

High Value Manufacturing

- Step Change in Competitiveness
- Value Systems

JANUARY 2009 COMPETITION FOR FUNDING



Manufacturing globally is a key provider of wealth and employment. The United Kingdom is the world's sixth largest manufacturer by Gross Value Added, with an industry that accounts for 14-15% of Gross Domestic Product and 50-55% of exports, as well as employing three million people. A wider definition, including industrial services, construction and oil and gas, results in a GDP contribution closer to 27%.

Manufacturing is also one of the primary mechanisms for realising wealth from new technologies and is therefore critical to the UK.



High Value Manufacturing

■ Step Change in Competitiveness ■ Value Systems

JANUARY 2009 COMPETITION FOR FUNDING

Introduction

Manufacturing is highly competitive and gravitates to countries of lowest overall cost. Therefore, manufacturing in comparatively high wage economies, such as the UK, has had to change radically to remain globally competitive. Rapid change will continue for the foreseeable future and the development path for manufacturing in the UK is one where:

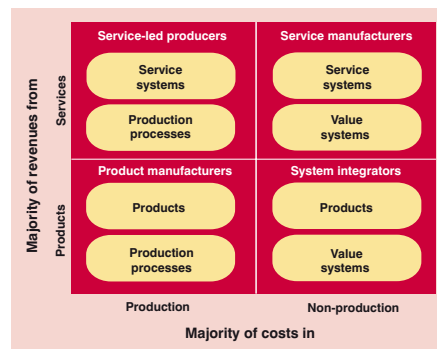
- its composition will continue to move away from the traditional areas, towards high-value, knowledge-intensive goods;
- the emphasis of activities will not just be on production, but will also embrace provision of lifetime service, around a manufactured product;
- continued automation of physical and information processes will drive efficiency improvement;
- the business model will be increasingly specialised, with outsourcing of non-core activities; and
- the value chain will be increasingly complex and international.

The challenge for UK manufacturers is to remain competitive in this environment, which in turn translates into being continually innovative. Against this background, the Technology Strategy Board's broad aim is to invest in UK manufacturing companies to maintain and develop their international competitiveness.

This aim will be achieved by focusing on innovation in four broad areas, which we call "The Four Pillars of High Value Manufacturing":

- Products;
- Production Processes;
- Service Systems; and
- Value Systems.

These pillars are illustrated below, superimposed on the high value manufacturing matrix developed by the Institute for Manufacturing for the Government and the Confederation of British Industry in January 2006.



Further detail of these points are given in Technology Strategy Board publication "High Value Manufacturing 2008 – 2011" which can be found via the Publications link at www.innovateuk.org.

Competition for Funding – Step Change in Competitiveness

The Technology Strategy Board, in its wish to promote the international competitiveness of UK manufacturing companies, will therefore invest in projects which, over the duration of the project, can bring about major changes – STEP CHANGES – in the competitiveness of the participating companies. Applicants will be asked to demonstrate this in Gateway Question 1.

Major change, in this context, is taken to mean improvements in the range 25% – 50% relative to current performance in:

- overall manufacturing costs;
- whole life-cycle costs;
- whole life environmental impact;
- product performance, durability and reliability;
- sales volumes; and
- time to market.

These points relate mainly to the first three pillars – Products, Processes and Service Systems – to which £21m of the indicative £24m will be allocated.

Value Systems

A separate £3m will be allocated to work in the Value Systems area, including any relevant overlap into Service Systems. Most manufacturing companies operate in an international environment and the intention is to support research into how UK companies should best configure their activities to extract the most value both for themselves and for the UK more generally. This is an area specifically identified for investigation in the Sainsbury Report and one which the Engineering and Physical Sciences Research Council (EPSRC) and the Economic and Social Research Council (ESRC) wish also to support. EPSRC and ESRC will each provide up to £1m additional funding for projects that involve high quality physical and social science participation. Applications into this area will be assessed and awarded separately from the main competition. Where helpful to the exchange of best practice, the results from this work could be made public on a voluntary basis through an open innovation model.

More details of the thinking behind this work can be found in the joint Advanced Institute for Manufacturing/Technology Strategy Board report "High Value Manufacturing: Delivering on the Promise" at www.aimresearch.org. Particular note should be taken of Research Challenges 7, 8, 9 and 10. Work on value systems should also consider how far the opportunities to realise value for UK manufacturing are enhanced, or reduced, by factors outside the boundaries of individual businesses or specific value chains. Examples of how value realisation can be critically affected include: relationships with sources of finance; collaborations with universities, regionally, nationally and internationally; and regulatory and fiscal frameworks. Options for public policy to enable UK manufacturers to realise value more effectively might be identified.

