# 2 The companies involved, and the merger situations

## Part A: The companies

2.1. The companies involved in the merger situations are The General Electric Company plc (GEC), Siemens AG (Siemens) and The Plessey Company plc (Plessey). This chapter gives a brief history of GEC, Siemens and Plessey and a description of their present structure, management organisation and finance. In the case of GEC and Plessey we have drawn on, and updated, the information provided in the Commission's 1986 report[1] on a proposed merger between those two companies. The reader may wish to refer to this report for greater detail of the history of the companies and for more information on financial control.

### THE GENERAL ELECTRIC COMPANY PLC

### History and development

2.2. GEC is the eighth largest United Kingdom company by turnover, and is in the top three of United Kingdom manufacturing exporting companies. Its origins can be traced to the General Electric Apparatus Company which was formed in the mid-1880s and whose business in the manufacture of electrical fittings and telephones was transferred to GEC when it was incorporated as a private company in 1889. By the end of the 19th century GEC employed 3,000 people and in 1900 the company was made public by flotation on the Stock Exchange.

2.3. The First World War had greatly increased demand for electrical goods and as a result GEC expanded dramatically. The inter-war decades and the Second World War also saw further growth in the company. After the Second World War GEC considerably expanded its range of domestic electrical equipment. It is now one of the major United Kingdom manufacturing and exporting companies. The present size and shape of the group has been built upon a series of acquisitions, in particular of Associated Electrical Industries Ltd (AEI) in 1967 and the merger with The English Electric Company Ltd (English Electric) in 1968. At the end of the 1970s GEC acquired A B Dick Company of Chicago which manufactures and distributes duplicators, copiers and electronic publishing equipment and is also involved in non-impact automated identification coding and industrial marking. In 1979 it also acquired Averys Ltd, the leading United Kingdom company engaged in the manufacture, sale and servicing of weighing and processing equipment, and in 1978 GEC entered into a joint venture with Fairchild Instrument and Camera Corporation of the United States for production of integrated circuits, which was terminated after Fairchild's acquisition by Schlumberger.

2.4. In 1981 GEC acquired three more American Companies: Circuit Technology Inc, which designs and produces hybrid circuits; Picker International Inc, a major United States manufacturer of medical diagnostic imaging equipment; and Cincinnati Electronic Corporation, which designs and manufactures electronic equipment and components for military radio communications and aerospace projects. In 1985 GEC bought Yarrow Shipbuilders Ltd, and in 1987 acquired Creda, a manufacturer of a wide range of domestic electrical appliances; Gilbarco, which is the world's leading supplier of fuel dispensing and related products and services for motor vehicle and fuel retailing; and Lear Astronics and Developmental Sciences of the United States, a leader in the design, development and

[1] The General Electric Company plc and The Plessey Company plc: a report on the proposed merger. Cmnd 9867.

manufacture of advanced flight control systems and of remotely piloted vehicles. In 1988 GEC's subsidiary A B Dick Company acquired IGX Corporation (Itek), a leading US producer of pre-press printing and graphics equipment. In March 1988 GEC and Plessey combined virtually all their respective world-wide telecommunications activities to form a 50:50 joint company GEC Plessey Telecommunications Holdings Ltd (GPT), a business covering public and private switching, transmission and subscriber equipment, telephone cables, data products and auxiliary services. In December 1988 GEC announced that it had agreed a joint venture to combine its power systems operations with Alsthom, a subsidiary of CGE, France, and in January 1989 GEC and General Electric Company (GE) of the United States also agreed in a joint venture project to combine their European interests in consumer goods, medical equipment and some electrical equipment, and together to collaborate with Alsthom in gas turbine production.

2.5. Sales and operating profits of the GEC group in the past ten years are as shown in Table 2.1.

TABLE 2.1 **GEC: sales and operating profits, 1979 to 1988**

*£ million*

| *Year ended 31 March* | *Sales** | *Sales revalued by RPI (year ended March 1988 = 100)* | *Operating profits* (before interest and tax)* | *Operating profits revalued by RPI (year ended March 1988 = 100)* | *Operating profits as % of sales* |
|---|---|---|---|---|---|
| 1979 | 2,501 | 5,032 | 328 | 660 | 13.1 |
| 1980 | 3,006 | 5,222 | 360 | 625 | 12.0 |
| 1981 | 3,462 | 5,170 | 381 | 569 | 11.0 |
| 1982 | 4,190 | 5,613 | 431 | 577 | 10.3 |
| 1983 | 4,626 | 5,788 | 462 | 578 | 10.0 |
| 1984 | 4,800 | 5,736 | 501 | 599 | 10.4 |
| 1985 | 5,222 | 5,941 | 529 | 602 | 10.1 |
| 1986 | 5,253 | 5,643 | 508** | 546 | 9.7 |
| 1987 | 5,247 | 5,459 | 492** | 512 | 9.4 |
| 1988 | 5,553 | 5,553 | 561 | 561 | 10.1 |

*Source:* MMC study.

*Based upon the historical cost convention it excludes share of sales and profits of associated companies and intra-group sales.

**After deducting exceptional losses of £4 million in 1986 and £24 million in 1987.

*Note:* GEC's output prices have not moved in line with the RPI and the trend in sales revalued with reference to the RPI therefore cannot necessarily be interpreted as a measure of changes in the volume of output.

## GEC's current activities

2.6. In 1988 GEC reorganised its business structure into ten major groups:

*(a)* *Electronic Systems* is the largest area of GEC's operations, contributing one-third of the group's total sales. It includes a wide range of defence equipment and systems produced by the GEC Marconi group of companies, covering such fields as avionics, radar, guided weapons, communications, naval ships and space and underwater systems. Its activities extend, however, well beyond the defence field and include civil communications, broadcasting and traffic automation.

*(b)* *Power Systems* covers the areas of power generation, transmission and distribution, transportation and automation and control (excluding weighing equipment). The power generation activity embraces a broad range of large steam turbines, gas turbines, diesel engines, generators and energy systems. Power transmission and distribution includes a comprehensive power transmission systems capability and the manufacture of switchgear and transformers. The group is involved in railway transportation projects around the world, supplying traction equipment and railway signalling, and in the production of nuclear reactor equipment. The automation and control activities include airport lighting, energy

management, electricity meters and relays, steel plant automation, mine winding equipment and ship positioning control systems (for the offshore industry). As mentioned in paragraph 2.4, virtually all the activities of this group are to be merged with Alsthom in a joint venture, to create a world-leading power systems business.

(c) *Telecommunications* covers GEC's operations, merged with those of Plessey in GPT, supplying the public and private telecommunications markets at home and abroad, including production and distribution of a full range of public and private switching, transmission and subscriber equipment and telephone cabling.

(d) *Consumer Goods* includes the Hotpoint range of washing machines, driers and refrigerators; Creda electric cookers, heaters and other domestic appliances; Cannon gas cookers and fires; Redring electric kettles; showers; Xpelair extractor fans, and OSRAM-GEC (lamps and lighting) owned as to 51 per cent by GEC and 49 per cent by Osram GmbH, a wholly-owned subsidiary of Siemens. These businesses, other than OSRAM- GEC, are to be combined with GE's European consumer business in a jointly-owned European consumer group.

