EU-Russia Meeting on ICT
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Micro-Nano Systems Activities
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Presentation outline

- Research policy objectives within the EU policy framework
- Related European Technology Platforms & Joint Technology Initiative “ENIAC”
- The ICT Theme: Micro-nano engineering & manufacturing aspects
  - Nanoelectronics
  - Microsystems
  - Photonics
“Challenge 3” activities ... 
... related to micro-nano systems

**Call 1**

- **ICT-2007.3.1** Next-generation nanoelectronics components & electronics integration
- **ICT-2007.3.2** Organic & large-area electronics & display systems
- **ICT-2007.3.3** Embedded systems design
- **ICT-2007.3.4** Computing systems

**Call 2**

- **ICT-2007.3.5** Photonic components & subsystems
- **ICT-2007.3.6** Micro/nanosystems
- **ICT-2007.3.7** Networked embedded & control systems
Micro/Nanosystems Call 2 in FP7 ICT

- Next generation smart systems
  Sensor- & actuator-based systems
  High density mass storage

- Micro/Nano-Bio-ICT convergence
  Biosensors, lab-on-a-chip, bioMEMS, autonomous implants

- Integration of smart materials
  Integration of micro-nano technologies and smart systems into new &
  traditional materials, e.g. textiles, glass, paper

- From smart systems to viable products
  Microsystems manufacturing technologies

- Smart systems for communications & data management
  Smart micro/nanosystems enabling wireless access & facilitating
  intelligent networking

- Support actions
  Technology access, education & training, coordination &
  dissemination at EU level

€ 83 mn

Courtesy STELLA

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Micro/Nanosystems: FP7 activities & expected impact

• A multi-disciplinary endeavour:
  Combining optics, mechanics, electronics, fluidics, thermodynamics, chemistry, biology

• Converging scientific disciplines:
  Looking at the overlapping areas between nano-, bio-, information & cognitive sciences

• Multi-material integration:
  Semiconductors, polymers (plastics), ceramics, glass, …

• Multi-technology integration:
  Monolithic, hybrid, multichip, large-area, … miniaturisation techniques

• Multi-functional integration:
  Combining sensing, processing, actuating

• Substantial improvement of smart systems integration,
  - e.g. quality, reliability, miniaturisation, cost & power efficiency, …

• Transformation of industrial production,
  - e.g. intelligent process & shop floor control, logistics & distribution

• Increased market share of European companies across different industrial sectors
Micro/Nanosystems: Projects and thematic areas (FP6)

- **Micro/Nano-bio ICT**: 24 projects (6 IPs) - €101 mn
- **Smart Textiles**: 8 projects (4 IPs) - €47 mn
- **AmI**
  - 5 projects (3 IPs, 1 NoE) - €35 mn
- **Support & Coordination**: 11 projects - €6 mn
- **Sensor-based Systems + Storage**: 14 projects (3 IPs, 2 NoEs) - €55 mn
- **Mfg./Process integr.**: 10 projects (3 IPs, 1 NoE) - €31 mn
- **Organic Electronics Displays**: 11 projects (4 IPs) - €54 mn

In total > €310 mn
FP6 manufacturing/process integration: Project examples (1/2)

- **NANOHAND**: System for automatic handling of nano-objects
- **DELILA**: Nanoscale structuring using laser beam interference
- **Q2M**: Integration of high-quality materials for microsystems
- **HIDING DIES**: Smart high-density electronics substrates
- **DAVID**: Downscale assembly of vertically interconnected devices
- **MUNDIS**: Contact-less sensors based on magnetoresistive nanocontacts
- **PROMENADE**: Process management for microsystems

FP6 manufacturing/process integration: Service actions (2/2)

- **INTEGRAMPLUS**: Integrated MNT platform
- **MICROBUILDER**: Integrated modular service for microfluidics
- **RF-PLATFORM**: Manufacturing & design platforms based on novel RF technologies
- **PATENT**: Design for micro/nano manufacture

European research on the web:
http://cordis.europa.eu/fp7

DG Information Society and Media & ICT Theme:
http://ec.europa.eu/information_society/
http://cordis.europa.eu/fp7/ict

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