

**Networks of Sensors:  
Pilot High Resolution Networks  
Forthcoming NERC Call  
+ Technology Proof of Concept 2<sup>nd</sup> Call**

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# Objectives



- **A science-led call: provide NERC science outputs from new pilot High Resolution Networks**
  - Demonstrate real science outputs in 3 years
  - Exemplars for future environmental sensing networks
- **Partnerships: promote collaboration with technology providers and 'dual use' beneficiaries**
  - Industry
  - Other research groups outside environmental sciences
  - Other government-funded research

## Scope (guidance not rules)



- Covers whole NERC science remit
- Environmental science must lead, but ‘dual use’ encouraged
- Likely to be stronger on deployment than core technology generation
- Supply chain partnerships encouraged
- Not limited to those who submitted Expressions of Interest in Summer 2009

# Environmental Science Applications



- Ocean acidification
  - Urban air quality
  - Deforestation
  - Glacial processes
  - Flood warning
  - Habitat monitoring
  - Water quality
  - Seismology
  - Biodiversity
- 
- **These are just examples – the call isn't directed to one application**

# Transformation of Environmental Sensor Networks



## Logging

- Manual
- Automated

## Networks

- Single Function Networks
- Localised Multifunction Networks
- Biosensor Networks

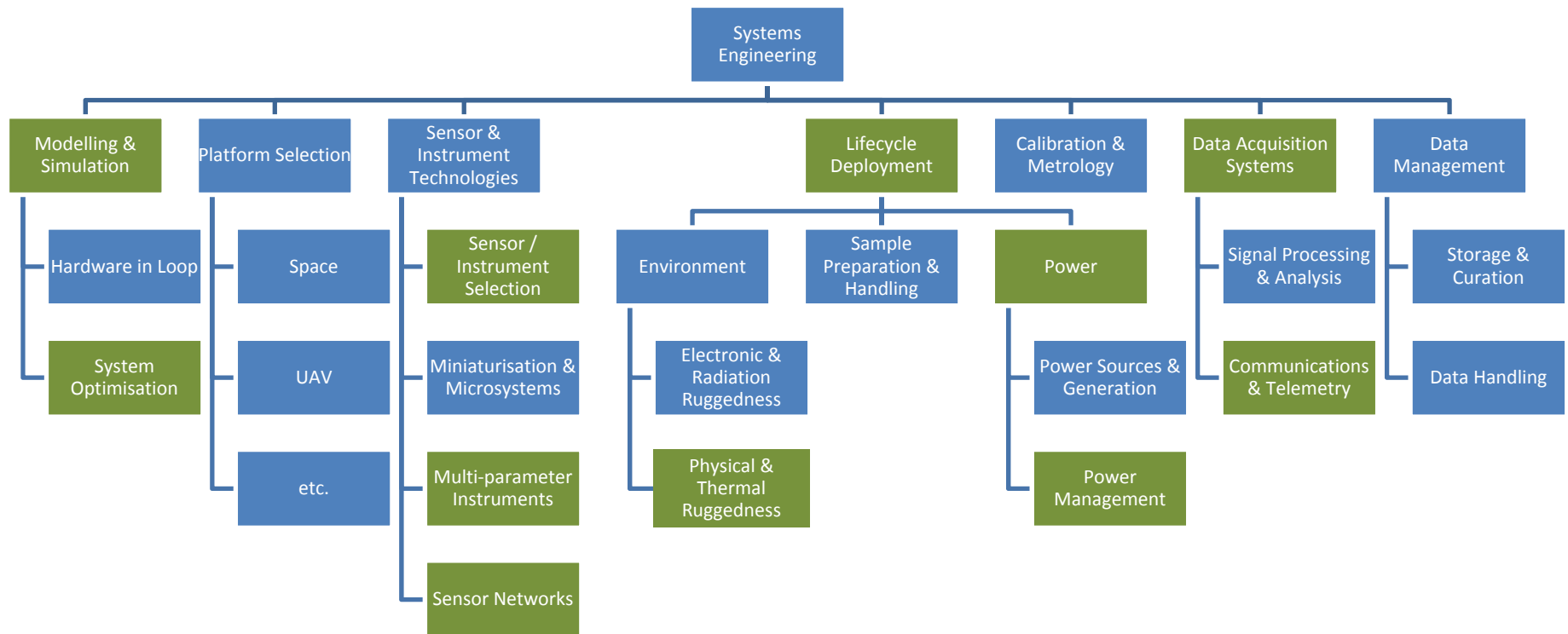
## Heterogeneous Networks

# Underpinning Environmental Monitoring



- Hardware in Loop Simulation
- Sample Preparation & Handling
- Sensor technology
- Multi-parameter Instruments: Sensor / Instrument / Data Fusion
- Miniaturisation and Microsystems
- Sensor /Instrument Networks
- Communications
- Materials & Packaging
- Electronics and physical ruggedness
- Calibration & Metrology
- Data Acquisition Systems
- Signal processing /analysis
- Power harvesting, energy scavenging and management
- Systems Engineering

# Environmental Sensor networks will support a range of capabilities



**Capabilities shown in green were particularly addressed in Expressions of Interest**

# Key Issues addressed by call



- **Greatest novelty through deployment and optimisation in real environmental situations, more than novel sensor technology**
  - **Systems engineering**
  - **Adaptation for Environmental Monitoring deployment**
  - **Networking and communications / telemetry**
  - **Performance & Cost optimisation**
- **Will reduce barriers to deployment in other applications**

# Key Areas of Industrial Impact



- **Technology Industries**
  - Instrumentation and sensors / components
  - Digital Communications (Internet of things)
- **User Sectors**
  - Water Industry
  - Environmental Services (e.g. Waste Monitoring)
  - Financial Services
  - Crop protection / agrifood
  - Transport

# Funding Available



- **£5m from NERC**
  - Anticipated 4-5 networks and 3 year grants
- **Other Partners providing resources**
  - STFC
  - DSTL
  - These partners will fund access to their own resources to support the objectives of the call and promote 'dual use' outcomes

# Call Timetable (provisional)



- **Pre-announcement: now**
- **Formal launch and information day: Feb 2010**
  - Support for partnership building
  - Support for Knowledge Exchange (KE) plans
  - Work with Sensors & Instrumentation KTN to develop industrial and KE links
- **Call close: 8-10 weeks after formal launch**
- **Grants awarded: From July 2010**

# Technology Proof of Concept 2



- **Another call within NERC Technology Theme**
- More technology oriented - short, fast, higher technical risk (TRL 1-4)
- First round generated substantial interest and ~£4.2m funded (30 projects from 88 applications)
- Second round just launched with £2m available
- Max. project funding £150k (as 80% of FEC)
- Max. duration of grant: 12 months
- Expressions of Interest: 5.1.10
- Closing date: 26.1.10

# Contacts



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