

## CHAPTER 6

### System X

6.1. A joint Post Office/Industry Forum advisory group was set up in 1968 to decide the developments required for the electronic switching system needed by the Post Office for the 1980s and 1990s. By 1973 the concept of a modular digital public switching system, which became known as System X, had evolved.

6.2. Lengthy negotiations then took place between the Post Office, GEC, Plessey and STC, the existing suppliers of public switches, to make technical, commercial and legal arrangements for the development of System X. These negotiations led to the conclusion in March 1977 of two agreements between the Post Office and each of the companies: a Safeguards Agreement (dealing, *inter alia*, with cross-licensing of industrial property rights) and a System X Confidentiality Agreement.

6.3. In April 1977 the Post Office placed contracts with the three companies, apportioning between them (approximately in the proportions GEC 40, Plessey 40, STC 20) development work for the first System X product design, known as Release 1. Release 1 was superseded in April 1980 by the System Enhancement Programme (SEPI), involving major changes of design. SEPI resulted from a review by the Post Office and the three companies of all System X sub-systems to take account of the latest development in technology. Development contracts were again placed with the three companies in approximately the same proportions. The first local exchange entered service at Woodbridge in July 1981.

6.4. Later in 1981 BT (which by then had taken the place of the Post Office in this project) and the three companies all realised that it was desirable to reconsider the arrangements for management and development of System X. From November 1981 to September 1982 there were discussions between the companies and BT (in which the then Department of Industry took some part) on restructuring the arrangements. During this period BT indicated to the companies that it intended to put out a proportion of its switching business to international tender.

6.5. Agreement eventually emerged from the discussions that Plessey should be appointed prime development contractor for SEPI and its successor SEP2, with GEC the development sub-contractor for at least 35 per cent of this work. STC, which had the smallest part of the project, was to withdraw but was guaranteed certain alternative analogue switching orders. On the manufacturing side it was decided that both GEC and Plessey would be suppliers of System X.

6.6. This agreement was formalised in signed Heads of Agreement which were intended to govern the future relationship of the parties on the development and supply of System X. In addition to those points set out in paragraph 6.5, the Heads of Agreement also stated that supply contracts for SEPI and 2 were

to be allocated between GEC and Plessey, initially on a non-competitive basis, subsequently on a competitive basis, and that BT would place 'very substantial orders for System X' and that it would be 'the principal system ordered by BT for at least the next five years' (ie. to October 1987). In addition the agreement provided for the winding up of the joint overseas promotion company in which BT had a share. A separate agreement was signed with STC which provided for its withdrawal from the System X project and its alternative orders.

6.7. GEC and Plessey told us that System X has now become the first public switching system anywhere in the world fully coupled with common channel signalling system CCITT No 7. A large part of BT's trunk system is in place and is working satisfactorily. Tendering for System X contracts has been competitive between GEC and Plessey for trunk exchanges since April 1983 and since April 1984 for local exchanges as well.

### **The accelerated ordering programme and the ordering of System Y**

6.8. BT told us that early in 1983 it indicated to GEC and Plessey the size and timetable for the digital modernisation programme required to meet the growth in its customer services, particularly for business, and that this programme confirmed the urgent need for a second supplier, but that it agreed to defer its proposed ordering of a second digital switching system. BT told us that its reasons for introducing a second system were to ensure security of supply and to provide technical and commercial competition to the System X suppliers.

6.9. BT issued invitations to tender in October 1984 to three other companies and at the end of March 1985, some four months after privatisation, announced its decision to purchase, from Thorn Ericsson, L M Ericsson's digital switching local exchange system AXE10 modified for use in the United Kingdom (referred to as System Y). BT told us that it placed a contract with Thorn Ericsson for the years 1985-86 and 1986-87 with the intention of ordering System Y in competition with System X after that period. BT told us that production of the System Y exchanges would be progressively undertaken at the Thorn Ericsson factory at Scunthorpe and that by 1987 United Kingdom manufactured content would be comparable with that of the System X exchanges manufactured by GEC and Plessey. BT has in fact now issued invitations to tender which will permit competitive orders to be placed from January 1987.

