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ROMANIAN GOVERNMENT



STRUCTURAL INSTRUMENTS
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Sectorial Operational Program - Increase of Economic Competitiveness
„Investments for your future”
Project co-financed by European Regional Development Fund

Research Centre for Integrated Systems

Nanotechnologies and Carbon Based Nanomaterials

CENASIC

a new centre in
Carbon Based Nanomaterials



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CENASIC and IMT policy for a technological platform devoted to KETs (Key Enabling Technologies)

CENASIC project means an investment in **nanotechnology and advanced materials**. These two KETs are reinforcing the multi-KET capability of IMT, traditionally performing in **micro-nanoelectronics and photonics**, respectively. All together, there are four from the six KETs promoted by Horizon 2020.

The **multi-KET technological platform** could provide an extremely valuable **support for innovative SMEs**, as shown by „Horizon 2020”. Such a platform can be extremely versatile, being used in **various application fields**. In our case, **IMT is targeting the following areas: ICT, Health, Space**.

The new CENASIC project is providing support for the development of a new research center of IMT (focussing on nanotechnologies and carbon-based nanomaterials). However, the new research infrastructure **will be integrated into the existing infrastructure**, generically known as IMT-MINAFAB (IMT centre for Micro and NAnoFABrication). This is an **„open centre”** (launched in 2009 in Brussels), providing access to partners for multidisciplinary research, education and innovation.

New and existing jobs supported by new technological equipments.



The new thematic area is matching the national „smart specialization” and it is very promising for international cooperation

CENASIC aims to develop a clear-cut thematic for research, partnerships and collaborations in the sphere of micro/nanotechnologies targeting the implementation of **new technologies based on carbon materials, namely: SiC, graphene and nanocrystalline diamond**. The thematic priority for financing was Innovative Materials, Processes and Products (according to the National RDI Programme 2007-2013, the contract for financing was signed in 2010). The CENASIC project starting in 2010 will be finished in November 2015 and his sustainability period of five years will take place during the new National RDI Programme 2014-2020. However, **nanotechnologies and advanced materials** occur as one of the **priorities for “smart specialization”** in the RDI National Strategy (2014-2020), whereas **graphene** (main focus in the future CENASIC research) is the subject of an **European Flagship** and of **worldwide research** following the awarding of the Nobel Prize for Physics (2010), providing opportunities for international cooperation.

The advantages of the CENASIC investment are:

- Construction of a new, **state-of-the-art clean room**, completing the existing system of clean rooms;
- Acquisition and instalment of **new equipments for nanofabrication**;
- Completion and reinforcement of the line of experimental labs, from computer simulation to reliability testing. The completed infrastructure behaves as a **„virtual pilot line”**;
- Increasing the capability to support innovation on the „value chain”, from materials, to processes, to devices and subsystems.



The key **new technological equipments** within the CENASIC labs will be:

- **Multiprocess Furnace System (Furnace)**,
- **Molecular Beam Epitaxy (MBE)**,
- **Plasma Enhanced Chemical Vapor Deposition (PE CVD)**,
- **Atomic Layer Deposition tool (ALD)**,
- **RF Magnetron Sputtering**.

With the investment of **6.23 Meuro in building, facilities and equipment** (to be implemented until October 2015), the output of the project in the following 5 years should include the **training and formation of at least 20 young professionals** (part of them from IMT), **maintaining at least 33 existing jobs** in IMT, **creating at least 10 new positions** (5 of them to be occupied by **foreign scientists**), as well as providing a significant number of **new technological services**. The new building has almost 1000 m², including 4 levels: the clean room (ground floor), the technical level, and two floors for labs and offices.