Scope for Applications

In support of these aims, we wish to encourage applications for co-operative research which address the issues noted above and which could be based around the development of technology in the following areas:

- Modelling, Analysis and Simulation – predicting behaviour to optimise performance, reduce risk and accelerate time to market;
- High Value Products – creating new markets or substantially increasing share in existing markets, through innovative combinations of design and technology;
- Resource Efficient and Sustainable Processes – improving productivity or reducing material, energy and resource consumption in production processes;
- Disposal and Recycling – maximising the re-use of valuable resources at the end of life, re-manufacturing, or reducing the impact of disposal;
- Whole Life Planning – modelling whole-life costs and other parameters so that business offerings can be designed and evaluated accurately;
- Innovative Service Solutions and Condition Diagnosis – developing lifetime service offerings and diagnosing condition so that maintenance actions can be optimised;
- Design and Innovation Process – developing technologies to support rapid innovation, possibly within an international context, and supporting open innovation concepts; and
- Collaboration within Extended Operations and Value Chains – developing business tools for success within global networks and extended systems.

Industry Sectors Covered

The following industries, using the FTSE/Dow Jones ICB descriptions, are invited to participate in this competition. However, noting the earlier comments about the breadth of UK manufacturing, this list is not exclusive and competition is open to all industries where modern manufacturing principles are relevant.

Aerospace and Defence
Household Goods
Automobiles and Parts
Industrial Engineering
Leisure Goods
Chemicals
Oil and Gas
Construction
Personal Goods
Electronics and Electrical Equipment
Pharmaceuticals and Biotechnology
Food and Beverages
Support Services
General Industrials
Technology Hardware and Equipment
Healthcare Equipment
Utilities

Funding Allocation and Project Details

Larger projects will be considered but the case must be exceptional. Projects that are seeking in excess of £5m support must call the Technology Programme helpline on 01355 272155 before midday on 19th February 2009.

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 and ESRC, particularly in the Value Systems work, 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, through 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. The Guidance for Applicants (via the Competitions link at www.innovateuk.org) defines these categories of research.



Application Process

The process for this competition is in line with Technology Strategy Board policy which seeks to give opportunity for applicants to make an initial optional Expression of Interest (EOI) prior to their compulsory application. The optional EOI will be looked at by officials and a response given to applicants within three working days. Applicants may take advantage of this up to one week prior to the compulsory EOI deadline. The key dates for this Competition are the 19th January 2009 when the competition opens and the 26th February 2009 when the compulsory EOI must be submitted.

The Guidance for Applicants explains the process in detail. In short, applicants need to submit their Expression of Interest by 26th February 2009 and this will be reviewed and feedback given on 16th March 2009. During the period 19th January to 18th February applicants will be able to submit their outlines and receive initial comment on an optional and no commitment basis. Following the independent panel review the Technology Strategy Board will then invite the selected applicants to the full stage. For these applicants, in the week beginning 16th March 2009, there will be the opportunity to discuss the feedback with Technology Strategy Board officials by telephone; details can found via the Competitions link at www.innovateuk.org.

There will be an Information Day for all Technology Strategy Board collaborative R&D competitions in Bristol on 5th November 2008. There will be an optional briefing day specifically for this competition in London on 4th February 2009. These briefings are optional although potential applicants are strongly advised to attend one of the events if possible. Applicants invited to submit a full proposal will need to send one representative of their consortium to the compulsory briefing on 25th March 2009 in London. They will also need to register their intention to apply by 23rd April 2009 and submit their full application by 30th April 2009. Applicants will be informed of the outcome of their applications by 29th May 2009.

Key Dates

Information day	5th November 2008
Competition opens	19th January 2009
Briefing day (optional)	4th February 2009
Expressions of Interest deadline	26th February 2009
Feedback provided by	16th March 2009
Feedback discussion in week beginning	16th March 2009
Applicants briefing (mandatory)	25th March 2009
Registration of intent to submit (mandatory)	23rd April 2009
Deadline for receipt of full applications	30th April 2009
Decision and feedback to applicants	29th May 2009



More Information

For more information about this and other competitions and details of how to register and apply, please see Competitions at www.innovateuk.org.

Helpline:
01355 272155

Email:
competitions@tsb.gov.uk

The Technology Strategy Board advises on the selection of priority technology areas and is a business-led executive non-departmental public body, established by the Government. Its role is to promote and support research into, and development and exploitation of, technology and innovation for the benefit of UK business, in order to increase economic growth and improve quality of life.

The Technology Strategy Board
B1 North Star House
North Star Avenue
Swindon
SN2 1JF

Telephone: 01793 442700

www.innovateuk.org