



## **Grants announced for industrial and advanced functional materials**

Preliminary GSRT announcement issued on special funding programs for innovation

On 1 August 2016, Greece's General Secretariat for Research and Technology (GSRT) announced an upcoming call for proposals for special activities supporting research, innovation and technological development, to be funded under the Partnership Agreement for the Development Framework (ESPA) 2014-2020. Eligible beneficiaries may receive cash grants.

One program, entitled "Industrial and advanced functional materials," will support research and innovation projects in Greece

that are carried out by consortiums of research institutions and dynamic domestic enterprises. The main goal is to create the necessary knowledge base for promoting innovation, industry competitiveness and economic growth at a regional and national level. (Other programs announced on the same date will support research and innovation relating to culture and aquaculture.)

The specific goals of the program relating to industrial and advanced functional materials are to:

- Concentrate efforts and resources around targeted R&D activities that are important for the Greek economy and society, aiming to maximize the benefits for the economy according to priorities set out in the Research and Innovation Strategy for Smart Specialization (RIS3);
- Develop new or improved products and services or methods of production with high added value, aiming to improve the competitiveness of enterprises and their entry into new markets;
- Enhance and upgrade the knowledge of research personnel of enterprises through participation in R&D activities that are directly applied in the production process;
- Enhance the engagement of enterprises in R&D activities by more efficiently interconnecting the research systems of the country with the production sectors of the economy; and
- Facilitate collaboration between enterprises and research bodies and the networking of all parts of the “materials, technologies and applications” value chain, to avoid fragmentation of resources.

The detailed call for proposals that will be published on the GSRT website ([www.gsrt.gr](http://www.gsrt.gr)) will specify the conditions, the eligible beneficiaries and the details for participating in the program, as well as how proposals may be submitted and funded.

## Research & innovation priorities in materials

Each proposal should address one of the following R&D priorities:

<b>A: Industrial materials</b>	<b>1. Manufacturing and processes</b>
	1.1 Design and development of production processes, with an emphasis on reducing energy consumption.
	1.2 Adoption of nonconventional technologies (i.e. photonic-based material processing technologies, spray technologies, supersonic or subsonic processes, digital technologies, connection methods of unlike materials, additive manufacturing) for the development of new multifunctional or hybrid processes.
	<b>2. Building and infrastructure materials, machinery and consumer goods materials</b>

- 2.1 Development of technologically advanced materials (alloys, composites) and production processes for use in the transport, construction and energy sectors (i.e. automotive industry, aircraft construction, shipbuilding, architectural use and special construction use, as well as production and development of packing material for food and agricultural products).
- 2.2 Use of national industrial minerals and metals for the development of high added value products.
- 2.3 Development of new construction materials for use in construction of improved environmental and functional performance.

### 1. Biomaterials

- 1.1 Bio-implants
  - Scaffolds of engineering and regenerative tissue
  - Embedded micro/nano systems
- 1.2 Diagnosis and treatment biomaterials
  - New diagnosis and treatment biomaterials
  - Diagnosis and treatment installations

### 2. Materials for integrated electronic and photonic technologies

- 2.1 Materials for application in micro/nano electronics
  - Materials compatible with silicon technology
  - Materials for power electronics (GaN, SiC)
  - Materials for photonic technologies
- 2.2 Materials for microsystems
- 2.3 Materials for flexible substrates
- 2.4 Materials for solar cell technology

### 3. Multifunctional materials – Smart materials – Coatings

- 3.1 Multifunctional/smart materials that respond to external stimulus factors, with primary application in the transport and construction sectors
  - Pattern memory materials
  - Piezoelectric materials
  - Magneto- and electro-rheostatic materials
  - Self-healing systems
- 3.2 Multifunctional materials for energy application (conversion, storage and saving of energy)
  - Development of magnetic materials
  - Thermoelectric materials
  - Energy conversion systems
  - Chromogenic (thermochromics, electrochromic/photochromic), photo catalytic and self-cleaning materials
  - Nanoporous materials for storage/separation of energy gases
- 3.3 Multifunctional environmentally-friendly material systems for the protection of construction, monuments and other building applications
  - Modified nanocomposite materials
  - Fixation, reinforcement and filling materials
  - Development of nanocomposite hyper-hydrophobic films
- 3.4 New materials, upgrading of current materials and new applications of subtle coating materials
  - Coatings with natural functionality
  - Coatings with physic-chemical functionality
- 3.5 Development of deposition and coating treatment processes and modification of surfaces

### 4. Advanced nanomaterials and nanocomposite materials

- 4.1 Composites of polymeric matrix with nano herbal blends as a reinforcing phase (e.g. cellulose)

- 4.2 Nanocomposites of polymeric matrix with use of silicate impurities (e.g. SiO<sub>2</sub>)
- 4.3 Nanocomposites of polymeric matrix with dispersed nanoparticles of noble metals (Ag, Au, etc.)
- 4.4 Polymeric nanocomposites based on graphene and other two-dimensional materials
- 4.5 Metal matrix composites with carbon nanotubes (single/double wall)
- 4.6 Metal matrix composites with dispersed metal nanoparticles (Ni, Fe, Co, etc.)

## Main features

Below is a summary of the main features of the upcoming program, according to the announcement.

### What will be the budget range for an eligible proposal?

The program will subsidize proposals with an eligible total budget between EUR 200,000 and EUR 500,000.

### What expenditure will be eligible?

The eligible expenditure falls under two main categories, as shown in the following table:



### What is the structure of an eligible consortium?

The structure of an eligible consortium is shown in the following table:

Projects in R&D priorities of subsector	Size of consortium	Minimum number of enterprises	Share of enterprises in total budget	Share of research organizations in total budget
A: Industrial materials	3-4 beneficiaries	2	50%	50%
	5-6 beneficiaries	3		
	3-4 beneficiaries	1	30%	70%

## What type and amount of state aid will be provided?

All beneficiaries included in the program will be entitled to cash grants.

- **Private enterprises** will receive a cash grant based on their size (small, medium or large) and the content of the project. For industrial research, the amount of the cash grant will be equal to 65%-80% of eligible expenditure. For experimental development, the percentage will be 40%-60% of eligible expenditure.
- **Research organizations** will receive a cash grant equal to 100% of their eligible expenditure.

## How will a proposal be evaluated?

Proposals will be evaluated based on the following criteria:

- Quality and caliber of entities forming the consortium;
- Scientific and technological quality of the proposal; and
- Potential benefits from the proposed project.

Each criterion will be described in detail when the call for proposals is issued.

## What will be the duration of each project?

Each project will last between 18 and 24 months, depending on the nature of the proposal.

## What will be the total budget for the program?

The public funding of the program will be EUR 14 million. The total budget of submitted proposals is estimated to reach EUR 20 million.

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