

Plastic Electronics: Materials Processing and Systems Integration

Summary

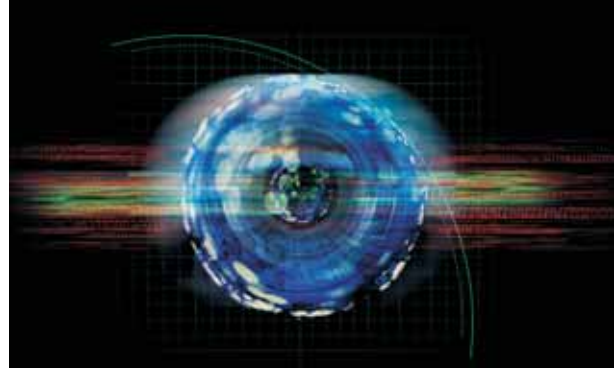
Plastic Electronics is a multi-billion pound opportunity that is poised to disrupt the world of electronic circuits and displays. The use of plastic materials in conjunction with high-volume, low-cost production techniques offers the prospect of electronic circuits with radically different price, performance and functionality on large-area, flexible substrates. The UK is well placed to exploit this technology as it is host to an excellent academic base and many key industrial players.

To advance the development of the nascent plastic electronics industry **£5m** will be made available to support highly innovative collaborative research proposals in the development and processing of novel functional materials, device design and systems integration.

Background

Plastic Electronics is the general term used to describe electronics based on semiconducting organic (i.e. carbon-based) materials as opposed to silicon semiconductors. It is a rapidly developing area in which the UK has an exceptionally strong academic base and a number of companies with leading positions in developing and marketing early products. The worldwide market for plastic electronics products has been estimated to be worth up to £15 billion by 2015 and the opportunity for new markets could be worth up to £125 billion by 2025.

Success in this disruptive technology field is dependent on exploiting the science base, with industry pull-through. Support would act as a catalyst to bring together the key players, evolve the developing supply chain and encourage the early application of this technology in a range of application domains ranging from, but not restricted to, flexible displays (sometimes referred to as e-paper), electronic RFID labels, intelligent packaging, bio-sensors, disposable electronics and intelligent textiles. Support should also help to mitigate the substantial technical risks and uncertainties associated with the research and development of disruptive technology in the plastic electronics area.

