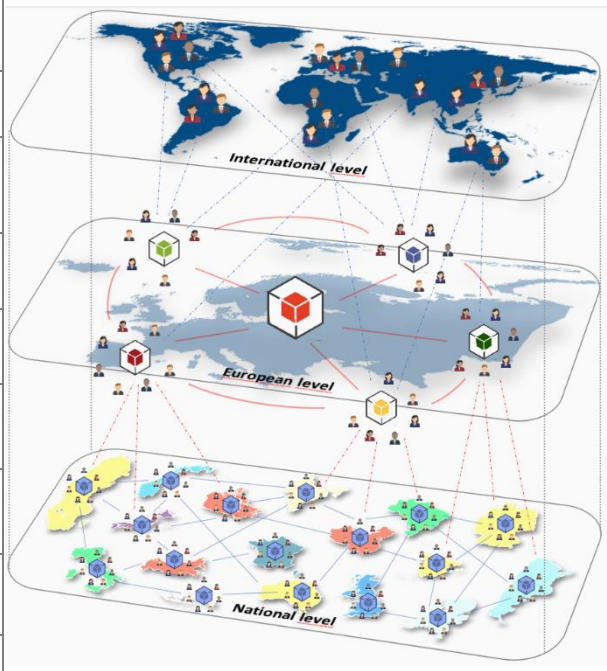
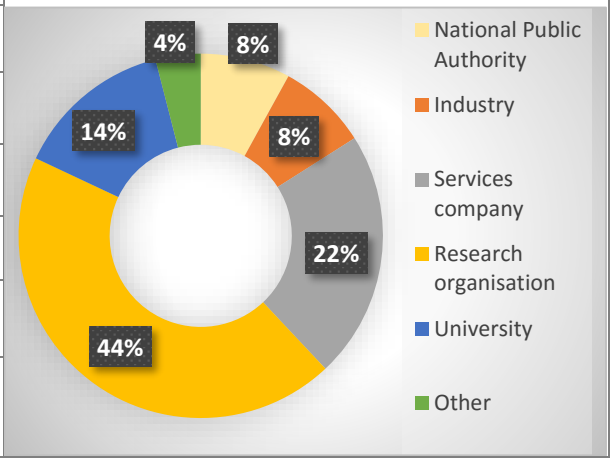
EC4SafeNano

European Centre for Risk Management and Safe Innovation in Nanomaterials & Nanotechnologies

Project answering the call: ***NMBP-27-2016 (Horizon 2020 Programme)***

Core Group: 15 EU Partners		Associated Partners: today 50, tomorrow …
INERIS	Institut National de l'Environnement Industriel et des Risques (Coordinator)	
EU-VRi	European Virtual Institute for Integrated Risk Management	
TNO	Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek	
BAM	Bundesanstalt für Materialforschung und -prüfung	
Finnish Institute of Occupational Health	Tyoeterveyslaitos	
vito	Vlaamse Instelling voor Technologisch Onderzoek	
SP	SP Sveriges Tekniska Forskningsinstitut	
	National Centre for Scientific Research "DEMOKRITOS"	
tecnalia Inspiring Business	Tecnalia Research & Innovation Foundation	
HSE Health & Safety Executive	Health and Safety Executive	
	National Research Centre for the Working Environment	
UNIVERSITÄT SALZBURG	Paris Lodron University Salzburg	
ULB UNIVERSITÉ LIBRE DE BRUXELLES	Université Libre de Bruxelles	
UNIVERSITY OF BIRMINGHAM	University of Birmingham	
ENEA	Agenzia Nazionale per le nuove tecnologie, l'energia e lo sviluppo sostenibile	

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Introduction

A central challenge to ensure the sustainable production and use of **nanotechnologies** is to understand the risks for environment, health and safety associated with this technology and resulting materials and products (engineered nanomaterials), and how to identify and implement practical **strategies to minimise these risks**. Knowledge about nanotechnology-enabled processes and products is growing rapidly, achieved through numerous European or national programs launched over the last decade, but effective use of this knowledge for risk management by market actors is lagging behind.