(e) *Electronic Metrology* comprises GEC's weighing equipment business carried on through its subsidiaries Avery and van Berkel of Holland (57 per cent owned) and its fuel- dispensing equipment operations through its US subsidiary Gilbarco, the world market leader in this field.

(f) *Office Equipment* and Printing covers the group's involvement in duplicating, offset printing and coding equipment through A B Dick of Chicago and its subsidiary Videojet Systems, and in pre-press graphic and composition systems through its recently acquired Itek subsidiary, which is being combined with A B Dick to create a business with a comprehensive range of pre-press, press and post-press equipment and related supplies.

(g) *Medical Equipment* comprises the business of Picker International Inc which specialises in high technology medical diagnostic imaging equipment and health care products.

(h) *Electronic Components* covers GEC's activities in semiconductors, power devices, micro-systems, microwave devices, electronic valves and tubes, electronic test and measurement systems, automatic test equipment, simulators and computer-aided design equipment.

(i) *Industrial Apparatus* covers industrial products such as wire and cable, lifts, fans and heating control systems.

(j) *Distribution and Trading* consists of overseas companies that largely act as agents and distributors of products made by other units in the GEC group, and GEC's United Kingdom electrical wholesaling operations.

GEC told us that there was much exchange of technology and overlapping of markets between certain groups. Underlying the great majority of GEC's varied activities in both electronics and electrical engineering is an extensive common involvement in research and development (R & D) in enabling technologies and a large degree of cross-product fertilisation and product development synergy.

2.7. A breakdown of GEC's sales and operating profits for the last five financial years is shown in Table 2.2, which also analyses sales between United Kingdom customers and overseas customers. GEC told us that its main growth areas are electronic systems and components, telecommunications and business systems, and consumer products.

## Organisation and management

2.8. The main Board of GEC comprises 21 directors of whom six are non-executive. The Group Managing Director (Lord Weinstock) has overall responsibility for the group supported by Mr Bates as Deputy Managing Director. Since April 1985 GEC has operated a United Kingdom Board of Management. This has brought together the senior group executives with the supervisory directors of

TABLE 2.2 **GEC: analysis of sales and operating profit by activity,* year ended 31 March**

*£ million*

| *Area of activity* | *1984* Sales | *1984* Operating Profit | *1985* Sales | *1985* Operating Profit | *1986* Sales | *1986* Operating Profit | *1987* Sales | *1987* Operating Profit | *1988* Sales | *1988* Operating Profit |
|---|---|---|---|---|---|---|---|---|---|---|
| Telecommuniations | 446.0 | 92.1 | 453.7 | 63.1 | 529.3 | 65.6 | 512.8 | 72.8** | 492.1 | 81.2 |
| A B Dick, Videojet, Scriptomatic, Parnall | 274.3 | 1.6 | 283.8 | 18.6 | 245.4 | 21.2 | 230.1 | 23.5 | 217.5 | 25.5 |
| Total telecommunications and business systems | 720.3 | 93.7 | 737.5 | 81.7 | 774.7 | 86.8 | 742.9 | 96.3 | 709.6 | 106.7 |
| Electronic systems and components | 1,439.8 | 197.4 | 1,677.1 | 235.1 | 1,749.6** | 198.7** | 1,832.0** | 174.7** | 1,973.0 | 203.7 |
| Automation and control | 389.8 | 50.3 | 406.3 | 46.4 | 405.3 | 47.0 | 418.5 | 45.4 | 508.2 | 45.7 |
| Medical equipment | 433.1 | 24.1 | 469.1 | 29.3 | 416.9 | 22.2 | 396.0 | 26.0 | 365.3 | 20.7 |
| Power generation | 626.0 | 49.9 | 634.1 | 55.6 | 643.2 | 59.7 | 586.8 | 48.0 | 514.9 | 55.7 |
| Electrical equipment | 666.5 | 49.4 | 721.1 | 41.5 | 666.9 | 41.6 | 626.7 | 49.5 | 659.4 | 58.3 |
| Consumer products | 274.0 | 23.7 | 288.4 | 26.7 | 317.7 | 33.4 | 372.0 | 34.6 | 565.1 | 60.2 |
| Distribution and trading | 240.6 | 14.2 | 275.8 | 13.7 | 260.3 | 13.1 | 251.4 | 12.4 | 238.0 | 11.9 |
| Other activities | 10.2 | ( 1.5) | 13.0 | (1.1) | 18.0 | 5.4 | 21.0 | 4.9 | 19.0 | (2.2) |
| Total | 4,800.3 | 501.2 | 5,222.4 | 528.9 | 5,252.6 | 507.9 | 5,247.3 | 491.8 | 5,552.5 | 560.7 |
| United Kingdom customers | 2,171.8 | N/A | 2,407.3 | N/A | 2,586.6 | N/A | 2,564.2 | N/A | 2,924.5 | N/A |
| Overseas customers | 2,628.5 | N/A | 2,815.1 | N/A | 2,666.0 | N/A | 2,683.1 | N/A | 2,628.0 | N/A |
| Total | 4,800.3 | 501.2 | 5,222.4 | 528.9 | 5,252.6 | 507.9 | 5,247.3 | 491.8 | 5,552.5 | 560.7 |

*Source:* GEC.

*Figures are not published for GEC's current ten groups.

**After deducting exceptional losses:

| | | | | | |
|---|---|---|---|---|---|
| Telecommunications | | | | | 0.8 |
| Electronic systems and components | | 3.6 | | 23.2 | |

N/A = not available.

the main areas of the group's activities. The Board of Management meets to exchange ideas and examine matters such as GEC's research capability on a group-wide basis, and currently consists of ten full directors and seven associate directors and four others.

2.9. GEC is a decentralised company. Its many businesses are divided into separate strategic business units and treated as independent profit centres. Each is expected to make a profit and trading between units is carried out on an arm's length basis. At the same time, the units benefit from centralised GEC group facilities including research, computing services and training. Full details of GEC's financial planning and control system can be found in the Commission's 1986 report.

## Financial information

2.10. Financial information about GEC is reproduced in Appendix 2.1.

## Employment

2.11. In 1985/86 the GEC group had an average of 164,536 employees of whom 126,623 worked in the United Kingdom. GEC now employs some 147,000 people in some 165 operating units (excluding GPT), of whom 105,000 work in the United Kingdom. The reduction which has occurred since 1985/86 is mainly the result of the transfer of employees to GPT, which now employs some 24,900 people. GEC told us that approximately 17,500 of its employees in the United Kingdom were science and engineering graduates, and that in 1989 it intended to recruit a further 1,500 United Kingdom graduates now completing degree or higher diploma courses. GEC considered that the record of industrial relations within the group was good and that relations with the trade unions were cordial. GEC said that the job losses which had occurred during the GPT rationalisation had been brought about with little dispute and in almost all cases with voluntary redundancy terms.

