

Tesco brings data prep closer to the user

The computer industry has been marked by a history of continuous rapid technical innovation. In consequence, upgrading has become a permanent fact of life in the computer department, and the ability to manage such changes is a vital part of the DP manager's skills. This involves identifying the right time to move to a new system, choosing the best new system, minimising the disruption involved in installing it and maintaining the existing level of customer service throughout the process.

There is no simple set of rules to follow: different DP managers have different techniques and ideas. Even an apparently straightforward case history of an upgrade, therefore, can provide useful pointers for DP managers. A good example is provided by the installation of key-to-disk equipment at Tesco's administrative offices at Winsford.

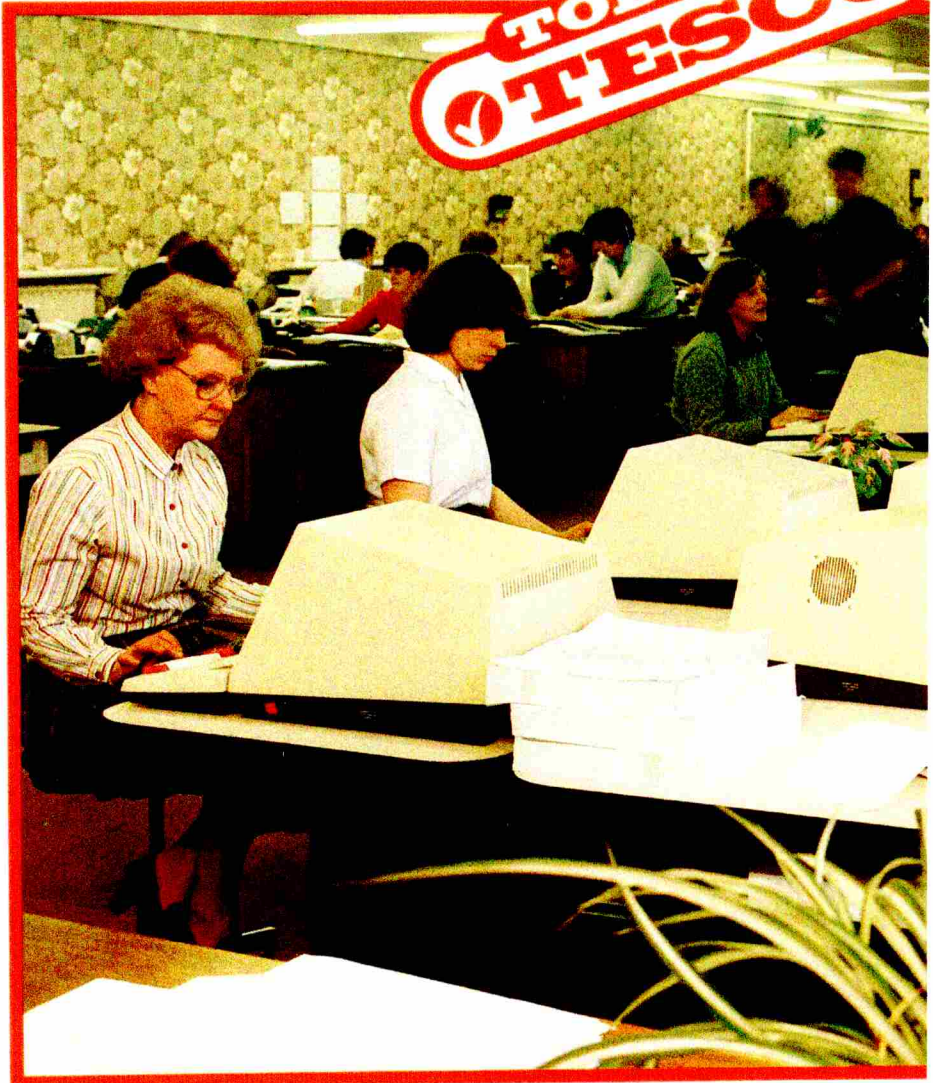
These offices handle the administration of the company's payroll, and related functions such as personnel record-keeping and management reporting. As well as producing the weekly and monthly payrolls, the offices run a Save-As-You-Earn scheme and the company's staff discount scheme.

Tesco's staff total varies seasonally, but was at the time of writing some 50,000, of whom 44,000 are paid weekly.

The computer system used at the Winsford offices is an ICL 2904. It runs programs that were designed and written by in-house systems development staff, of whom there are currently 10. There are around 200 programs in all: 12 of them are concerned with the routine payroll functions, and the remainder with the other personnel functions. The total database is spread over 30 60-megabyte disks: the payroll master file itself accounts for nearly 60 megabytes on its own. The 2904, therefore, has the unusually high number of eight EDS60 drives.

The 2904 was installed in 1975 and the time is coming when it will need to be replaced by a newer system. For the past three years, however, the upgrading emphasis has been on the data prep side of the computer operation.

At the start of this period, in mid-1980, the company used two types of data entry equipment. The bulk of the weekly payroll data submitted by Tesco's 500 supermarkets was



encoded onto paper tape. Overtime details were entered separately via bar-mark readers.

This smaller volume of activity was causing some disproportionate management headaches. The readers used were ICL Lectors and the equipment was so aged that Tesco's two systems represented exactly half of the total installed base in the UK! Inevitably, they broke down quite frequently and, when they did, it often took some time to get them operational again, as spare parts were becoming increasingly difficult to obtain.