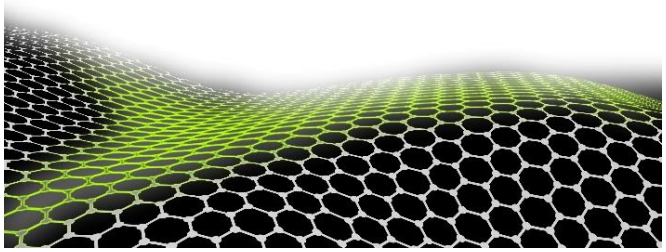

Figure 1 : Graphene

Therefore, an initiative has been created to bridge the gap between scientific knowledge and the market linking the nanosafety scientific community including expert institutes/organizations active in translational research, with the wider stakeholder community. These are experienced partners working to assess and manage risks who already provide knowledge and technical services to public and private organizations, to industry and to public authorities and regulatory bodies. The proposed partnership will set up a structure to integrate activities across the member states, and provide the **interface** between the scientific community and these other parties to develop and supply knowledge and technical services appropriate to each community.

For this, the project will gather together partner national institutes and agencies. The EC4SafeNano core group has also invited any interested organization to take part in the initiative as an Associated Partner helping to design the future European Centre and establish harmonized approaches for the proposed solutions and services. The **Associated Partners** will be active at the European level through their participation in the Focus Networks and will act in an 'ambassador' role for the member state where they are based. EC4SafeNano seeks to establish a record of accomplishment in developing **'fit-for-purpose' solutions** and providing access to **reliable data and experience** to help solve the range of environment, health and safety challenges that will be required to develop **safe and sustainable innovation for** nanotechnology.

EC4SafeNano also seeks to establish principles for safe management of nanotechnology based on the experience of its core group and associate members, and to assist public and private organizations and industry in the application of these principles. The core group and associates are experienced in providing expert advice to industry and other private actors, to public authorities and regulatory bodies and in communicating evidence based expertise to these different target audiences.

*EC4SafeNano aims to build an **open collaborative network** gathering expertise in **risk management of nanotechnologies**. Therefore, all organisations interested in joining this initiative are invited to contact the project coordinator.*

Objectives

The overall objective of the EC4SafeNano project is to develop a distributed **Centre of European organisations for Risk Management and Safe Innovation for Nanomaterials & Nanotechnologies.** This will be independent and science-based and will support industry, safety service providers, regulators and public stakeholders. To do so the project will define and validate appropriate operating principles, as well as the necessary governance strategy to develop a sustainable self-funding structure. The structure of the Centre will be a hub-based network of organizations operated by a core group of public-oriented bodies providing risk management and safe innovation support to all stakeholders. It will attract 'Associate Partners' to expand the capabilities, resources and services available, and it will interact with 'mirror' national hubs.

A secondary objective of the EC4SafeNano project is to **produce and promote guidance documents** on available tools, Standard Operational Procedures (SOPs), best practices, and an inventory of infrastructures etc. These actions will support market actors in implementing safe management of nanotechnology and enhance the overall capabilities and expertise in risk management and safe innovation for Nanomaterials and Nanotechnologies.

The overall resources and capabilities available within the EC4SafeNano Centre will make it possible to provide expert knowledge and technical solutions to enable the **safe production and use of nanotechnologies**. These solutions will address the needs of industry and governments to enhance European industrial innovation and competitiveness, and will evolve to reflect changing stakeholder needs for suitable tools and knowledge. The Centre will seek financial support from these stakeholders and service users to sustain the services in the longer term.

The general objectives of the EC4SafeNano project are to apply appropriate governance to the described structure, to develop operating procedures and to evaluate the Centres operational capabilities based on several case studies. These case studies will be defined during the project, and exemplify how the Centre for Risk Management and Safe Innovation for Nanomaterials & Nanotechnologies will operate on behalf of its stakeholders.

The operational objectives of the project are therefore:

- To **understand the needs of the various stakeholders** (private and public) and achieve a mapping of needs, both current and likely in the near future on a 5 year-horizon;
- To **identify the resources and capabilities available inside/outside the consortium to address the identified stakeholder needs**. This will be conducted inside and outside the project partnership, including emerging / associated countries, with both a geographical and a domain mapping of all resources available;
- **To provide solutions and build a range of services**, based on selected resources that answer stakeholder needs across the innovation value chain. Examples are: conducting routine tests, hazards and risks assessment, training, support in standardization or certification, sharing knowledge, offering access to communicative platforms and informatics tools;
- To **develop mechanisms and operating procedures** to facilitate periodic updating of "needs and resources" mapping and of the services proposed, to always propose the best available practices to meet the emerging needs expressed by the various stakeholders;
- To **test and benchmark the services** in order to check their relevance to address the needs but also to evaluate the governance of the structure delivering the proposed services;
- To **develop a sound exploitation plan and business plan** to prepare the self-sufficient operation of such a hub of expertise and services beyond the project lifetime.

