

THE TECHNOLOGY PROGRAMME  
APRIL 2005 COMPETITION FOR FUNDING

## Advanced Manufacturing – Direct Writing

### Summary

'Direct Writing' technologies are used to produce, or deposit materials on, complex two or three-dimensional structures. They have the potential to revolutionise manufacturing processes across a broad range of sectors including aerospace, pharmaceuticals, automotive, biotechnology, ceramics and ICT.

An indicative £5m of funding has been allocated in this competition to support Collaborative Research & Development projects in this area.

### Background

The term 'Direct Writing' encompasses a wide range of technologies, which enable the rapid fabrication of, and/or deposition on, two or three-dimensional structures of any size and complexity; either as 'one-off' or in production runs. The nature of the structure determines the writing technologies and the fabrication materials required.

Key enabling technologies include nozzle dispensing processes, transfer methods and laser systems for modifying or depositing materials. A broad range of materials may be used as a substrate for direct writing, including all types of glass and metal, alloys, crystals, ceramics and synthetic materials (e.g. plastics) and natural organic materials including biological materials (e.g. cells).

Direct writing technologies can create greater flexibility in the production process giving the capability to modify output in real-time, or customise individual products.



Benefits of direct writing include:

- lower development costs;
- faster time to market;
- better product design and performance;
- improved inventory control;
- customer support;
- supply chain impact resulting in direct cost savings;

Most importantly longer term benefits are envisaged through the design and production of new products with novel functionality.

## Scope for Applications

We wish to encourage research and development projects that utilise direct writing technologies in novel ways to do one or more of the following:

- develop systematic techniques to improve the overall manufacturing process and/or product cycle time;
- stimulate innovation and growth within the business, the supply chain and/or the service sector;
- maximise business benefits by ensuring that techniques and technologies developed have multiple applications;
- reduce environment impact and promote resource efficiency and waste minimisation through consideration of the total product life-cycle including eventual disposal and recycling;
- exploit the expertise and knowledge of UK academic research.

## Project Details and Funding

An indicative £5m of funding has been allocated in this competition to support Collaborative Research & Development projects in both direct write technologies and manufacturing.

Industry-led proposals that address the above technology application areas are sought for research and development projects that involve science-to-business and business-to-business collaborations.

Projects can range from small, highly focused basic research projects, aimed at establishing technical feasibility, through to applied research, and experimental development projects with an aim of producing direct writing technology demonstrators. In particular we encourage projects that can illustrate benefits and applications in a number of business sectors. Ideally projects should include at least one partner with defined end-user needs.

Typically projects should be of 1-3 years in duration and seeking up to £1m of funding. Larger projects will be considered but, the case for support would need to be exceptional. Projects should generally aim to implement significant business change in 5-7 years rather than offer immediate payback.

## Other funding opportunities

EPSRC is interested in co-funding the academic element of projects in this technology area that demonstrate added value to its existing portfolio; by building on or being complementary to existing research programmes. Applicants who wish to take advantage of research council funding should read the additional guidance provided at [www.dti.gov.uk/technologyprogramme](http://www.dti.gov.uk/technologyprogramme)

## Contact

If you have any queries about this technology area please contact Paul Gay at the DTI.

**[paul.gay@dti.gsi.gov.uk](mailto:paul.gay@dti.gsi.gov.uk)**  
**020 7215 1531**

For general enquires about the application process please contact the helpline on **01355 272155** or email **[info@technologyprogramme.org.uk](mailto:info@technologyprogramme.org.uk)**

## Key Dates

Competition Opens: **25th April 2005**

Deadline for registering your intention to submit an application is: **13th June 2005**

Outline application submission deadline: **20th June 2005**

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

