LEP GENERAL AUDIT

Most of the text processing in the LEP Division is done on Philips Office Systems. Some administrative procedures were also implemented on these systems, lists of LEP Notes, Personnel data, etc. Following the introduction of the Relational Database Management System ORACLE running on a VAX several applications for managing Divisional data were developed, a documentation catalogue, an inventory management facility, etc., some of which replace Philips applications. Although PC's have been acquired in the Division, they are mainly used for technical purposes and only a small number are used for documentation preparation.

1. USE OF ADP DATA AND FACILITIES

Software has been developed in the past and continues to be developed today in LEP division (previously the ISR Division) to analyse expenditure. Initially the data was read from an INFOL file provided on the IBM MVS system. Today the data is read directly from the ADP system into the ORACLE database. The data has been kept since the beginning of the LEP project. A reporting facility, LADP, has been developed to allow users to generate a selected report using interactively defined selection and sorting criteria. Most reports are generated from data which is extracted from a summary table of orders/contracts in which the expenditure per year is stored in separate columns. Reports are also available for looking at contracts. At present this facility has been little used.

Since the LADP project was launched, the ADP Tool Kit which provides similar facilities, has been officialized. LEP use of this facility is restricted because the data concerns only the current year and since no interface exists to relate expenditure with the budget forecasts which are stored in an ORACLE database.

Stores expenditure information is only available at present in list form.

A memorandum was sent to LEP Group Leaders in September asking which facilities they use for managing their budgets. The results are summarized. One person used the ADP tool kit, 10 referred to the ADP lists (particularly for stores expenditure) and 7 used LADP (the ORACLE application). One person preferred to ask A. Brissonaud to provide the required data.
2. PERSONNEL MANAGEMENT

Divisional personnel administration has been conducted using the Philips Office Automation Systems. The data is entered on to diskettes. It may then be printed on paper, typed or written by hand on forms to be sent to the Personnel and Finance Divisions. Recently ORACLE applications have been introduced to facilitate administration. ORACLE is accessed using INDEX. The terminal may be either a Pericom or a Philips terminal used in terminal emulator mode.

3. USE OF ELECTRONIC MAIL

Electronic Mail is used fairly widely by machine experts to communicate with U.S. Laboratories and by most programming staff for communication between themselves. VAX MAIL is used extensively between ORACLE users. Secretaries do not use Electronic Mail since the Philips systems are independent. Communication facilities are believed to essential. Philips provide hardware and software for interconnecting their systems.

4. WORD PROCESSING SYSTEMS

All LEP secretaries with the exception of two use Philips Systems. There are altogether 17 systems, one shared by two terminals. Each keyboard has an individual daisy-wheel printer and automatic sheet feed. The generous allocation of printers is believed to be very important. Philips use the WYSIWYG (What You See Is What You Get) approach which is very popular. Exchange of text between Philips machines is via diskette. Exchange with other systems, IBM MVS, VAX, etc. is possible, but tedious, and formatting information is generally lost.

The scientific staff mainly use script on the IBM for writing documents. There is a growing enthusiasm for TEX and for PC text processors.

5. DATABASES FOR MANAGEMENT INFORMATION

ORACLE is installed on a VAX to manage the LEP main-ring data. The data includes for example, planning activities and links, installation logistics data, tables of machine components, tables of codes for locations, machine elements, etc. and cable information. Many of these facilities access common data, for example, personnel data. Since such information was not available, the telephone list on the IBM was used and everyone concerned with data managed by ORACLE applications given a four character name code. The applications are listed below.

PERSONNEL AND SPACE/KEY ALLOCATION MANAGEMENT
SUPPLIER/STORES CATALOGUE QUERY FACILITY
BUDGET PLANNING AND PREDICTIONS
ADP EXPENDITURE AND CONTRACT DATA QUERY FACILITY
CV INQUIRY APPLICATION
LEP INVENTORY
LEP/SPS EQUIPMENT STORAGE MANAGEMENT
ACCESS CONTROL SYSTEM
LABOUR CONTRACT ACCOUNTING
LEP DOCUMENTATION CATALOGUE
DRAWING DIRECTORY (ODD)
SPS CABLES MANAGEMENT
APPLICATIONS DESIGNED FOR THE SPS PERSONNEL PROTECTION GROUP
CHASSIS AND JUNCTION BOX MANAGEMENT
LEP ELECTRICAL EQUIPMENT MANAGEMENT
VACUUM EQUIPMENT MANAGEMENT
ELECTRICAL EQUIPMENT COMPONENTS MANAGEMENT
EXTRACTION AND SEPARATOR EQUIPMENT MANAGEMENT
LEP DICTIONNARIES
POL, PLANNING USING ORACLE FOR LEP
INSTALLATION LOGISTICS (LOI)
INSTALLATION FOLLOW-UP
PLANNING AND INSTALLATION LOGISTICS QUERY FACILITY
WORK REQUEST FOLLOW-UP
EUCLID BUG DATA
MAGNET MANAGEMENT
THE SURVEY GROUP DATABASE

At least a third of the applications concern some aspect of 'administration'. These were developed because no CERN wide facilities were available.