## Exports

2.12. Over the past five years GEC's exports from the United Kingdom have grown from £1,208.0 million to £1,231.5 million, which is currently equivalent to 37.6 per cent of group sales in the United Kingdom.

TABLE 2.3 **GEC's exports from the United Kingdom, by area of activity, year ended 31 March**

*£ million*

| *Area of activity* | *1984* | *1985* | *1986* | *1987* | *1988* |
|---|---|---|---|---|---|
| Electronic systems and components | 410.9 | 411.3 | 456.8 | 538.3 | 578.3 |
| Total telecommunications and business systems | 40.5 | 31.5 | 39.5 | 37.5 | 40.8 |
| Automation and control | 121.3 | 110.7 | 110.2 | 129.2 | 118.7 |
| Medical equipment | 11.5 | 14.3 | 16.9 | 18.4 | 24.1 |
| Power generation | 358.6 | 366.5 | 413.2 | 385.6 | 301.2 |
| Electrical equipment | 239.2 | 277.0 | 214.9 | 156.9 | 128.5 |
| Consumer products | 23.5 | 21.5 | 22.7 | 24.1 | 39.1 |
| Distribution and trading | 2.5 | 2.2 | 1.9 | 1.1 | 0.8 |
| Total | 1,208.0 | 1,235.0 | 1,276.1 | 1,291.1 | 1,231.5 |

*Source:* GEC.

## Research and development

2.13. GEC told us that it had an outstanding record of technical achievement which was based on its commitment to R & D throughout the whole range of technologies used in its businesses. Altogether, the group spent about £670 million on R & D in 1987/88 and invested over £275 million

on new fixed assets to update its production facilities. In recent years GEC's R & D expenditure had increased significantly overall although the amount contributed to this funding by customers had declined. In part, R & D was carried out within the operating units; for example, the GEC/Marconi group had its own extensive R & D facilities. GEC also maintained four central research laboratories: the Hirst Research Centre at Wembley; the Marconi Research Centre at Great Baddow; and the Engineering Research Centre Laboratories at Stafford and Whetstone (part of GEC Power Systems). These operations employed some 2,400 people.

2.14. The GEC group's expenditure on R & D on a historical basis is set out in Table 2.4.

TABLE 2.4 **GEC group research, year ended 31 March**

*£ million*

| | *1984* | *1985* | *1986* | *1987* | *1988* |
|---|---|---|---|---|---|
| Total R & D* | 545 | 620 | 650 | 700 | 670 |
| Own funded* | 180 | 230 | 205 | 230 | 250 |
| Own funded (%) | 33 | 37 | 32 | 33 | 37 |

*Source:* GEC.

*£ million figures are rounded to the nearest £5 million.

## SIEMENS

### History and development

2.15. Siemens is the third largest company in the Federal Republic of Germany, and the largest electrical company in Europe. The origins of the company lie in the development of improved electrical telegraphy equipment by Werner Siemens. In 1847 Werner Siemens went into partnership with Johann Georg Halske, a precision instrument maker, and Johann Georg Siemens, a lawyer, under the title of Siemens & Halske Telegraph Construction Company. In England a small agency had been established in 1850 by Werner Siemens' brother Wilhelm (later Sir William) Siemens. This became a subsidiary in 1858 and subsequently changed its name in 1865 to Siemens Brothers. It was particularly involved at that time in the development of submarine cables.

2.16. Siemens' international reputation became established following its construction in the 1860s of the 11,000 kilometre-long Indo-European telegraph line. This was followed in the 1870s by Siemens' laying of six transatlantic cables, which led to Siemens' development in due course of telephone equipment for the world market.

2.17. From early days Siemens also undertook work in a number of different fields, including railway signalling and safety systems (in 1870 it developed the first automatic railway blocking system for preventing collisions between succeeding trains), electro-medical equipment and processes for the insulation of electrical conductors. It was the need to replace storage batteries as the source of electrical current in telegraph networks, however, that stimulated work on other means of providing electricity and led to the development by Siemens of one of the first commercially effective dynamos. Siemens' drum armature inductor was developed in 1872 and it was commercial opportunities for this invention which took Siemens into the mass production of electric power generation and transmission equipment.

2.18. Siemens also developed an inductor which was used in an early electric locomotive exhibited by Siemens at the Berlin Trade Fair in 1879, and which was also used in the construction of electric tramway systems in Berlin and Paris during that era.

2.19. By the turn of the century Siemens had establishments in Berlin, London, St Petersburg and Vienna. It had almost 11,000 employees and was heavily involved in all areas of the electrical

industry, including the construction of power stations and street lighting systems. In 1897 it had become a joint stock company under the name Siemens & Halske AG with capital of DM 35 million.

2.20. In 1903 Siemens & Halske AG acquired the works of a power engineering company, Schuckert & Co, and combined them with Siemens' own power engineering activities in a transfer to a newly-formed company, Siemens Schuckertwerke GmbH, with Siemens & Halske AG as the largest shareholder. Expansion was then rapid. By 1914 Siemens had production facilities in ten countries and branch offices in 49 countries. In England, Siemens Brothers & Co Ltd was a joint stock company with works in Woolwich (telecommunications and especially submarine cabling), Stafford (power engineering) and Dalston (incandescent lamps).

2.21. Following the First World War, Siemens lost all its business outside Germany. Although there was considerable retrenchment within Germany during the depression years, the core businesses remained in existence. Power engineering was particularly significant and the period also witnessed the development of diesel-electric and turbo-electric engines for railway locomotives and seagoing vessels. Joint ventures were entered into in the field of light bulb production (Osram) and the manufacture of radio equipment. In 1925 Siemens-Reiniger Verfa Co was formed which became Siemens-Reiniger Werke AG in 1932, which became a major manufacturer of electromedical products. In the early 1930s the company was also involved in the development of the first telex network in Germany. The Second World War resulted in major losses; as much as 80 per cent of the total assets of Siemens was lost as a consequence of war damage and occupation in Germany, and confiscation of assets abroad.

2.22. The rebuilding of the group in Germany began in the late 1940s amidst great political upheaval, currency uncertainty and financial hardship. For some years Siemens was prevented from engaging in any research work and, in order to reconstruct its overseas business, it had to repurchase confiscated assets. The subsequent relaxation of post-war restrictions and the provision of financial aid for Western Europe's rebuilding assisted in the re-emergence of Siemens as an international competitor in the 1950s. Siemens was able to contribute fully to the post-war `economic miracle' in the Federal Republic of Germany.

2.23. The completion of the task of reconstructing the world-wide group led in 1966 to a fundamental reorganisation of Siemens' businesses. The three separate companies which comprised the group at that time were the original Siemens & Halske AG (involved in low- voltage electrical products and public and private telephone systems), Siemens-Schuckertwerke AG (the power production and high-voltage electrical products company which had become wholly owned by Siemens & Halske AG in the 1930s), and Siemens-Reiniger-Werke AG. These three companies were amalgamated on 30 September 1966 into a single corporate vehicle, Siemens AG. Between 1966 and 1969 a group structure was created which has been generally maintained to the present day.

