

THE TECHNOLOGY PROGRAMME:  
NOVEMBER 2004 COMPETITION FOR FUNDING

## Pervasive Computing, including Networks and Sensors

### Summary

There are several challenges and opportunities presented by the approaching intelligent, connected world of ubiquitous information. One of them is developing pervasive computing systems that provide access to content, applications and services that will often be dynamically personalised, available in the context where most relevant and in many cases without requiring any intervention from the user.

In recognition of the importance of this technology, an indicative £9M of funding has been set aside in this competition for Collaborative Research & Development projects that address some of the major technical challenges in the following areas:

- The modern built environment (including applications such as the networked city and environmental monitoring)
- Telecare to allow remote monitoring of patients
- Digital content, applications, services and tools
- Reliability and condition monitoring for predictive design and virtual testing

### Background

A world where the ubiquity of processing power and connectivity, often embedded in devices that are not conventionally regarded as part of the information and communications technology field, is fast approaching. However there are still many challenges to be met before easy-to-use, reliable, secure, valuable services can be delivered. Although there are a number of deployments and trials of pervasive computing systems, there is still the potential to make even greater economic impact on a much wider range of highly important and strategic markets for the UK.



Pervasive computing systems will deliver positive environmental and social benefits. Environmental benefits will come from improved monitoring systems, reduced energy consumption as a result of more efficient logistics and of more flexible working. Social benefits will come from improved access to culture, more engaging tourism opportunities, domestic care, flexible working and improved location and context based information and communications. Underpinning many of these benefits are learning technologies that take advantage of ambient, ubiquitous, persistent and embedded Information Communication Technology to maximise life-time educational opportunities.

## Scope for Applications

Based on UK research excellence and the potential for exploitation, the following areas are considered a priority for this competition:

- The Modern Built Environment, which includes networked homes, connected and enhanced appliances, building monitoring and management (for both new and existing buildings), all of which will contribute to improved lifestyles and more efficient use of resources. It also includes pervasive computing systems in the urban environment
- Telecare, which includes technologies to stop the institutionalisation of elderly citizens allowing them to safely and happily remain in their own homes and those to address chronic diseases management
- Digital content, applications, services and tools, which can deliver advances in engagement for the leisure, computer games, education, culture and tourism sectors

- Reliability and condition monitoring, which will allow continuous collection and analysis of data on in-service performance and integrity, for predictive maintenance, and feed into improved predictive modelling of reliability and failure, improved designs and virtual testing

In particular, applications should also focus on one or preferably more of the technical challenges highlighted below:

- Mobile & wireless communications, particularly spontaneous and self organising connectivity, integration & interoperability, autonomies
- Human Computer Interface design and implementation including responsive and adaptive environments
- Software and content provision including micro operating systems, control systems, data aggregation, AI, Agent technologies, context-based service delivery
- Security and trust, scalability, resilience and robust systems integration
- Hardware including low power and embedded devices

Development of novel sensors or sensor technologies will only be supported where it is a necessary precursor to exploring the technical challenges described above.

## Project Details

Proposals that address the above technology application areas and one or more of the technical challenges listed are sought for Collaborative R&D projects that involve science-to-business and business-to-business interactions. Projects can range from small, highly focused basic research projects, aimed at establishing technical feasibility, through to applied research, and to experimental development projects configured to produce technology demonstrators. In particular we would encourage projects that can demonstrate

benefits to a number of business sectors, and ideally should include at least one partner with defined end-user needs.

Typically a project would have 2-4 year duration and require DTI support of up to £1m, although larger projects will be considered. Projects will generally aim to implement significant business change in a 5-7 year time frame, rather than offer immediate payback.

### Other Funding Opportunities

EPSRC are interested in co-funding applied research projects in this technology area where there is a significant high quality academic component. Applicants who wish to seek EPSRC funding should read the additional guidance provided at **[www.dti.gov.uk/technologyprogramme](http://www.dti.gov.uk/technologyprogramme)**

The Department of Health have also expressed an interest in co-funding projects with a healthcare element. Applicants who wish their proposals to be sent to the Department of Health for consideration should highlight this in the 'Abstract of Proposed Project' section of the application form.

Applicants may also seek to bring in other sources of government funding to proposals where appropriate, for example, from Regional Development Agencies, Devolved Administrations or other government departments.

### Contact

If you have any queries about this technology area, please contact Lee Vousden at the DTI.

**[lee.vousden@dti.gsi.gov.uk](mailto:lee.vousden@dti.gsi.gov.uk)**  
**020 7215 1827**

For general enquiries on the application process please contact the helpline on **01355 272155** or e-mail **[info@technologyprogramme.org.uk](mailto:info@technologyprogramme.org.uk)**

Deadline for registering your intention to submit an application:  
31st January 2005

Outline application submission deadline: 7th February 2005

For details on how to register and apply go to  
**[www.dti.gov.uk/technologyprogramme](http://www.dti.gov.uk/technologyprogramme)**

