

which are not initially allocated to European astronomers when exclusive rights to it have expired after one year.

The SRC believes that its proposal stands a good chance of success because it would use Britain's Starlink facility which already employs highly sophisticated methods of image processing to analyse data from ground-based telescopes. The Royal Observatory in Edinburgh houses one of Starlink's six nodes. European astronomers would be able to access space telescope data quickly by travelling to Edinburgh or only slightly more slowly at one of the sites of the five other nodes, three of which are within easy reach of London, the other two being in Manchester and Cambridge. One of the main reasons for choosing Edinburgh rather than any of the five other institutes housing a node is that from next October, Dr Malcolm Longair will be director of the Edinburgh observatory. He has been closely involved in the space telescope programme since its inception.

To cope with the enormous increase in data, however, facilities at the Royal Observatory would need to be expanded, particularly by enhancing the existing image processing unit and building a special unit to cope with the data.

ESA plans to pay about £66,000 towards the capital cost of the facility, about £33,000 per year towards running costs and the salaries of seven staff. The host institution will be expected to find the rest of the cost from its own pocket.

The SRC estimates that to build the facility at Edinburgh, it would have to provide about £250,000 and pay for an extra five staff.

Judy Redfearn

German workforce

Ten years on

Microcircuits and other new technologies likely to be adopted in the 1980s in West Germany will result in the loss of 1.8 million jobs in some low-skill sectors, and a gain of 1.9 million in other higher-skill occupations, says a new forecast commissioned by three Federal German ministries.

This massive shift in employment will require government policy "specifically shaped to counteract what will be an increasing tendency towards conflict in the community" says the report, prepared by Mackintosh Consultants Ltd of the UK and Prognos AG of Basle.

The German government has described the report as a brilliant study and awarded the teams a prize for their efforts. Mackintosh Consultants reviewed probable technical developments by making studies in the UK, Japan, Germany and the USA; and Prognos AG looked at social and economic factors, including union and management attitudes affecting their

Economically active persons classified by type of activity in FRG for 1977 and 1990

Field of activity	Economically active persons		Change: 1990 compared to 1977 (%)
	(thousands)		
	1977	1990	
1 Mainly management functions	922	1,104	19.7
2 Office work	3,863	3,611	-6.5
3 Entertainment, publishing	125	152	21.6
4 Education	897	1,076	20.0
5 Cleaning operations	872	1,002	14.9
6 Installation, repair and maintenance of machinery	2,224	2,695	21.2
7 Specialized consulting, R&D	1,171	1,604	37.0
8 General supply services	2,343	2,150	-8.2
9 Special supply services	498	470	-5.6
10 Assemblers and assistants	2,467	2,144	-13.1
11 Rail transport	199	165	-17.1
12 Road and sea transport	748	797	6.6
13 Operating processing plants	1,396	1,000	-28.4
14 Special tasks in manufacture of metal products	780	801	2.7
15 Special tasks in construction	1,371	1,095	-20.1
16 Special tasks in food, beverages, tobacco	501	531	6.0
17 Special tasks in agriculture	1,610	1,372	-14.8
18 Special tasks in mining	151	132	-12.6
19 Special tasks in manufacture of clothing	200	200	0
20 Special tasks in printing	151	104	-31.1
21 Transmission of information	176	157	-10.8
22 Health services	727	917	26.1
23 Legal advice, business consultancy	126	158	25.4
24 Security functions	927	1,120	20.8
25 Test, measurement	376	371	-1.3
26 Others	100	64	-36.0
Total	24,921	24,992	0.3

introduction in the current decade. Both studies were detailed and sectional, dividing the economy into at least 50 sections and jobs into 26 categories, all of which were looked at individually (see table).

The study identified 15 sensitive sectors of the German economy where the pressure to innovate was great, but the ability to respond small. Prominent among them were the chemical industry and refineries, where the price of imported oil will require conversion to new feedstocks; but conversion will require massive investment in new capital equipment, new skills in the workforce and possibly new locations for industry to meet the distribution requirements of new raw materials.

Jobs directly connected with the introduction of the new technologies — such as installation, and the repair and maintenance of what may initially be unreliable (because untested) technologies — would increase during the 1980s by 471,000. But typically the qualifications required in the new jobs will be far in excess of the jobs being eliminated: spotting if a cherry is on a cake requires less education than spotting the fault in the device which detects cherries on cakes.

The area in which most jobs would be lost is in the operation of processing plants, largely through the introduction of micro-processors to handle decision-making on production lines. Here, the report estimates, there will be 396,000 fewer jobs in 1990 than there were in 1977. "Assembly", categorized separately in the study, would also lose 323,000 jobs, through reductions in numbers of components and the automatic assembly of, for example, television sets.

The Bundesministerium für Forschung und Technologie (BMFT) have estimated

the range of unemployment which might follow from the Mackintosh-Prognos scenario, given different conditions of economic growth and government and industrial investment. At a pessimistic level of 2 per cent annual growth in gross national product (compared to the Mackintosh-Prognos estimate of 2.9 per cent), investment would be expected to be low, and unemployment would rise from 1.03 million this year to 2.23 million in 1985 and 2.4 million in 1990. It would fall again to 1.44 million in 1995, the BMFT estimate.

Mackintosh's project director for the study, Mr Tom Jacobs, said last week the likely speed of innovation would be great in the next decade but would need great social change. Hence, says the report, Germany must develop "a high level of social communication and willingness to support common objectives, which is only possible if based upon a high level of overall understanding of where the community's best interests lie. Thus, the management of social learning processes becomes a central task in politics."

Robert Walgate

Environmental carcinogens

Nitrite safe?

The US processed-meat industry received a welcome reprieve last week when the Food and Drug Administration (FDA) and the Department of Agriculture (USDA) announced that there was "insufficient evidence" to label sodium nitrite — a widely used meat preservative — a carcinogen.

Two years ago results of experiments contracted by the FDA to Dr Paul M. Newberne, Professor of Nutrition and Food Sciences at the Massachusetts