Manufacturing, production and business processes / Office of Science and Technology.

TEC

KEY Points

TECHNOLOGY Foresight

PROGRESS THROUGH PARTNERSHIP

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MANUFACTURING, PRODUCTION AND BUSINESS PROCESSES

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Office of Science and Technology

THE SECTOR

Production activities - manufacturing, mining and quarrying and the utilities - account for 27.5% of UK GDP and the manufacturing segment of the production sector represents 22.6% of GDP. There are 130,000 manufacturing companies with a total of 4.4 million full-time employees. Almost 30% of manufactured output is exported and this accounts for 60% of UK exports. Over 1 million jobs in the service sector are directly dependent upon the manufacturing base and a further 3 million are indirectly dependent. Despite significant improvements in recent years, the UK manufacturing base in aggregate has lower productivity and lower growth than that in other industrialised nations.

THE FUTURE

The panel envisage a successful future where industrial competitiveness and wealth creation have been improved through increased productivity and increased exports resulting from more effective business processes, improved skills and organisational effectiveness, innovation, and improved product and process technology.

RECOMMENDATIONS

The panel has recommended action in the following areas:

- Increased Emphasis on Business Processes: Research on best practices, together with diffusion of practices throughout industry.
- Technology Priorities for Competitive Manufacturing and Production: Generic needs include multi-discipline projects; improved process plant technology; new sensors and controls; modelling, simulation and visualisation; material processes; IT and communications; and better academe/industry alignment.
- Improvements Through Education and Training: Particularly for business process/ teamwork skills and continuing education.
- Extended Vision for Manufacturing and Production Businesses: Better market knowledge, "foresight", and innovation.
- Improved Communications and Support Networks: Customer, partner and supplier networks; and network services for manufacturers.
- National Infrastructure for Improved Competitiveness: Action in particular for education, transportation, deregulation and finance.

FORWARD WITH FORESIGHT

The panel recommends actions in three priority areas:

1. Business Processes

Priorities:

- Improve knowledge and awareness of best business process practices
- Diffuse best practices throughout manufacturing and production industry
- Develop integrated design processes with product life-cycle support
- Improve training, organisation and management for business process effectiveness
- Perform international competitive benchmarking - including the science base
- Improve innovation, market knowledge, vision and networks of alliances

Actions:

Research Councils must create a national programme of research into best practices

The DTI and Trade Associations must assist industry implement best practices

The Education Departments and others must improve education and training on business processes

2. Technology

Priorities:

- In the science base, increase multi-disciplinary projects with manufacturing objectives
- Improve process plant productivity, quality, repeatability and effectiveness
- Develop processes, plant and equipment which meet future environmental needs
- Develop advanced sensors and controls
- Improve processes to effectively use new materials
- Develop modelling, simulation and visualisation for technical and business use
- Develop integrated IT systems supporting effective business processes
- Give recognition to academics contributing to industrial success

Actions:

Research Councils must increase emphasis on selected generic technologies

The HEFCs must change their research assessment criteria to assist industrial collaboration

Industry must improve its technology management, and share knowledge with academe

3 National Infrastructure

Priorities:

- Through education, improve understanding of manufacturing and production
- Through education, increase teamwork, communication and related skills
- Improve collaboration between industry and the science and technology base
- Strengthen networks which diffuse best practice and communication between firms
- Provide competitive base for a thriving manufacturing and production industry
- Encourage finance to assist longer term investment in industry

Actions:

Government must provide a competitive infrastructure and assist industrial growth

Government must work with industry and encourage firms to invest in the longer term

TECHNOLOGY FORESIGHT PROGRAMME

The purpose of the Technology Foresight Programme is to help business people, engineers and scientists become better informed about each other's efforts. It is bringing these communities together in networks - looking forward in partnership - which will help to identify emerging opportunities in markets and technologies. The Programme will also help to ensure that resources are used to best effect in support of wealth creation and improving the quality of life. The results of Foresight will inform decisions on spending by Government and industry. Foresight findings are available to small and medium sized enterprises which may not have the resources to undertake Foresight work on their own account.

The Technology Foresight Programme is co-ordinated by the Office of Science and Technology (part of the Cabinet Office). Foresight panels have been working in each of the following 15 sectors:

Agriculture, Natural Resources & Environment
Chemicals
Communications
Construction
Defence & Aerospace
Energy
Financial Services
Food & Drink
Health & Life Sciences
IT & Electronics
Leisure & Learning
Manufacturing, Production & Business Processes
Materials
Retail & Distribution
Transport

Summary leaflets (like this one) are available for each sector. Copies of these documents are available from the Office of Science and Technology, Albany House, 84-86 Petty France, London, SW1H 9ST (Fax: 0171-271-2015). Full reports for each sector are available from Her Majesty's Stationery Office.