Concept and approach

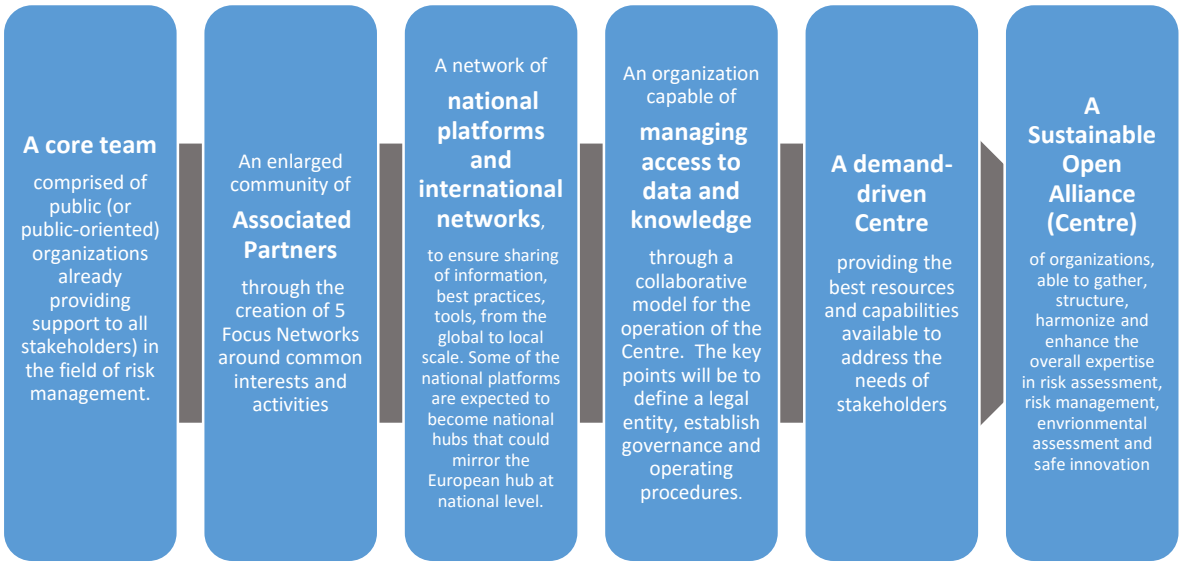

Figure 2 : Pillars of the EC4SafeNano project

EC4SafeNano will act as an independent science-based European Centre to promote a harmonized vision of services for risk assessment and management for nanotechnologies and nano-enabled products across all industry and regulatory sectors. It will do this by working with existing EU and international networks or platforms. This will be achieved by sharing knowledge, tools and expertise as well as working collaboratively both at national and EU levels. The EC4SafeNano core group has invited any interested organization to take part in the initiative as an Associated Partner helping to design the future European Centre and establish harmonized approaches for the solutions and services to be provided.

EC4SafeNano will deliver expertise for the public and private sectors based on the highest level of collective knowledge and operational tools and methods. It will also provide services to industry and regulators to increase EU competitiveness by enabling the safe development and commercialization of nanotechnology, as well as developing strategies to ensure the sustainability of these services.