Tesco levels no criticism at ICL for this situation: on the contrary, the company did its best to help, and the engineers were positively enthusiastic about the opportunities the Lectors provided for maintenance. As Arthur Smith, Tesco's operations manager

puts it, "It's like being a dinosaur vet — you don't get much chance to practise!"

To overcome the problems, Tesco decided to replace the Lectors with more modern and, therefore, more reliable equipment. Project leader Neil Withey lists four major criteria that were used to determine the most appropriate replacement system.

"It had to be very reliable — the payroll is a most sensitive system and we'd quickly be in serious trouble if ever it were late. It had to be adaptable — it's a rapidly changing scene here, so we needed a system on which we could easily introduce new documents, or new fields on existing documents. And we wanted an established supplier with proven software (if the supplier is established, you can take the reliability of the hardware for granted). "It also

Pictured in the computer room at Tesco Stores administrative offices at Winsford, are l to r: Neil Withey — project leader, who is responsible for the Rediffusion system and Kim Oakes — data entry operator



Picture shows the wages clerks using the R800/70 system which is installed in the administrative offices at Tesco Stores, Winsford, Cheshire

had to be very user-friendly, as we were planning to install the system in the wages offices rather than have it operated by specialist data prep operators."

The idea here was to put the data collection function closer to the user area and so eliminate the need for transcription onto special forms. At the time, the documents produced by the supermarkets had to be transcribed onto special forms before reading, as attempts to produce machine-readable documents at source had proved unsuccessful.

The outcome of the evaluation process was the selection of a

Rediffusion Computers' R50 clustered terminal system. It was chosen, says Withey, mainly because of its software, which appeared the best available from both the development and the users' points of view.

The system, which was installed in October 1980, was configured with twin processors to meet the prerequisite of absolute reliability. Shared between these processors were six terminals. The system was installed in the wages office, where it is used by 72 wages clerks in rotation. Each of these clerks is responsible for the work relating to between 10 and 15 branches or departments. The overtime (or more precisely hours adjustment, as it includes both positive and negative adjustments to the standard working week) data for one branch takes an average of ten minutes to enter.

The department's manager, Geoff Williamson, says that the system has been very well received. "There was some initial apprehension, particularly among the older women, not surprisingly as none of them had even used typewriters before, let alone terminals. But this was quickly overcome, and the staff like it far better than the old system."

When the system was introduced, eight of the clerks, all section leaders, went on a two-day Rediffusion training course to familiarise them with the equipment. On their return, they trained up the remaining clerks.

Williamson adds, "The method of working with the new system is undoubtedly better — there's no comparison. Because of the error-checking facilities, mistakes are identified earlier in the cycle, which is a great advantage. And it's more powerful than it seems. When it first arrived, I thought six terminals wouldn't be enough, but in fact we easily coped with five."

The satisfactory outcome from this first implementation of key-to-disk equipment spurred Tesco into a second project, which involved the higher-volume weekly staff update system. Some 250 data items are held on the mainframe's disks for each employee, and changes to these records as well as deletions and additions to the file are submitted weekly to the Winsford offices.

There they are transcribed onto one of five free format punching documents, covering between them changes to all the items. Up until June 1981, the next stage had been to encode this data onto paper tape.

At that time, the twelve paper tape readers in use were discontinued and the Rediffusion system upgraded to a twin R800/70 processor configuration. Only nine additional terminals were needed to handle the throughput, allowing a reduction of a quarter in the data prep staff. The new system is now well established and has been just as favourably received as the first one.

Summarising the benefits obtained from an upgrading process

like this is never easy, as there is no clear-cut measure to apply and the real gain is usually one of operational efficiency, which is worth money, but is difficult to quantify. With that proviso, Withey lists a number of advantages he thinks Tesco has gained from the use of the Rediffusion equipment.

First, while data prep volumes are increasing all the time and have roughly doubled since 1980, the data prep staff has reduced from 12 to nine over the same period. Secondly, the use of processor-controlled data entry has allowed the identification of errors earlier, which in turn has made the whole operation smoother.

Thirdly, the new equipment is much more reliable than the old — a straightforward benefit that one would expect from the replacement of electromechanical equipment by electronic systems. Fourthly, the operators of the equipment, both inside the data prep department and in the wages office, like it much better.

There have also been one or two spin-off benefits. For example, the spare terminal originally installed in the wages office, but not subsequently needed, is now in the programmers' department where it is used for program development. The programmers use it as a word processor to amend and edit their program listings, thus improving turnaround.

The system is also used for printing labels, an application which allowed Tesco to get rid of a labour-intensive Addressograph system, and for analysing the operating log of the 2904.

Is there a moral to be drawn from this story? It's always dangerous to draw general conclusions from an individual case. Circumstances differ, and in any case the Winsford installation is unusual for one of its size in that it is dedicated to a single application.

One striking point, however, is how careful Tesco has been to minimise the impact of change. Withey himself says, "The key to success is to choose a simple initial application." This makes it much easier to deal with any unforeseen problems that arise while maintaining the required level of service to users.

The same principle can be seen in the implementation of the paper tape replacement system. Initially, the Rediffusion equipment was run as a pure paper tape emulation system. Only when it was bedded in and running smoothly did the process of conversion to pre-formatted screens begin.

Change is frequently traumatic, a fact that DP people who live their lives amidst almost permanent change often fail fully to appreciate. By restricting the degree of change at one time, Tesco has found it much easier to ensure that necessary changes produce the desired results.