute for Integrated Risk Management, Germany
13. **FIOH**, Työterveyslaitos, Finland
14. **UMN-PTL**, Regents of University of Minnesota, United States of America

## International Advisory Board

Emmanuel Brun  
Domenico Campogrande  
Steffi Friedrichs

EU-OSHA (Spain)  
FIEC (Belgium)  
NIA (Belgium)

Olivier Salvi  
Martie Van Tongeren  
Rolf Gehring

ETPIS (Germany)  
IOM (United Kingdom)  
EFBWW (Belgium)