5.1 Inventory

The Divisional equipment inventory is stored in an ORACLE database. Other inventories have been developed for storing moveable objects and for technical equipment. Each application is independent of the others.

5.2 Specialized Software Packages

Two software packages used in the LEP Division fall halfway between 'technical' and 'administrational'. These are the CAD/CAM system EUCLID and cartographic system ESPACE.

The CAD/CAM system is outside the domain of the MIS task force, however ESPACE (INNOVAL) should be mentioned since it includes many facilities of an administrative nature such as site management which may be used at CERN.
5.3 Financial planning aids

The S-list is not adequate for Divisional budget management. ORACLE software was developed to provide for example, the data required by the external auditors and facilities for entering budget estimates and predicted expenditure and follow-up as well as for generating reports summarizing this data. Some analysis facilities have also been developed. There are plans to provide facilities to draw histograms, graphs and pie-charts of selected data to be imbedded in text.

5.4 Time planning aids

The planning of a project the size of LEP required a sophisticated planning tool for entering and analysing all activities to be executed and the relationship between them. It was decided that, rather than buy a commercial planning package which would need interfacing to the installation logistics software, it would be preferable to develop a planning system at CERN. Considerable effort has been spent and will continue to be spent in making this software as general as possible.

6. USE OF PCS

Three types of PC have been located in LEP division, 4 HP 9816s and 9817s used for technical purposes, 6 Macintoshes used essentially for document preparation and 5 IBM PC/AT(XTs), three of which are used for technical purposes, one for both technical purposes and text preparation and the last for running structured analysis software and ORACLE. The HP PC's were particularly attractive because of the graphics facilities provided.

7. LEP IMPROVEMENT PRIORITIES

7.1 Office Automation and text processing

Some minor expenditure will be necessary to improve communication between the Philips Processors in the near future. By 1988 LEP Division would need to replace the current equipment with the new 'recommended standard'. Two important requirements of the 'standard' is that it permits a 'WYSIWYG' approach for entering documents and that it is possible to install a reasonably priced 'letter-quality' printer per work station, possibly more than one printer per office.

The following improvements are required.

1. Electronic mail available on the office system for communication locally with other secretaries in the Division and for CERN wide communication.
2. Simple document transfer facilities between secretary and author without the loss of formatting information.

3. Room booking facilities.

4. Agenda facilities.

Technical staff require both CERN wide electronic mail and better text handling facilities than are presently provided by SCRIPT (TEX is suggested).

7.2 Management Information Tools

Facilities are required for managing budgets both at the Divisional and Group level. The data must include both actual and planned expenditure over several years as well as information such as currency, firm, etc. Exchange rate information must be available for realistic cost analysis.

Stores expenditure data should also be made computer accessible. At present all that exists is a printed report.

Coherent data concerning all CERN personnel and firm employees with access to CERN sites should be available. Information should include UNIQUE identification codes (for EACH person), name, first name, division and group, division and group to which the person is responsible, address, phone number(s), bleep number, date of birth, nationality, grade and job category.

Data must be accessible in at least two ways, either using simple screen menus to generate reports with facilities for interactively for selecting data, report formats and ordering criteria (such a facility would satisfy most users) or in a more sophisticated manner using programs written in FORTRAN, COBOL, C, etc. Users must be able to print their reports on a local letter quality printer.

Simple graphics such as graphs, histograms and pie charts must also be provided.

7.3 Public Data

The following data should be publically accessible

- Personnel information
- Stores catalogue
- Firms information
- Documentation catalogue of ALL public CERN documents
7.4 Administrative Procedures

The following CERN-wide administrative facilities are required

1. Interactive tools for Divisional secretariats to manage

   - Leave
   - School fees
   - Overtime
   - Travel claims
   - Home leave

2. Order management with up-to-date information on firms and the firm's activities. Documentation cataloging tools for public and private documents.

3. Inventory management system.

7.5 Local and central data input and reporting facilities

There is a growing need for PC's to replace for office terminals. The system must be able to run ORACLE and to communicate with a central ORACLE database system for data exchange. The monitor must display 132 READABLE characters per line and have a graphics option.

An urgent requirement for the planning group and possibly for the CAD/CAM community is a colour plotter. An enormous effort is spent at present colouring planning graphic output by hand.