6.10. BT's decision to purchase System Y from Thorn Ericsson resulted in a number of representations being made to the Director General of Telecommunications. The Director General decided that the concern that was expressed required him to investigate the matter under the Telecommunications Act 1984 and his report accepted BT's decision to seek a second digital switching system as reasonable but recommended, *inter alia*, that BT should not expand significantly its orders for System Y above the level envisaged for 1987-88 for three years unless the System X manufacturers suffered a major failure on cost or delivery, and that BT should (in any future case of increased System Y orders) have regard to measures to offset some of the potential disadvantages to the United Kingdom, and to BT itself, that were likely to arise from reliance upon a system developed outside the United Kingdom.

6.11. BT told us that it rejected this proposed restriction because it was incompatible with its requirement for flexibility in its commercial operations and was inconsistent with its declared policy of competitive tendering, and the Director General told us that there were no existing rules in the BT licence which would enable him to impose his recommendations on BT and that because of the European Community competition law he saw no practical possibility of introducing a licence amendment to that effect.

6.12. BT's decision to order System Y involved a decline in the expected level of orders by BT for System X local exchanges although BT told us that its intention to seek a second digital switching system was made clear to the industry from 1982. BT's predicted ordering levels were given regularly to GEC and Plessey, BT told us, in annual minimum and maximum bands which between 1983 and 1986 ranged between 2.4 million to 3.05 million lines per annum. BT said that it expected to order 3 million lines of digital switching in 1987-88 and, whilst inevitably some orders would be pre-committed to System X or System Y for technical and operational reasons, up to 50 per cent of the total orders might be available for competition between the two systems. In BT's view the extent of Plessey's and GEC's utilisation of its existing capacity would, therefore, to some extent depend on their success in offering a product which was commercially and technically competitive. GEC and Plessey told us that they expected BT's ordering pattern to result in under-utilisation of both companies' resources.

#### **Joint Plessey/GEC marketing to customers other than BT**

6.13. Since October 1982 Plessey and GEC have each tendered for a number of projects for System X on the basis that whichever of them was better placed to obtain the business would act as prime contractor under the resultant contract with the other acting as sub-contractor. This has led to contracts with the Hull Telephone Company (led by Plessey), the Guernsey States Telecommunication Board (led by Plessey), and the Jersey States Telecommunication Board (led by GEC). The two companies bid separately for a project with Mercury resulting in a contract being placed with GEC. An invitation to tender is awaited from the MOD. GEC told us that it had successfully installed System X in St Vincent.

6.14. The need to export System X has required Plessey and GEC to co-ordinate their efforts in overseas markets which involve appropriate *ad hoc* arrangements as to which is to take the lead in approaching a particular export market. Exports of System X are now much more feasible with the availability of an established product for sale. It obviously assists in tendering overseas if a new design of switching system for public telecommunications has been fully tested and proved in its home market. By the end of 1986 there are expected to be over 2.5 million lines of System X installed in the United Kingdom network, representing all the various types of exchange.

#### **Future development of System X**

6.15. The future development of System X is of mutual concern to Plessey and GEC because all developments after the completion of SEP2 are to be funded by the companies themselves. In March 1984, GEC proposed total co-ordination of public exchange engineering effort under the supervision of a management board comprising two representatives of each party. Negotiations were, however, inconclusive.

### **International collaboration**

6.16. In 1984 Plessey entered into discussions with Alcatel of France, Italtel of Italy and Siemens of West Germany to determine whether it might be possible to collaborate in specific areas of common research and development. These discussions resulted in the parties entering into a Quadripartite Agreement in April 1985. Under this agreement the parties identify areas of common interest and thereafter establish joint work programmes. Collaboration currently being undertaken relates mainly to broadband telecommunications networks catering for domestic and commercial requirements.

6.17. After Plessey announced its intention of entering into the Quadripartite Agreement on public switching in January 1985, GEC was unwilling to sign a collaborative agreement with Plessey which included provisions that would permit System X IPR owned by GEC to be used for the purposes of the Quadripartite Agreement without some reciprocal grant of IPR from the participants in that Agreement. The discussions on future development have continued but had not been concluded by the time the bid for Plessey was announced.