2.24. Among the examples of co-operation with other international companies, in the mid- 1960s Bosch and Siemens Hausgerate GmbH combined their consumer goods businesses in Bosch- Siemens Hausgerate GmbH; in 1973 Siemens went into a joint venture with Corning Glass to produce fibre optic cables; and in 1988 Siemens formed a joint venture with Asahi of Japan in the field of medical imaging equipment. Major acquisitions by Siemens since 1969 have been the shareholdings of General Electric and AEG in Osram, 50 per cent of KWU shares from AEG, certain telecommunications activities from GTE and the automotive electronics business of Bendix (USA). The period has been one of considerable growth by Siemens.

2.25. Sales and operating profits of the Siemens group in the past ten years are as shown in Table 2.5.

TABLE 2.5 **Siemens: sales and operating profits, 1979 to 1988**

*DM million*

| *Year ended 30 September* | *Sales* | *Sales revalued** | *Operating profits*** | *Operating profits revalued** | *Operating profits as % of sales* |
|---|---|---|---|---|---|
| 1979 | 28,022 | 36,148 | 753 | 971 | 2.7 |
| 1980 | 31,960 | 39,119 | 847 | 1,037 | 2.7 |
| 1981 | 34,561 | 39,780 | 1,024 | 1,179 | 3.0 |
| 1982 | 40,106 | 43,876 | 972 | 1,063 | 2.4 |
| 1983 | 39,471 | 41,800 | 593 | 628 | 1.5 |
| 1984 | 45,819 | 47,377 | 864 | 893 | 1.9 |
| 1985 | 54,616 | 55,271 | 1,536 | 1,554 | 2.8 |
| 1986 | 47,023 | 47,681 | 810 | 821 | 1.7 |
| 1987 | 51,431 | 52,048 | 997 | 1,009 | 1.9 |
| 1988 | 59,374 | 59,374 | 1,218*** | 1,218*** | 2.0 |

*Source:* Siemens.

*Revalued by West German consumer's price index (CPI) (1988 = 100).

**Consolidated accounts are prepared on an historical cost basis in accordance with the German Financial Accounting Directives Act and conform with the requirements of German tax laws in order to obtain maximum tax reliefs. These figures are not therefore directly comparable with those shown for the British companies.

***Before write-down of an investment.

*Note:* Output prices of Siemens have not moved in line with the CPI and the trend in sales revalued with reference to the German CPI therefore cannot necessarily be interpreted as a measure of changes in the volume of output.

## Current activities

2.26. The activities of Siemens are divided into seven main corporate groups:

*(a) Energy and Automation*. This group offers a full range of automation equipment and systems for industry and power distribution. In the year ended 30 September 1988 it contributed sales of DM 13.0 billion, 20 per cent of Siemens' total sales. Exports exceed DM 3 billion per annum. Main activities involve the supply of factory automation systems, including process control products and complete systems that regulate and co-ordinate the many processes involved in power generation, iron and steel production, sewage treatment, and manufacturing, especially car production.

*(b) KWU Group*. A decade ago Siemens bought AEG's interest in Siemens'/AEG's joint power generation and distribution business. This group now accounts for approximately 21 per cent of Siemens' total sales world-wide. The business of the group includes the design and operation of nuclear and fossil-fired power plants, power generation through hydroelectricity, general power plant services, transformers, nuclear fuel recycling, environmental engineering, biotechnology, and offshore and laser technology. The production and sale of high- and medium-voltage switchgear, systems for the control of networks and very high-voltage circuit breakers for the protection of equipment from electrical power fluctuations or damage caused by faults in other parts of a network are also now part of the group.

*(c) Communication and Information System*. The group was formed in 1984 in recognition of the convergence of computing and communications in terms both of technical considerations and marketing. This group in 1987/88 accounted for nearly 18 per cent of Siemens' total world sales to the value of DM 10.5 billion. Export sales amounted to nearly 25 per cent. About half of the group's business is accounted for by sales of data systems and associated hardware and software. The group is also responsible for the development, manufacture and supply of communication terminals, including telephones, videotex terminals, fax systems, teletext and telex terminals and office printers.

(d) *Telecommunication Networks and Security Systems*. This group contributed approximately 17 per cent of Siemens' sales in 1987/88. The business of the group includes the Siemens EWSD fully digital, stored-program-controlled public switching system which is now installed, or ordered for installation, in some 30 countries throughout the world. Some 8 million subscriber lines were in operation world-wide by 31 December 1988, with 17.4 million lines planned to be in operation by 30 September 1990. Transmission equipment includes optical fibre cable and the requisite opto-electronic components, satellites and satellite earth stations for both Intelsat and Eutelsat, and cellular telephone network equipment; and the development with Ericsson of the radio sub-system and components for possible use in an all digital cellular telephone system to a unified European standard. This group is also an innovator in the field of traffic information and guidance systems and is a leading world-wide supplier of a microprocessor-controlled interlocking system for railways. This group is also responsible for the development, production and sale of Siemens defence products.

(e) *Medical Engineering*. Siemens has been working with X-rays since before the turn of the century and has long been a world leader. Sales of DM 5.3 billion for 1987/88 contributed 9 per cent of Siemens' total sales world-wide. In this sector a high proportion of sales (some 50 per cent) were made outside Germany and the project range extends from the most modern X-ray equipment and magnetic resonance imaging equipment to heart pacemakers and dental and hearing equipment.

(f) *Electrical Installations and Automotive Systems*. In 1988 this group contributed sales of DM 4.4 billion, representing approximately 7 per cent of Siemens' total sales world-wide. 40 per cent of its sales were to markets outside Germany. The group's traditional business consists of manufacturing cables, as well as electrical installations systems, and lighting and air-conditioning systems for the construction industry. It is also a top supplier on the world market for large-scale lighting projects such as airports, streets and motorways, buildings and public auditoriums. More recently the group has moved into the fast-growing market of automotive electronic systems, supplying the automotive industry with equipment, such as electronic ignition, on-board computers, and security devices.

(g) *Components*. In 1987/88 this group contributed approximately 4 per cent of Siemens' total world sales. The group is engaged in the development, manufacture and sale of passive components, semiconductors and electron tubes.

## Siemens' United Kingdom activities

2.27. Siemens employs 2,500 people in the United Kingdom. Sales in, and exports from, the United Kingdom amounted to £238 million and £7.9 million respectively in the year to 30 September 1988.

2.28. Siemens' United Kingdom operations today are based primarily at Siemens plc in Sunbury-on-Thames, Middlesex, which handles the sales and distribution of Siemens products throughout the United Kingdom and is engaged in the production of printed circuit boards, using the latest techniques, and high-powered amplifiers. Other activities of the group in the United Kingdom include the production and sale of electricity supply meters (through a wholly- owned subsidiary, FML Ltd in Oldham), hearing instruments (in Aylesbury), cardiac pacemakers (in East Kilbride), and studio sound recording equipment (in Melbourne). Siemens also owns Norton, based in Luton, which distributes PABXs and telephone key systems and provides installation, maintenance and enhancement services for such systems. Norton's sales in the year to 30 September 1988 were £30 million. Siemens plc also has three principal software development facilities in the United Kingdom, for factory automation equipment, for systems development for mainframe computers running on UNIX, and for special-purpose software for communications equipment. Factory automation equipment is produced in its factory in Congleton in addition to systems hardware design and development. The systems design facility was initially established in 1977 to fulfil the requirements of a Ministry of Defence contract but its operations have since expanded beyond that first project. This part of the company has developed some notable systems and equipment in its ten years of existence: for example, high- powered amplifiers for satellite communication systems based on

travelling wave tube technology have been exported to a number of PTTs throughout the world, including the Federal Republic of Germany.

