

## ICT- Future and Emerging Technologies

**FLAGSHIP PROJECT**  
**= ACHIEVE**  
**A VISIONARY GOAL**



2013 Launch of first FET Flagships

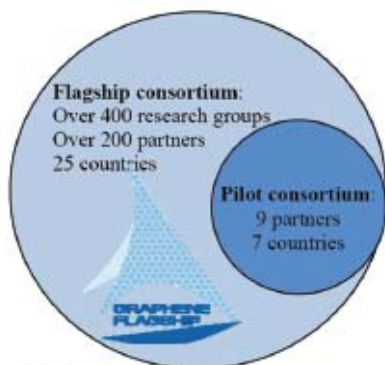
2012 Selection of FET Flagships  
(2 projects from 6)

- Avoid S& T basic research funding too tiny at national and EU levels
- Place different ideas and technological challenges under a common umbrella
- Reach higher awareness ,impact and return on investments in research
- Create a framework for dialog and cooperation from scientists of various disciplines
- Give basic S&T research a stronger position in funding systems via creation of legal instruments which foster enforced connections with established disciplines
- link S&T research to innovation commercialization
- 1billion Euro/10 years

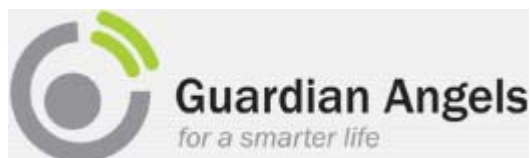


www.graphene-flagship.eu

GRAPHENE FLAGSHIP



The Graphene consortium



The GRAPHENE flagship ambition is to bring together a focused, interdisciplinary European research community that aims at **a radical technology shift in information and communication technology that exploits the unique properties of graphene and related two-dimensional materials**. Graphene research is an example of an emerging **translational nanotechnology** where discoveries in academic laboratories are rapidly transferred to applications and commercial products.

Graphene and related materials have the potential to make a profound impact in ICT in the short and long term: Integrating graphene components with silicon-based electronics, and gradually replacing silicon in some applications, allows not only substantial performance improvements but, more importantly, it enables completely new applications.

**ZERO POWER:** Universities and high-tech industries across Europe are gathering to make the Guardian Angels project happen. **These small devices, products of nanotechnology, will combine low-power electronics with new sources of energy, taken from their immediate environment (sun, body movements)**

**HEALTH CARE** Embedded in clothes, invisible and non-invasive, Guardian Angels devices will be able **to monitor vital health signals (blood-sugar level, heartbeat), searching for anomalies (cancer biomarkers and infection's agents).**

**REHABILITATION** Relying on man-machine interfaces, Guardian Angels could sense and communicate **through non-verbal languages**: they could play an important role in the rehabilitation area, in prosthetics or by helping autistic patients to interact with their environment.



**FuturICT will build a Living Earth Platform, a simulation, visualization and participation platform to support decision-making of policy-makers, business people and citizens**

The ultimate goal of the FuturICT flagship project is to understand and manage complex, global, socially interactive systems, with a focus on sustainability and resilience. Revealing the hidden laws and processes underlying societies probably constitutes the most pressing scientific grand challenge of our century and is equally important for the development of novel robust, trustworthy and adaptive information and communication technologies (ICT), based on socially inspired paradigms.



**Sustainable welfare through *sentient machines*: technology that integrates perception, cognition, emotion, and action with a contextual awareness of self, others, and the environment.**



The principle goal of the Human Brain Project is to build a European research facility that will simulate the human brain and exploit the results. The thirteen universities, research institutes and hospitals leading the project will each be responsible for one specific research niche, coordinating the activities of hundreds of other universities and hospitals in Europe and around the world.

The simulation model is the pivotal point of the research facility. Before a full, working model is possible, it will be necessary to collect and treat an enormous quantity of neuroscientific and genetic information from research undertaken within Human Brain Project and elsewhere. These data will then feed the simulation.



Recent technological advances allow us to analyse patients all the way down to their proteins and chemicals and their own DNA sequences in just a couple of hours. On the basis of these data, a physician will be able to use a computer to quickly suggest individual advice or therapy: which drugs, what health risks, consequences of lifestyle changes, recommendations for diets or rehabilitation measures. Suggestions include information on the expected benefits and risks, directly for that patient based on the understanding of their individual makeup. Counsel will be based on advanced computational models that will follow the patient throughout the healthcare system. Treatments will be more effective while side effects will be reduced.