### **The position in relation to System X by the time GEC announced its bid for Plessey**

6.18. By late 1985, as the development of System X neared completion, it became evident that the continued division of the manufacture of the system, its further development and its export would be increasingly unsatisfactory. The project had reached a stage at which future management could be undertaken by a single company. Once that was truly practicable, it was highly desirable for a number of reasons:

- (a) unity of management and management procedures would be conducive to greater efficiency;
- (b) unexhausted economies of scale in manufacture, procurement and home and export marketing would be attainable;
- (c) a single organisation would have overall responsibility thus avoiding the possibility of one of the two parties blaming the other for failure;
- (d) fusion of the two companies' interests would largely solve the problems caused by the constraints on each company individually exploiting the System X IPR in the most beneficial manner (they thought that BT would co-operate to help to achieve that objective); and
- (e) fusion of the two companies' interests would remove the difficulties caused by the continuing absence of contractual arrangements between the two companies in respect of the SEP1 and SEP2 sub-contracts and in respect of a Collaboration Agreement for the future, and the difficulties of ascertaining, in respect of any particular part of the system, which company owned the IPR.

### **Discussions between Plessey and GEC in relation to System X**

6.19. GEC and Plessey told us that they have, from time to time, had discussions in general terms, and also with BT, on the possible future developments in the United Kingdom and world-wide public switching markets.

These discussions included possible methods of combining the respective public switching or total telecommunications businesses of Plessey and GEC.

6.20. In the autumn of 1983 GEC proposed to Plessey a merger of each company's respective telecommunications interests in their entirety. Nothing came of these discussions.

6.21. In April 1985 GEC proposed the formation of a joint Plessey/GEC development company to act as the British party in the Quadripartite Agreement. This, we were told, was GEC's response to a Plessey proposal to allow GEC limited access to the results of Plessey's European collaboration on development, in return for permission to sub-license GEC's System X IPR to its European partners. These proposals were made at the management rather than the Board level.

6.22. More fundamental proposals aimed at complete integration of the telecommunication operations of the two groups were discussed by Mr Marshall of Plessey and Sir Kenneth Bond and Mr Bates of GEC at about the same time. These discussions were also inconclusive and in June 1985 Lord Weinstock suggested to Sir John Clark that they should be pursued more vigorously. Plessey said that it then began a detailed examination of the possibility of acquiring GEC's public switching business, but there was disagreement whether this possibility was put to GEC at this stage.

6.23. On 4 October 1985 the Chairmen of Plessey and of BT met to discuss BT's attitude towards a possible acquisition by Plessey of GEC's public switching business. It appears that at this meeting, while the BT Chairman gave support to the general proposition of rationalisation of GEC's and Plessey's public switching businesses, he indicated reservations as to the extent to which BT would feel able to commit itself by way of orders to such a rationalised business, and particularly on the question of an investment in a sole supplier.

6.24. The possibility of rationalisation was discussed on 4 November 1985 at a further meeting, between the Chairmen of Plessey and BT. There was discussion as to the nature and extent of the business which might be merged and it was agreed that following discussions which had taken place between GEC and BT there should be further direct discussions between the two companies under the chairmanship of BT.

6.25. We were told by GEC that the first time that the question of Plessey acquiring GEC's public switching business was raised was in a general way in November 1985, and GEC then made it clear that it would not agree to such a proposal. There were two meetings between Board members of GEC and Plessey under the chairmanship of BT on 15 and 25 November which were followed by informal telephone conversations. We were told by Plessey that prior to the announcement by GEC on 3 December of its intention to bid for Plessey it considered that neither party had reached the point of stating its final position in relation to the possibilities for rationalisation of their public switching and associated telecommunications businesses. However, it was

GEC's view that the discussions were not proving fruitful and that there was no realistic prospect of achieving the necessary restructuring of the telecommunications businesses otherwise than by the acquisition of Plessey. Further discussions took place between the companies after the bid and during our investigation. They were inconclusive but both companies expressed the hope that it would be possible to re-open meaningful discussions.