2.29. A breakdown of Siemens' sales by activity for the last five financial years is shown in Table 2.6. About 50 per cent of Siemens' sales consist of goods and services generated outside the Federal Republic of Germany. Siemens' policy is to establish development and manufacturing operations in all its significant overseas markets. Siemens told us that the international spread of its business has been particularly important in enabling Siemens to maintain a sound base for its operations at times when demand in its home market has been stagnant or sales in particular product markets have lagged. Two-fifths of all its capital investments are made abroad.

TABLE 2.6 **Siemens: analysis of sales by activity,* year ended 30 September**

*DM million*

| *Area of activity* | *1984* | *1985* | *1986* | *1987* | *1988* |
|---|---|---|---|---|---|
| Components | 2,732 | 3,158 | 2,829 | 2,765 | 2,939 |
| Energy and automation | 12,113 | 13,224 | 13,528 | 12,884 | 12,958 |
| Electrical installations and automotive systems | 3,240 | 3,332 | 3,668 | 4,057 | 4,351 |
| Communication and information systems | 7,372 | 8,715 | 9,547 | 10,334 | 10,510 |
| KWU (power plant business) | 8,340 | 12,425 | 4,089 | 7,138 | 12,737 |
| Medical engineering | 4,015 | 4,531 | 4,775 | 5,008 | 5,327 |
| Telecommunication networks and security systems | 7,991 | 9,516 | 9,218 | 10,211 | 10,525 |
| Osram (lamp business) | 1,690 | 1,892 | 1,992 | 2,038 | 2,268 |
| Other and consolidation | (1,674) | (2,177) | (2,623) | (3,004) | (2,241) |
| Siemens world-wide | 45,819 | 54,616 | 47,023 | 51,431 | 59,374 |

*Source:* Siemens.

*Siemens supplied figures of operating profit but requested that they be kept confidential. As they are not central to any of the issues involved in the inquiry the Commission acceded to this request.

*Note:* 1987 and 1988 figures are in accordance with the German Commercial Code revised by the German Financial Accounting Directives Act. 1987 figures have been adjusted retrospectively due to organisational changes. Prior years' figures are not directly comparable.

## Organisation and management

2.30. Siemens told us that like all German public companies governed by the Aktiengesetz, Siemens AG has two Boards, the Supervisory Board and the Management Board. The Supervisory Board (Aufsichtsrat) is a non-executive, supervisory or advisory Board elected by:

*(a)* shareholders or their representatives, which usually include commercial banksmost German shareholders keep their stock portfolios deposited with banks which are generally authorised to cast their customer's vote at stockholder meetings; and

*(b)* the employees, in accordance with the German law on co-determination (under this 1976 Act the Supervisory Board of a company with a workforce exceeding 2,000 is made up of an equal number of shareholders' and labour representatives. In the event of a deadlock, the deciding vote rests with the shareholders' side).

2.31. Members of the Management Board cannot be members of the Supervisory Board. The Supervisory Board, which meets about four times a year, considers the annual financial statements and appoints the members of the Management Board. In general it becomes involved only in broad longer-term policy decisions.

2.32. The Management Board (Vorstand) is the executive body of the company and conducts the day-to-day business. The President and Chief Executive Officer (Chairman of the Managing Board, presently Dr K Kaske) together with the heads of the groups decide on the allocation of business sectors to the groups, the organisation of the groups into product divisions and the lines of demarcation between the groups.

2.33. The whole Management Board meets four times a year on matters of specific or fundamental importance and events affecting the company as a whole. Siemens' Management Board operates through committees, sub-committees and preparatory plenums.

2.34. The Central Committee (Zentralausschuss), which meets monthly, establishes the budget framework, develops consensus on the company's business strategy, monitors and evaluates overall performance, and receives reports on and discusses the economic situation in order to adjust the input factors. The Investment Committee (Investitionsausschuss), which may meet as often as 20 times a year, decides and approves capital expenditure and investments above a certain level and large projects overseas.

2.35. Other Board committees deal with matters such as R & D (Vorstandsausschuss für Forschung und Technik) and general matters of personnel and social policy (Vorstandsausschuss für Personal und Sozialpolitik). Ad hoc committees are established for specific issues (eg the committee for integrated circuit technology development).

2.36. Siemens, which comprises Siemens AG together with its regional offices (Zweigniederlassungen), foreign subsidiaries (Landesgesellschaften), and other fully-or partially- owned companies for which it has management responsibility, is organised into groups by product line (Unternehmensbereiche und Geschäftsführende Bereiche) supported by corporate divisions (Zentralabteilungen) and regional units (Bereich Regionen). The corporate divisions advise the groups and affiliated companies and co-ordinate their activities. The regional units bring together and support the activities of Siemens' groups and companies in a particular area or country.

2.37. The groups, whose businesses are defined in terms of product markets and not according to national boundaries, are given a high degree of management independence. The groups (see paragraph 2.26) are the operational vehicles for carrying on Siemens' businesses. Each group is responsible for its world-wide activities within the business sector assigned to it by the Board, including R & D, manufacturing, marketing and sales. It comprises the business conducted through the domestic regional offices and foreign subsidiaries as well as the direct business with customers. The groups are responsible for the financial results of their world- wide business including the imposition of financial controls, and ultimately for personnel matters. The groups are currently being reorganised in order to achieve further decentralisation. The seven groups will be increased to about 15 by 1 October 1989.

## Financial information

2.38. Siemens' financial information is summarised in Appendix 2.1. Siemens told the Commission of the various differences between the accounting principles applied in the preparation of financial statements as between German and United Kingdom companies. In its view, the main differences result in absolute and relatively lower equity and profit figures appearing in German financial statements than in United Kingdom companies with the same profitability. It believes an appropriate indicator for comparing Siemens' profitability with that of United Kingdom companies would be cash flow expressed as a percentage of sales, because, it says, cash flow is not affected by valuation principles. Siemens has calculated its cash flow figures, which it believed are comparable with major United Kingdom electronics companies, for the fiscal years 1985 to 1987 as follows:

| | | | *per cent* |
|---|---|---|---|
| | *1985* | *1986* | *1987* |
| Siemens group | 14.0 | 13.1 | 12.6 |

## Employment

2.39. Of the 353,000 Siemens employees world-wide, 223,000 are employed in Siemens' operations in Germany. Approximately half the total workforce is engaged in the manufacturing of Siemens' products, while a further 12 per cent is occupied in R & D activities. Siemens told us that it has a high commitment to training its employees to equip them fully for the increasingly skilled careers which are available in a group of its size and diversity: for example, outside Germany Siemens has 34 trainee workshops for its employees in 15 countries. Siemens also told us that it had a first class industrial relations record world-wide.

