Defence and aerospace / Office of Science and Technology.

TEC

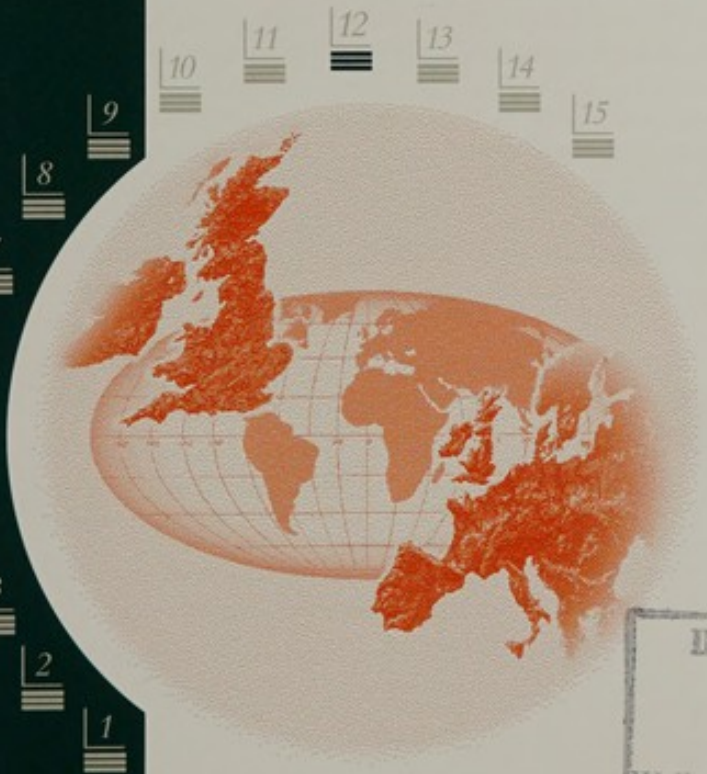
KEY Points

TECHNOLOGY *Foresight*

PROGRESS THROUGH PARTNERSHIP

12

DEFENCE AND AEROSPACE



Office of Science and Technology

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THE SECTOR

Defence and Aerospace are major elements in the global economy. In the UK, they contribute significantly to wealth creation and quality of life, both directly and in terms of technology spin-off to other sectors. Aerospace alone contributes a £2-3B surplus to the UK's trade balance. The UK is a leader in design and manufacture of advanced systems, deriving from programmes of R&D supported by Industry and Government. In both Defence and Aerospace, the UK's market opportunities are enhanced by the operating competitiveness of UK companies which has improved radically over the past 15 years.

The role of Government is more important in Defence and Aerospace than in any other industrial sector. In Defence and Aerospace, governments ***are*** market forces and, in terms of UK technology, the Defence Research Agency is a key national resource.

THE FUTURE

Defence and Aerospace are important markets for the future. The global market for Civil Aerospace is likely to grow significantly over the next 10-20 years. The UK is well placed to exploit this growth, through its involvement in the Airbus project, because of strong market positions in aeroengines and the equipment sector, and in market niches such as aerostructures and civil helicopters. Defence markets, although declining since the end of the Cold War, remain very substantial and offer many opportunities to exploit new technologies. New technologies are changing the nature of warfare, and new demands on defence forces require new technological solutions.

The sectoral issue for the UK is whether it wishes to continue as a leader. The UK is in competition with other economies, notably the US, France and Germany, to host a significant share of the world Defence and Aerospace industry. To continue as a leader the UK must set strategic goals similar to those adopted by our competitors who are making vigorous efforts to sustain their product and technology bases. We cannot continue 'consuming our technological inheritance' - and must begin now to regenerate our product range by adequately funded, well-focused investments in new technology.

The Panel's Vision, towards which its recommendations are geared, is:

Industry, Government and Academia working in partnership so that UK Defence and Aerospace continues as a major contributor to wealth and national security.

FORWARD WITH FORESIGHT

The following technology areas should be given particular priority in industry and the universities in view of their high potential impact:

- Systems Integration
- Process Technologies
- Materials and Structures
- Simulation, Modelling and Synthetic Environments
- Aerodynamics (including Emissions and Noise)
- Sensor Systems, Data Fusion and Data Processing
- High-integrity, Real-time Software

If the UK is to sustain its competitive position, Industry and Government must reverse the trend of declining R&D investment and facilitate the exploitation of technology. The Panel recommends that mechanisms for Government funding should be revised to increase the focus on wealth creation and to provide a better balance between the phases of basic research, applied research and technology demonstration. Specifically, the following is proposed:

- Two new **University-linked Applied Research** schemes should be established, focused on **Dual-Use Technologies** (£24M pa) and **Civil Aerospace** (£40M pa) with a significant industrial contribution to ensure market relevance and commitment to exploit the results.
- The level of DTI funding for **Industrial Applied Research in Civil Aerospace**, through the Civil Aircraft Research and Demonstration (CARAD) scheme, should be increased to £25M pa with a matching contribution from Industry.
- **Technology Demonstrator Programmes** (TDP) should be increased significantly. DTI funding for Civil Aerospace TDPs should be increased to £30M pa immediately, rising to £65M pa over three years, with Industry providing a similar level of funding. The level of activity in MOD-funded Defence TDPs also needs to be increased.

A number of other significant policy issues must be addressed if UK Defence and Aerospace is to exploit fully the technology which this country has, or can develop:

- **The Challenge to Companies**. Companies must develop and implement plans to increase industry R&D investment significantly against long term technology goals.
- **National Strategies for Defence and Aerospace Technologies**. Industry, Government and Academia should establish strategy frameworks for Defence and Aerospace technologies.
- **MOD Procurement Policy**. Government and industry should review MOD procurement policies to place more emphasis on UK industry competitiveness and wealth creation.
- **Market Distortions**. Government, with Industry support, should establish effective means to monitor and correct market distortions.
- **International Defence Collaboration**. Government must accelerate where appropriate the establishment of common defence requirements and acquisition in Europe.
- **Financing**. Industry and Government, in partnership, should work to reverse the current declining UK spend on research and demonstration.
- **Air Traffic Control**. The UK should seek to work within Europe to define standards for an advanced air traffic control system and participate in supporting demonstrator activity.
- **Space**. Consideration should be given to adjusting the balance between national and European funding and reforming European and UK space institutions.
- **Skills**. Undergraduate training in multi- and inter-disciplinary subjects supporting the Panel's key technical priorities should be developed.

The Defence and Aerospace Panel will, as part of on-going Foresight activities, work with relevant Government Departments and the Defence and Aerospace community to set the strategic objectives for Defence and Aerospace technology over a 15-year perspective and to address the means of achieving these objectives. The stakes are high in terms of security, wealth creation, trade and employment. The Panel believes that, by implementing the Foresight recommendations, the UK can respond to the competition and take a major step towards increasing, not just maintaining, its share of a substantial global market.

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.

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TECHNOLOGY Fore*sight*

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