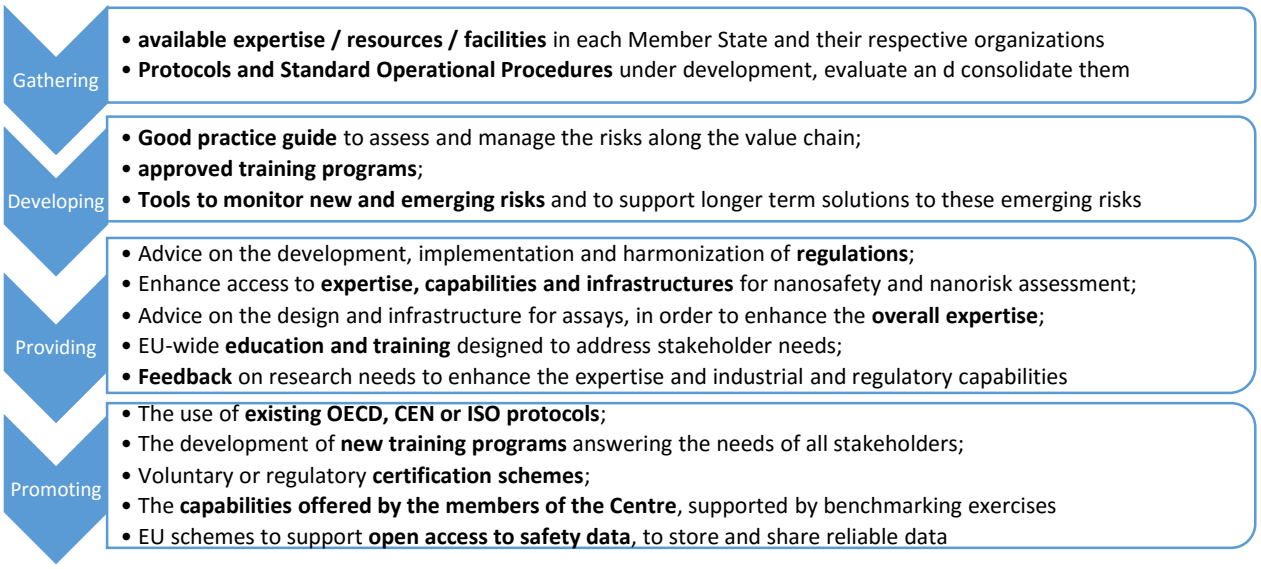

Figure 3 : Services given by EU4SafeNano Centre

Implementation

To deliver this project, seven work packages (WPs) were designed, lead Core members with a partner for each separate task in each WP. The interrelationship between WP is illustrated below.

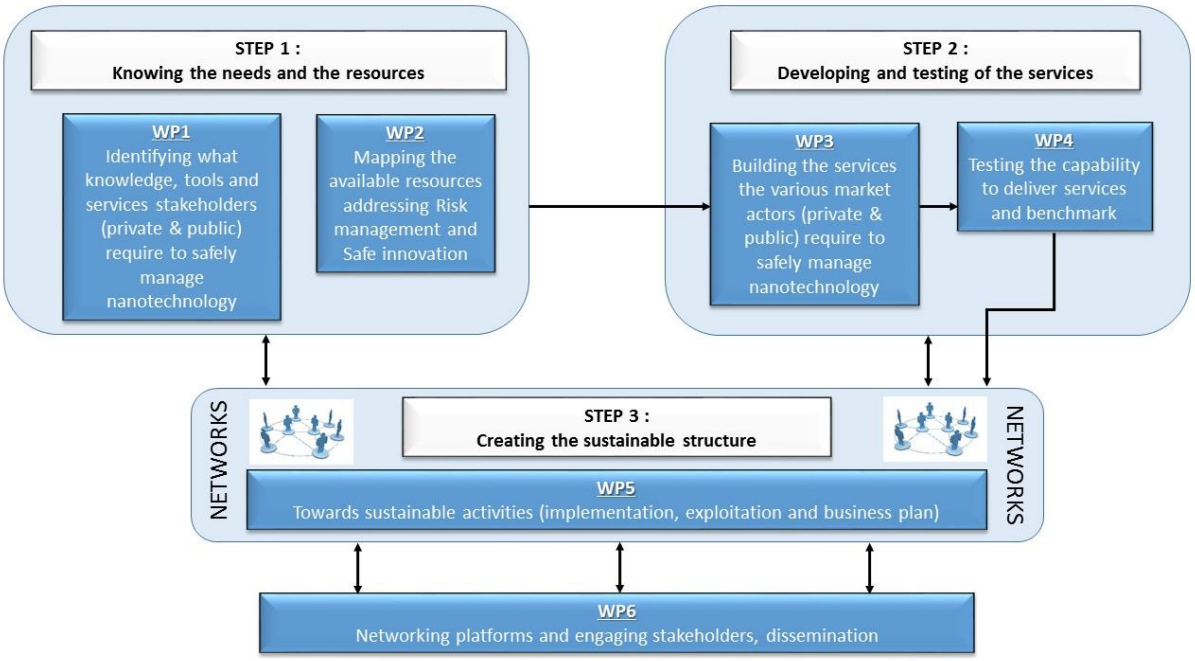

Figure 4 : Flow chart of the work programme

Impact

Five different types of impacts are expected.