## Exports

2.40. Over the past five years Siemens' exports from the Federal Republic have grown from DM 11,822 million to DM 13,830 million and this is currently equivalent to 31 per cent of group sales in the Federal Republic (see Table 2.7).

TABLE 2.7 **Siemens: exports from the Federal Republic of Germany by area of activity, year ended 30 September**

*DM million*

| *Area of activity* | *1984* | *1985* | *1986* | *1987* | *1988* |
|---|---|---|---|---|---|
| Energy and automation | 3,183 | 3,395 | 3,087 | 3,429 | 3,016 |
| KWU (power plant) | 1,463 | 725 | 1,330 | 1,155 | 1,797 |
| Communication and information systems | 1,166 | 1,622 | 1,735 | 1,837 | 1,738 |
| Telecommunication networks and security systems | 2,162 | 3,321 | 2,546 | 2,323 | 2,392 |
| Medical engineering | 1,366 | 1,484 | 1,756 | 1,744 | 1,913 |
| Electrical installations and automotive systems | 422 | 422 | 416 | 471 | 496 |
| Components | 1,080 | 1,147 | 1,133 | 1,189 | 1,379 |
| Lamp business | 558 | 644 | 699 | 724 | 789 |
| Other | 422 | 534 | 550 | 333 | 310 |
| Total | 11,822 | 13,294 | 13,252 | 13,205 | 13,830 |

*Source:* Siemens.

## Research and development

2.41. Siemens told us that it considered it was vital in the sophisticated and technological world markets in which it operated for it to continue to show a high commitment to R & D and to develop its world-wide sales in order to enable that commitment to be funded. Without commercial success on a world-wide scale a high level of R & D could not be sustained. R & D activities within Siemens are divided between the central research facilities and the operating divisions in the following way:

*(a)* Corporate activities centre on pre-competitive research, such as basic know-how on material systems and software. This is longer-term R & D likely to benefit a range of Siemens' business. Research costs are included in the corporate overhead.

*(b)* Direct product development is only carried out by central research facilities for the divisions upon request, in which case costs are allocated to that division.

*(c)* Production and process development is organised, performed and paid for by operating divisions which are fully responsible for all development activities.

2.42. Siemens' group expenditure on R & D on a historical basis is set out in Table 2.8.

TABLE 2.8 **Siemens: group research, year ended 30 September**

*DM million*

| | *1984* | *1985* | *1986* | *1987* | *1988* |
|---|---|---|---|---|---|
| Total R & D | 3,803 | 4,799 | 5,403 | 6,211 | 6,480 |
| Own funded* | 3,700 | 1,650 | 5,250 | 5,900 | 6,200 |
| Own funded (%) | 97 | 97 | 97 | 95 | 96 |

*Source:* Siemens.

*Rounded to the nearest DM 50 million.

## THE PLESSEY COMPANY PLC

### History and development

2.43. Plessey is a smaller company than either GEC or Siemens, but it is well established across a wide range of electronics activities. It was founded in 1917 to carry out jobbing engineering work. Between the two World Wars the company expanded into the manufacture of radios for civil and military use, components and telephone handsets. It also engineered and manufactured the first mass-produced television set (designed for the Baird system). After the Second World War Plessey concentrated its activities on the design and manufacture of electronics components and equipment for both civil and military uses.

2.44. In 1957 Plessey built one of the first semiconductor factories in the United Kingdom. During the 1960s it made a number of acquisitions which enabled it to concentrate on solid- state technology and on the production of complete systems for civil and military communications, military radar and traffic control. At the same time it acquired increasing experience in the development and manufacture of electronics components and high purity materials.

2.45. During the middle and late 1970s Plessey recognised the importance of digital technology for the future of the communications industry and decided to concentrate on the development of the use of silicon, optical fibre and gallium arsenide with the objective of building up an integrated electronics company in three core areas of business: telecommunications; defence communications and electronics systems; and technologically-advanced high value-added microelectronics and components.

2.46. In 1982 Plessey expanded further with the acquisition of Stromberg Carlson Corporation which designs and manufactures telecommunications equipment in the United States. In 1984 it acquired a 35 per cent interest in Elettronica SpA, an Italian designer and manufacturer of electronic warfare equipment, and in 1985 Plessey acquired Ameeco (Hydrospace) Ltd, a United Kingdom manufacturer of towed array sonars.

### Recent developments

2.47. Since 1986 Plessey has continued to consolidate its presence in the United Kingdom and to establish an indigenous presence in important overseas markets. In April 1988 Plessey merged its telecommunications equipment activities with those of GEC to form GPT. This merger has given Plessey a 50 per cent interest in a business which it believes to be large enough and profitable enough to be viable as a long-term competitor in the world market. In microelectronics, it complemented its own semiconductor activities earlier that year by purchasing Ferranti Semiconductors, a pioneer in ASICs and logic arrays.

2.48. In order to achieve a strategic presence in global markets, particularly in defence activities, Plessey acquired a number of overseas companies: in September 1988 the Electronic Systems Division of The Singer Company (USA), which designs, develops and manufactures sophisticated

electronics systems predominantly for military aircraft; in December 1987 Sippican, a United States company which manufactures products complementary to those of Plessey Naval Systems; and in March 1988 Leigh Instruments Ltd, a Canadian company supplying avionics equipment, navigation systems, flight data recorders, ice detector systems, and a shipboard integrated internal communications system, known as SHINCOM. Then in July 1988 Plessey increased its stake in Elettronica SpA to 49 per cent.

2.49. In the network services sector, Plessey, in a joint venture with Racal, established Orbitel in 1987, to consolidate the mobile radio equipment manufacturing activities of the two companies. In April 1988 Plessey joined with Telenet, a major data packet switching company based in the USA, to form Plessey-Telenet, and in September 1988 Plessey acquired Hoskyns, one of the largest and longest established computer services companies in the United Kingdom. Also in 1988 Plessey formed Plessey Traffic Systems International Ltd, a European traffic management systems company.

2.50. Other significant developments during the last three years have been Plessey's disposal of Plessey Peripheral Systems, Plessey Connectors, Plessey Wound Products and Plessey Microsystems; the formation of a joint venture between Plessey's Birkby's Plastics and Kautex Werke of West Germany; and the acquisition of Fisher Controls to supplement Plessey Controls' expertise in the field of environmental systems and nucleonics, and of Nash Engineering's interests in aerospace.

