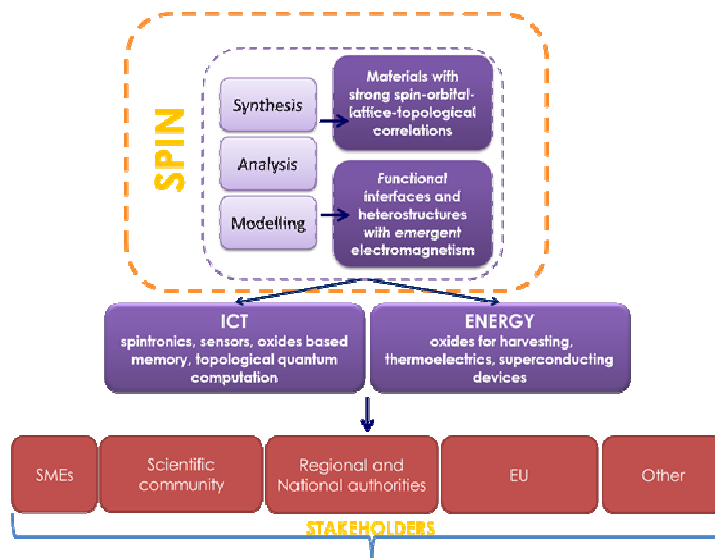


## Project dissemination activities and impact

Concerning the potential impact and the main dissemination activities and exploitation of results the activities of the MAMA Project succeeded in strengthening the human potential, the interaction with all the main stakeholders, the synergy with the science education and the regional productive sector.

### Interaction with stakeholders

The figure below shows the key aspects of the MAMA project and the relations with the main stakeholders:



### Synergies with Science Education

These activities aimed at increasing awareness among stakeholders and general public.

The dissemination activities targeted to the general public consisted in measures towards **high school students** within the framework of the "**Laureescientifiche**" project (Scientific university education). The activity took place in Fall-Winter 2012-2013 and included a plan of visits to the MAMA Project labs to allow high school students to experience hands-on activities concerning the synthesis and characterization of functional materials in the form of single crystals. Such project was conducted in tight collaboration with high school as well as university professors with the aim of informing **students of the Salerno Area** willing to begin a university curriculum in physics. A similar plan of visits was performed at the **MAMA Project labs in Naples** during the Fall-Winter 2012-2013 with demonstration of the facilities for design of thin films heterostructures based on oxides materials and on the application of different advanced probing techniques to control the quality of the materials and the optical properties.

### Synergies with the Regional Productive Sector

Within the framework of the MAMA project, SPIN established interactions with industries and SMEs of the Campania Region.

Active interactions

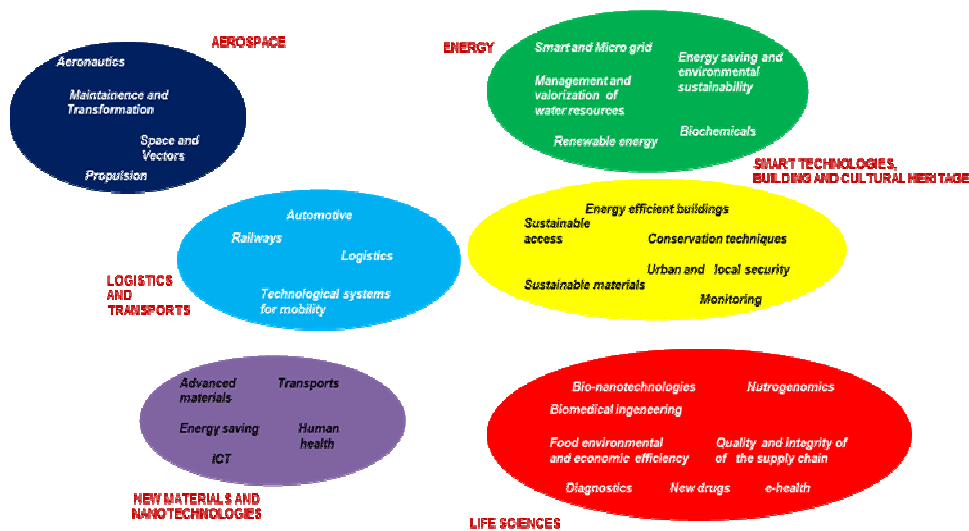
- Commercial activities for high-quality control of materials for production through non invasive advanced microscopy and spectroscopy

Main opportunities

- Identification of potential industrial partners (e.g., European Microfusion Aerospace)
- SMEs involved in networking activities
- New industrial partners (within the SMARTAGS project)

The figure below shows the technological paths identified by the Campania Region. Scientific and technological challenges in the **field of nanosciences, nanotechnologies**, materials and new production technologies, is an important point encompasses the reinforcement of the activities covered by the MAMA Project, namely the activities linked with the growth, the analysis, and the control, in the sense of physical properties, of novel functional materials of high quality.