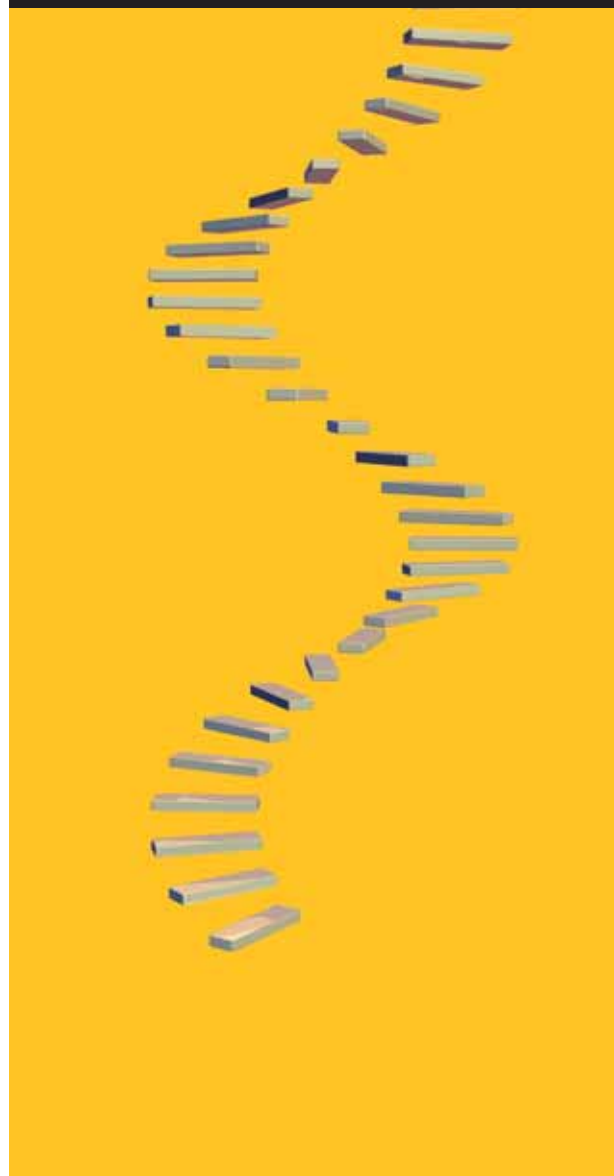


dti

**SUCCEEDING
THROUGH INNOVATION**

Plastic Electronics:
Materials Processing
and Systems Integration

COLLABORATIVE RESEARCH
AND DEVELOPMENT





Scope for Applications

The following areas are considered priorities for this competition:

- Novel functional materials and processing techniques: conductors, semiconductors, dielectrics, encapsulants, substrates, planarisation and barrier materials,
- Integration of existing functional materials (e.g. amorphous Silicon and other inorganic semiconductors) with organic materials on flexible substrates,
- Volume production processes, including large area printing, patterning and coating techniques; rapid characterisation and monitoring,
- Integration of systems on flexible substrates, for example incorporating printed batteries, photovoltaic cells or other remotely powered capability, with display and lighting functions,
- Development of OLED lighting and displays materials and sub-systems,
- Organic components, device packaging and system design for reliability (including improved understanding of deterioration and failure mechanisms).

Funding Allocation and Project Details

The Technology Strategy Board advises on the selection of priority technology areas and the allocation of funding for the Technology Programme. The Technology Strategy Board is currently being established as an executive non-departmental public body and will in future be responsible for the development and delivery of the Government's programme of technology support, including the Technology Programme.

An indicative £5m of Technology Programme support has been allocated to Collaborative Research and Development projects that address one or more of the areas indicated above and involve science-to-business and business-to-business interactions.

Typical projects would have 2-3 year duration, require support around £500k-£2m, although no project will be rejected on the grounds of size alone, and generally aim to implement significant business change in a 5-7 year time frame rather than shorter-term payback. Larger projects will be considered but the case must be exceptional. 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.

Additional funding from EPSRC may be available for projects where there is a significant high quality academic component and in particular for those projects that demonstrate added value to its existing portfolio; by building on or being complementary to existing research programmes.

Projects can range from small, highly focused basic research aimed at establishing technical feasibility, though to applied research, and to experimental development projects. It is anticipated that most of the funding will be allocated to proposals in the applied R&D (attracting 50% public funding) or experimental development (25% public funding) categories. Projects involving industry oriented basic research (75% public funding) will also be considered but a robust case must be made to support the requested level of funding. Definitions of the above categories of research can be found in the Guidance for Applicants – see <http://www.dti.gov.uk/innovation/technologystategy/index.html>

The Technology Strategy Board will require all projects to provide a non-commercially confidential summary, at the start and the conclusion of the project, for dissemination.

Contacts

If you have any queries about the technical scope of the competition or the application process, please contact the Technology Programme helpline on **01355 272155** or email **info@technologyprogramme.org.uk**

Key Dates

Competition opens: 24 April 2007

Competition event in London - 25 April 2007.

For more information about this and other events use the web address below

Deadline for registering your intention to submit an application: 11 June 2007

Deadline for all Academic Finances through the Je-S systems: 14 June 2007

Deadline for all Outline applications: 18 June 2007

Full stage opens: 16 July 2007

Deadline for receiving full stage applications: 11 September 2007

Decision and feedback to applicants: October 2007

To register and apply go to:

<http://www.dti.gov.uk/innovation/technologystategy/index.html>