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Contributors

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PROGRESS
THROUGH
PARTNERSHIP

10

MATERIALS

KEY Points



INFORMATION SERVICE

17 JUL 1995

Wellcome Centre for Medical Science

THE SECTOR

The materials sector sits at the centre of UK industry supplying a broad range of intermediate products to firms which add further value in the process of creating finished goods and services. Sectoral wealth creation depends upon adding value along the supply chain from raw material to finished product - either by reducing cost or developing new characteristics which prove attractive to consumers.

THE FUTURE

The materials panel has a vision of the future whereby continuous incremental advance in products and processes dominates the process of wealth creation. Unpredictable discoveries of new materials will, occasionally, have a significant impact. However, competitive advantage is most likely to accrue from many small discoveries rather than from one or two giant leaps.

RECOMMENDATIONS

The Technology foresight panel on Materials has recommended higher investment by the public and private sectors in:

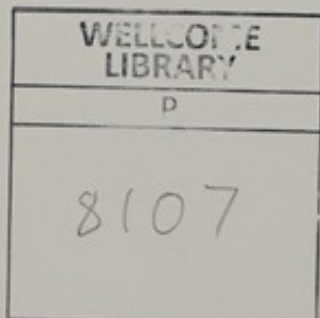
- a) the continuous improvement of existing materials and processes; and
- b) materials and processes which improve the environment and which have applications in health care.

SCIENCE AND TECHNOLOGY PRIORITIES

The panel has identified seven high priority areas which, in summary, are:

- (i) models which relate materials composition, structure and process parameters to end-product performance;
- (ii) improved sensor materials and devices and automated process control;
- (iii) biomaterials which promote the restoration and repair of body tissue;
- (iv) processing technologies which improve the environment;
- (v) weight-saving technologies for specific applications;
- (vi) higher temperature materials for specific applications; and
- (vii) processing techniques for high temperature superconducting materials.

Significant priority should also be attached to areas such as materials for IT and communications, durable joining techniques and surface engineering.



TECHNOLOGY Foresight



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FORWARD WITH FORESIGHT

The Technology Foresight panel on Materials recommends the following actions to drive forward the implementation of its recommendations.

To Promote Investment in the Improvement of Existing Materials and Processes

- (i) Companies and their supply chains should establish collaborative partnerships to agree the required improvements in existing materials and processes. **The Institute of Materials** might help establish these partnerships.
- (ii) A simple and rapid mechanism for **Government** supported partnership programmes should be established to fund research, in generic areas, aimed at specific targets.
- (iii) **Universities** should seek to catalogue and disseminate publicly available information from the UK and the rest of the world using electronic media.

To Promote Materials and Processes which Improve the Quality of Life

- (i) The **DTI** and the **Department of Environment** should ensure that regulations determining environmental standards are negotiated to permit the phased development of necessary standards in industry.
- (ii) Trade associations should promote commercial opportunities in environmentally friendly materials.
- (iii) UK expertise in new generation biomaterials should be harnessed and funded by a joint **Medical Research Council/Engineering and Physical Sciences Research Council** programme.

To Promote the Two Main Recommendations through Inter-disciplinary and Multi-disciplinary collaboration

- (i) The **Higher Education Funding Councils** should review the criteria applied in the Research Assessment Exercise to properly reflect the value of collaborative research between university departments.
- (ii) The **Research Councils** should ensure that a considerable proportion of funding is available for inter- and multi-disciplinary research.

To Improve the Education of Materials Scientists at Degree Level

- (i) The **Higher Education Funding Councils** should consider the need for more interdisciplinary courses, including engineering components.

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

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.