2.51. Sales and operating profit results of Plessey during the past ten years are shown in Table 2.9.

TABLE 2.9 **Plessey: sales and operating profits, 1979 to 1988**

*£ million*

| *Year end March* | *Sales** | *Sales revalued by RPI (year end March 1988 = 100)* | *Operating profits* (before interest and tax)* | *Operating profits revalued by RPI (year end March 1988 = 100)* | *Operating profits as % of sales* |
|---|---|---|---|---|---|
| 1979 | 648.3 | 1,302.8 | 44.6 | 89.6 | 6.9 |
| 1980 | 751.0 | 1,303.6 | 66.3 | 115.1 | 8.8 |
| 1981 | 844.5 | 1,260.4 | 86.0 | 128.3 | 10.2 |
| 1982 | 985.2 | 1,318.7 | 100.1 | 133.9 | 10.2 |
| 1983 | 1,119.7 | 1,399.8 | 119.0 | 148.8 | 10.6 |
| 1984 | 1,252.4 | 1,495.9 | 146.3 | 174.7 | 11.7 |
| 1985 | 1,415.7 | 1,609.5 | 143.3 | 162.9 | 10.1 |
| 1986 | 1,461.1 | 1,568.2 | 162.5 | 174.4 | 11.1 |
| 1987 | 1,429.7 | 1,487.7 | 166.2 | 172.9 | 11.6 |
| 1988 | 1,300.9 | 1,300.9 | 148.6 | 148.6 | 11.4 |

*Source:* MMC study.

*Based upon the historical cost convention subject to periodic revaluation of freehold and long leasehold properties; also excludes share of sales and profits of associated companies and intra-group sales.

*Note:* Plessey's output prices have not moved in line with the RPI and during the period there have been substantial changes in the nature of Plessey's business. The trends in sales and profits revalued with reference to the RPI therefore cannot necessarily be interpreted as a measure of changes in the volume of output.

## Plessey today

2.52. Plessey told us that these corporate initiatives had strengthened its position in its main areas of activity:

*(a) Telecommunications*, which in the financial year ending March 1988 contributed about 47 per cent of turnover.

*(b) Electronic Systems and Equipment*, which accounted for more than one-third of turnover in 1987/88. This part of the business is predominantly in the defence field and the principal activities are radar, underwater systems, defence systems, military communications, avionics, cryptographic equipment and microprocessor-based systems. Plessey told us that it had a very

strong base in North America and 60 per cent of its defence order book was now outside the United Kingdom.

*(c)* *Aerospace and engineering* accounted for 8 per cent of turnover in 1987/88. The principal activities are microwave materials for `stealth' applications, systems and components for civil and military aircraft, electrical power units for tanks and fighting vehicles, product support services, and plastics.

*(d)* *Microelectronics and components* accounted for some 9 per cent of turnover in 1987/88. Major activities are silicon integrated circuits (bi-polar and metal-oxide silicon), gallium arsenide products and opto-electronics.

During the 1988/89 financial year the company was substantially restructured, with its telecommunications equipment interests being merged with those of GEC to form GPT and the creation of the new high growth Networks and Services product sector. The activities of Networks and Services include computer facilities management, software, traffic controls and measuring and monitoring equipment.

2.53. Table 2.10 analyses Plessey's turnover and operating profit over five years by main activity groups.

## Organisation and management

2.54. The main Board of Plessey comprises 14 directors of whom six are non-executive. Overall management of the group is vested in the committee of the main Board, the Executive Committee. The Chairman of the Executive Committee is Sir John Clark, the Chairman and Chief Executive of Plessey, assisted by the group's Managing Director, Mr S R Walls (who was appointed to the post in October 1988 after joining the company in July 1987 as Financial Director), and three other executive members of the main Board. The Board also has a separate Finance Committee which assesses the company's performance and determines financial strategy within the overall group strategy, as well as a Strategic Planning Committee.

2.55. The company told us that it was its policy to devolve responsibility to the main divisions and through them to the operating units, sufficient to enable them to manage their businesses, while at the same time retaining ultimate control over the strategic direction to be followed by the group and the allocation of physical and financial resources. This policy of devolved responsibility is followed throughout the organisational structure to ensure that each operating subsidiary or unit has a complete management team with the necessary authority and resource to achieve its agreed objectives. Routine capital investment decisions within approved plans and budgets are delegated to the Boards of operating subsidiaries, with the exception of land and buildings and new products.

2.56. A list of the main operating divisions and their main business units is given in Appendix 2.2.

## Planning and control

2.57. The key elements of the planning system currently in use by the company consist of:

*(a)* a corporate plan describing the strategy for the overall company;

*(b)* a business charter for each business identifying the range of products that may be developed and markets that may be addressed; and

*(c)* an annual corporate review of each business's strategic plan to co-ordinate strategic direction, interdependency and synergy between businesses (see the 1986 MMC report for greater detail).

TABLE 2.10 **Plessey: analysis of turnover and operating profit by activity, year end March**

*£ million*

| *Area of activity* | *1984* | | *1985* | | *1986* | | *1987* | | *1988* | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *Turnover* | *Profit* | *Turnover* | *Profit* | *Turnover* | *Profit* | *Turnover* | *Profit* | *Turnover* | *Profit* |
| Telecommunications | 577.0 | 80.4 | 677.3 | 78.2 | 676.6 | 73.8 | 677.9 | 87.2 | 611.5 | 81.1 |
| Electronic systems and equipment | 426.0 | 39.9 | 460.3 | 26.7 | 511.1 | 43.4 | 488.6 | 49.0 | 453.8 | 40.0 |
| Aerospace and engineering | 105.9 | 15.9 | 121.6 | 22.7 | 114.5 | 26.4 | 107.9 | 14.2 | 105.4 | 18.3 |
| Microelectronics and components | 86.3 | 10.9 | 102.7 | 13.3 | 112.2 | 18.9 | 114.6 | 10.5 | 114.8 | 4.9 |
| Discontinued businesses | 57.2 | (1.1) | 53.8 | 0.3 | 46.7 | (2.7) | 40.7 | 2.8 | 15.4 | 1.8 |
| Group services | - | 0.3 | - | 2.1 | - | 2.7 | - | 2.5 | - | 2.5 |
| Total | 1,252.4 | 146.3 | 1,415.7 | 143.3 | 1,461.1 | 162.5 | 1,429.7 | 166.2 | 1,300.9 | 148.6 |
| United Kingdom customers | 771.5 | N/A | 975.5 | N/A | 1,036.9 | N/A | 1,017.9 | N/A | 896.3 | N/A |
| Overseas customers | 480.9 | N/A | 440.2 | N/A | 424.2 | N/A | 411.8 | N/A | 404.6 | N/A |
| | 1,252.4 | 146.3 | 1,415.7 | 143.3 | 1,461.1 | 162.5 | 1,429.7 | 166.2 | 1,300.9 | 148.6 |

*Source:* Plessey.

N/A = not available.

## Financial information

2.58. Financial information for Plessey is shown in Appendix 2.1.

## Employment

2.59. At the end of 1985 Plessey had approximately 33,700 employees world-wide of whom approximately 26,900 worked in the United Kingdom. Plessey now employs some 23,355 people world-wide, of whom 14,725 work in the United Kingdom. Plessey told us that for the past ten years it had recruited on average 264 graduates per year, and that the company had an excellent industrial relations record. The reduction in the number of United Kingdom-based employees since 1985/86 is mainly due to the formation of GPT and the transfer of 9,000 Plessey employees into that joint venture.