**Figure – Campania Region Technological paths**



Nevertheless, it is widely accepted that there is a low level of innovation demand in the entrepreneurial system of the Regions of Convergence. The system of production in the Region is greatly made up of SME that develop their actions in the sectors considered as traditional and in general not related to the high-tech. Moreover, in this area, there is a limited number of enterprises, which are a branch of trans-national big companies, but whose R&D activities are mainly performed in their headquarters. In addition, in the Campania Region the relationship between the enterprises and the research centres are not well established, and the transfer of know-how is almost absent.

A crucial aspect identified by the MAMA project is related to the capability of transferring the competition towards the best parts of the market playing more on the quality and the performance of the products than on the costs. In doing that, we can have an impact at Regional level by favouring, at the same time, the differentiation of the activities and in turn the support for the creation of new enterprises closely related to the thematic areas of the scientific research. Innovation in the field of material science have strong influences on transversal sectors of the economy and thus can represent a valid tool to sustain the quick transformations that follow the market demand.

### Activities to Promote Awareness on European Funding Opportunities

The dissemination activity devoted to increase awareness on **European funding opportunities for research** in the new framework programme Horizon 2020 consisted in a one-day open initiative that took place on February 25, 2013 entitled: **Horizon 2020 Regional dimension of research within the future funding programme and cohesion policy**. The presentation was held by Andrew Bianco, Project Officer, from the DG Research. The event took place at Salerno University Campus and was attended by over **100 researchers and administrative staff**, mainly from SPIN units of Naples and Salerno and from the University of Salerno.

## Use and dissemination

**Articles published in peer reviewed journals:** Overall 70 articles published since September 2010. There are also

**Presentations to conferences:** During the lifetime of the project, researchers, supported by MAMA, participated at:

- 32 Conferences as invited speaker
- 2 Conferences for abstract oral presentations
- 3 Networking events

Researchers were invited to give talks at various Institutions in Europe and in USA.

## Project brochure



The brochure is divided into several sections:
 

- Who we are:** Describes SPIN (Superconductors, oxides and other innovative materials and devices) as a new CNR Institute devoted to the study of superconductors and other innovative materials and their application in the fields of electronics and energy. It mentions the MAMA project is coordinated by the CNR-SPIN.
- Concept:** Defines multifunctional materials as materials that perform specific functions other than having a load bearing capacity. It lists various physical properties like superconductivity, piezo- and ferro-electricity, colossal magnetoresistance, multiferroicity, etc.
- Equipment in MAMA:** Shows images of various scientific instruments like a femtosecond laser system, a cluster multi-robot, and a field-effect transistor.
- Objectives:** Lists goals such as 'Need of quality controlled samples', 'Need of restoring the space, time, mechanical and energy resolved multi-scale approach', and 'Need of improving computational multi-scale models'.
- Project participants:** Lists institutions from various countries including CNR-SPIN, Silesia University, Chalmers University, RWTH Aachen, IMDEA, Max Planck Institute, Karlsruhe, Rice National Laboratory, and others.
- Project Actions:** Includes 'Mobilising Human Resources', 'Creating groups for high quality R&D activities', 'Expertise exchange with highly qualified EU centers', 'Recruiting experienced researchers', 'Upgrading/ Acquiring Equipment', and 'Creating groups for high quality R&D activities'.

## Human potential

Eight researchers were recruited specifically for this project (of which four were female researchers and four male researchers).

All researchers contributed their expertise to unlock SPIN research potentials. Moreover, we were able to contribute in building their career in science, as well as preventing the brain drain and build a critical mass to develop research in innovative materials in the Campania Region. As shown in the table below, four researchers obtained a permanent position in SPIN within the lifetime of the project and four are hired with research fellowships and are associated to SPIN.

Researcher	Current position
ProcoloLucignano	CNR-SPIN: Permanent position since Oct 2011
RosalbaFittipaldi	CNR-SPIN: Permanent position since Oct 2012
Paola Gentile	CNR-SPIN: Permanent position since Dec 2013
Antonio Ambrosio	CNR-SPIN: Permanent position since Dec 2013
Fabio Chiarella	CNR-SPIN: Temporary researcher recruited under the SMARTAGS project
Emiliano Di Gennaro	University of Naples: 5 years Tenure Track, associated to CNR-SPIN
Filomena Forte	University of Salerno: CNR-SPIN researcher, to be post-doc, associated to CNR-SPIN
Gabriella De Luca	University of Naples: Post-doc, associated to CNR-SPIN