First, the project will be organised to allow information to be collated from the different partners and experts in the field of risk analysis and nanotechnologies. The goal is to address barriers to the ready exchange of knowledge and evidence. Therefore, the project will map and analyse the requirements of its stakeholders whether industrial, research or public organizations. Based on the proposed catalogue of services, it will provide solutions such as methods, practices, standards, training or certification. The main deliverables of the EU4SafeNano project are expected to be:

1. A **robust collaborative open structure**, gathering and sharing the best available resources and knowledge from across Europe and globally to promote safe innovation in nanotechnologies;
2. A **set of operating procedures** to operate the Centre and offer services to stakeholders along the innovation value chain, focused on removing barriers currently limiting knowledge sharing and distribution, and reducing uncertainty regarding environmental protection, safety and risk;
3. A dynamic **cooperation through integration of networks**, platforms and hubs connecting the nanosafety community and stakeholders to identify and solve issues related to nanotechnologies, including knowledge transfer to emerging economies and accession states;
4. 'Pathway' documents that identify the **needs of the stakeholders and summarise the services, infrastructure and tools that the** EU4SafeNano **hub will provide for each stakeholder group.**
5. **Guidance documents setting out good practice standards relevant to** market actors supporting safe innovation in nanotechnology.

A global partnership

An International Advisory Board will be appointed, to ensure that EC4SafeNano responds to important concerns of its stakeholders that may have an impact on the course of the project.

Names	Organisation / Profile
Jean-Marc Aublant	Chairman of the CEN TC 352 Nanotechnology
Juan Riego-Sientes	Group Leader at JRC-European Commission
Peter Kearns	Head of the WPNM (Working Party on Manufactured Nanomaterials), **OECD**
Thomas Zadrozny	Director of Pro-Active Ltd, Executive Director of MINAM NanoFutures
Dietmar Reinert	Director of IFA-DGUV, Germany, and Chairman of PEROSH,
Tatiana Santos	European Environment Bureau, Brussels
Valtencir Zucolotto	Head of Nanomedicine & Nanotoxicology Group, University of São Paulo in **Brazil**
Anna Gabriela Tempesta	S&T Adviser, Brazilian Ministry of Science, Technology and Innovation
Lee Naroo	Leader at the Occupational Safety and Health Research Institute, KOSHA in **Korea**
Ding Hui	President of the Beijing Academy of Science and Technology, **P.R. China**
Ariel Felipe	State Council, Republic of Cuba (supervising the programme on nanotechnologies)
Paul Schulte	Director of the Nanoscience Center of NIOSH in the **USA**

Table 1 : List of International Advisory Board Members

A cornerstone of the project is to build a community to improve risk management and safe innovation for nanotechnology. The consortium has invited numerous companies and institutions to join as **Associated Partners,** as listed below. Partnership opportunities are still available.

Organisation	Type	Country		Organisation	Type	Country
University of Quilmes	University	Argentina		BAuA	Research	Germany
Arcadis Belgium nv	Services	Belgium		DGUV / IFA	Research	Germany
CODA-CERVA - Belgique	Services	Belgium		Vitrocell	Industry	Germany
Enhesa	Services	Belgium		APTL/ CERTH	Research	Greece
IMEC	Research	Belgium		FORTH	Research	Greece
ISSEeP	Research	Belgium		EL. IN. Y. A. E.	Research	Greece
KU Leuven	University	Belgium		Bay Zoltan	Research	Hungary
ProActive sprl	Services	Belgium		Nodus Techn. Transfer Office	Services	Mexico
PV Consuling	Services	Belgium		Univ autonoma de Mexico	Research	Mexico
SIRRIS	Services	Belgium		CIOP-PIB	Research	Poland
SOLVAY	Industry	Belgium		Polish Academy of Sciences	University	Poland
Thomas More Kempen Univ.	University	Belgium		CENTI	Research	Portugal
University of Gent	University	Belgium		CTCP	Research	Portugal
Ministry of Sci., Innov. & Res.	Public Body	Brazil		HCT Co.	Services	S. Korea
University of San Paolo	Research	Brazil		KOSHA	Public Body	S. Korea
Beijing Academy of Sci. & Techn.	Research	China		Lurederra Techno. Centre	Research	Spain
State Council, Republic of Cuba	Public Body	Cuba		CRC	Services	Sweden
EEWRC	Research	Cyprus		SOLVE	Services	Sweden
CZ-TPIS	Research	Czech		Heriot Watt University	University	UK
ETUI	NGO	EU		National Physical Laboratory	Services	UK
Euro. Envir. Bureau	NGO	EU		NetComposite	Services	UK
DEKATI	Industry	Finland		TWI	Research	UK
CEREGE	Research	France		Harvard School of Public Health	Research	USA
Union des Industries Chimiques	Industry	France		Nat. Nanotech. Coord. Office	Public Body	USA
University of Bordeaux	University	France		NIOSH	Research	USA

Table 2 : Associated partners (status April 2016)