## Exports

2.60. Over the past five years Plessey's exports from the United Kingdom have grown from £159.9 million to £171.75 million which is currently equivalent to 13.2 per cent of group sales in the United Kingdom. Table 2.11 shows Plessey's exports by activity during the past five years.

TABLE 2.11 **Plessey: exports from the United Kingdom by area of activity, year end March**

*£ million*

| *Area of activity* | *1984* | *1985* | *1986* | *1987* | *1988* |
|---|---|---|---|---|---|
| Telecommunications | 14.1 | 24.3 | 29.1 | 29.3 | 21.6 |
| Electronic systems and equipment | 116.9 | 91.0 | 79.7 | 83.3 | 90.6 |
| Aerospace and engineering | 8.1 | 13.0 | 15.1 | 18.8 | 17.2 |
| Microelectronics and components | 20.4 | 31.6 | 29.0 | 31.0 | 39.4 |
| Discontinued operations | 0.4 | 3.9 | 8.9 | 11.6 | 2.9 |
| Total | 159.9 | 163.8 | 161.8 | 174.0 | 171.7 |

*Source:* Plessey.

## Research and development

2.61. Plessey's research activities are concentrated in, and co-ordinated by, Plessey Research and Technology. The research facilities consist of the group's research centres at Caswell (specialising in solid-state research) and Roke Manor (specialising in systems research and software).

2.62. Plessey said that its spending on R & D in the last few years had matched the expectations recorded in the 1986 Commission report. Plessey was confident that its future profitability from its strongly cash-generative businesses would enable it to continue to fund its R & D at a level necessary for the development of its businesses. Plessey spent almost £291 million on R & D in 1987/88, and of this expenditure it noted that customer funding had continued to decline as it had done in recent years. Plessey considered that its expenditure on R & D and capital had demonstrated its commitment to the future and showed how the funds needed to develop its business could be generated internally without in any way overstretching the company.

2.63. The Plessey group's expenditure on R & D on a historical basis is set out in Table 2.12.

TABLE 2.12 **Plessey group research, year end March**

*£ million*

| | *1984* | *1985* | *1986* | *1987* | *1988* |
|---|---|---|---|---|---|
| Total R & D | 216.0 | 303.0 | 318.7 | 323.7 | 290.6 |
| Own funded | 66.4 | 83.8 | 81.2 | 94.7 | 94.2 |
| Own funded (%) | 30.7 | 27.7 | 25.5 | 29.3 | 32.4 |

*Source:* Plessey.

## Part B: The merger situation

### Background to the bid

2.64. In 1986 the Commission reported on a proposed merger between GEC and Plessey and concluded that the benefits that might be expected in relation to public telecommunications switches (specifically, System X) would not outweigh the detriments to be expected on other grounds, for example in traffic signalling, in the loss of competition in the supply of defence equipment, and potential loss of competitive R & D. The Commission therefore recommended that the proposed merger should not be allowed. This recommendation was accepted by the Secretary of State.

2.65. In June 1987 undertakings were given by GEC under section 88 of the Fair Trading Act 1973 that it would not, inter alia, acquire an interest of more than 15 per cent of the equity share capital of Plessey, or enter into any arrangement to acquire such parts of Plessey as would give rise to a merger situation qualifying for investigation under the Fair Trading Act 1973. In March 1988 those undertakings were varied with the consent of the Secretary of State so as to allow the merger of the telecommunications businesses of GEC and Plessey. This paved the way for the formation of GPT later that year.

The bid for Plessey

2.66. GEC and Siemens created a joint company, GEC Siemens plc, in which each holds an equal shareholding, for the purpose of making a bid for Plessey. The intention to make an offer was announced on 16 November 1988. On 23 December 1988 GEC Siemens plc made an offer of 225 pence in cash for each Plessey share with a loan note alternative,[1] valuing Plessey at approximately £1.7 billion, a premium of 27 per cent over the SE quoted price of 177 pence. GEC sought a variation of its undertakings, or the consent of the Secretary of State for the purpose of those undertakings, to allow the offer to be implemented.

2.67. On 6 January 1989 Plessey issued a formal defence document recommending to its shareholders the rejection of the bid.

[1] Plessey shareholders who accepted the offer would be entitled to receive and retain the interim dividend of 2.62 pence (net) per share payable in respect of the current financial year. The offer extended to Plessey shares issued to Plessey shareholders electing to receive shares in lieu of this dividend. As an alternative to some or all of the cash consideration receivable under the offer, accepting Plessey shareholders could elect to receive GEC Siemens loan notes on the following basis: for each £1 in cash under offer: £1 nominal of GEC Siemens loan notes.

2.68. On 11 January, having been advised by the Director General of Fair Trading, the Secretary of State referred the proposed acquisition of Plessey to the Commission for investigation and report. The reference to the Commission refers to the two merger situations, of GEC in relation to Plessey, and of Siemens in relation to Plessey (see Appendix 1.1). Upon referral the bid automatically lapsed pending the publication of the Commission's report. GEC Siemens plc now holds 14.4 per cent of Plessey's issued share capital.

## The proposals

2.69. The proposals in GEC Siemens' Offer Document (which we refer to in this report as the `original proposals') envisaged 50:50 joint ownership by GEC and Siemens, through GEC Siemens plc, of all Plessey's main defence, R & D and electronics components businesses. The North American defence businesses would be directly owned by GEC and Siemens in the ratio 51:49, and GPT in the ratio 60:40, these activities being under GEC's management. The proposals are shown diagrammatically in Appendix 2.3(a).

2.70. On 6 February GEC, Siemens and GEC Siemens plc amended the original proposals with a view to removing apprehended concerns as to competition in defence electronics and traffic control systems, and to removing concerns over issues of national security. These revised proposals were announced publicly on 6 February 1989. The main differences between the new set of proposals (the `revised proposals') and the original proposals are that Plessey's United Kingdom radar systems business and defence systems business (excluding Plessey Crypto which would go to GEC) would be wholly owned by Siemens, and Plessey's United Kingdom avionics business and naval systems business would be wholly owned by GEC. In North America GEC would own 100 per cent of Sippican Inc (underwater equipment) and Leigh Instruments Ltd (avionics) and 75 per cent of Plessey Electronic Systems Corp (tactical communicationsPESC). Plessey's United Kingdom traffic control business would be wholly owned by Siemens.

2.71. Under the revised proposals, GEC would also be entitled to acquire a participation of up to 35 per cent in Siemens' defence electronics business, subject to regulatory approval and consultation with the relevant ministries of defence.

2.72. The revised proposals are shown diagrammatically in Appendix 2.3(b). They embody arrangements for telecommunications and electronics components carried over unchanged from the original set of proposals: GPT would be owned 60 per cent by GEC and 40 per cent by Siemens; Plessey's electronic component businesses would be 50:50 owned by GEC and Siemens, with Siemens having management responsibility.

2.73. GEC and Siemens told us that any renewed Offer would be on the basis of the revised proposals if the merger were permitted. Both companies confirmed that there was no intention to revive or reintroduce the original proposals.