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## Cellular radio moves into vehicle fleets

PUBLIC CELLULAR radio telephone services, originally aimed at individual businessmen and company executives, seem set to move into the company fleet market with the introduction of some new services by Motorola.

Most company fleets of sales, service, haulage or public service vehicles have used private systems with dedicated transmitter on a local basis.

Using cellular radio, no base station expenditure or frequency allocation problems arise; only the vehicles have to be equipped.

The system also makes it possible to cover wide areas because with cellular radio, the vehicle is handed from cell to cell, under computer control, over an area which gets bigger as cells are added to expand coverage outwards from London and other cities.

The problem is that with public access to most of the world's telephones direct from each vehicle, bills could easily become excessive.

Motorola, the largest retailer of the Celnet system after British Telecom, is offering three "Fleephone" services which should prove attractive to fleet operators.

Fleephone One, for example, uses car radios programmed to call only fixed and mobile numbers designated by the communications manager. No restriction is placed on how often a

call is made, but the special sets ensure that the phone is used only for authorised calls.

At the Fleephone Two level, the subscriber purchases air time in bulk from Motorola Communications Services. Communications managers with medium to large fleets and regular communications patterns can buy airtime at a discount, paying regularly by direct debit.

With the Fleephone Three service, the mobile telephone becomes an extension of the subscriber's telephone exchange or PABX. The necessary link between the PABX and the Celnet system will normally be provided by a private land line rented from British Telecom by Motorola on behalf of the subscriber.

Calls between extensions on the PABX (and those on any interconnected PABX) and the mobile phones thus avoid the public fixed telephone network and its associated charges.

Fleephone is a good example of the "value added" services now being built up on the framework of basic public offerings. Already, Motorola offers an "instant office" to businessmen in their cars, providing them with a secretary to take messages, relay calls, send telexes, type letters, book hotels and so on. More on 0256 58211.

Geoffrey Charlish

## Control aid by Olivetti

THE LATEST computer-based manufacturing control system from Olivetti is designed to look after scheduling, capacity planning, materials requirements, stock recording, ordering and costing.

Called OMS (Olivetti Manufacturing System), it is being distributed by Olivetti under licence from Organisation Development Group and is the latest addition to the Italian company's Line One range of manufacturing systems.

Line One already includes computer-aided design and manufacturing systems and a production control system called GTX.

## Foreseeing the day when computers serve as co-pilots

### David Fishlock on Sperry's bid to harness the potential of artificial intelligence systems

PICTURE A hangar filling with fighters returning from a sortie. Their pilots have left for their own debriefing, but the airwaves are buzzing with the chat of computers exchanging and memorising each other's experiences of the day's work.

That is how one senior computer engineer with Sperry imagines the future of artificial intelligence.

One present U.S. goal is a computer smart enough to act as a second pilot in a single-seat warplane, says Dr Pat Corbin, an executive with Sperry's newly-formed Knowledge Systems Center in Bloomington, Minnesota. The centre forms a hive of autonomous activity designed to focus all company interest—commercial as well as military—in artificial intelligence (AI). It reports to Mr Joseph Kroger, a main board director and vice-president in charge of the information systems group.

The Knowledge Systems Center is already forging joint ventures with other companies such as Texas Instruments to give Sperry a higher profile in what the company sees as the next big step in computing. The centre is independent of the company's artificial intelligence laboratory at Reston, Virginia, and of the interest of Sperry's AI product divisions.

Dr Corbin, one of the company task force which led to the centre's creation, offers some insight into the computing power intelligent computers are going to need. One clever enough to sit alongside a fighter pilot as his confidant and adviser in battle, and perhaps help him home injured, will need to handle a billion operations a second, he says.

But the U.S. Navy is thinking of a computer that must handle 10bn operations a second, and the U.S. Army is thinking of an autonomous land vehicle

("smart tank") which will need to handle 1,000bn operations a second. With such goals as these Dr Corbin predicts that within five years "the computer will mean something completely different."

Sperry began to recognise AI's importance to its own future as part of the shift in corporate goals which is turning the former engineering conglomerate into a research-based group specialising in electronic systems. Last year it spent \$460.7m of its own money on research and development—12 per cent up on 1984—and

another \$423.2m on contract R and D for its customers.

Mr Gerald Probst, Sperry's chairman and chief executive officer, recruited his task force from inside the company to examine the implications of AI for the refocused firm. The task force concluded Sperry must plunge into AI without further delay.

Hence the autonomy granted its Knowledge Systems Center and the speed with which it has concluded its first commercial agreements. The Texas Instruments agreement is for Sperry to market Explorer, a powerful machine for developing AI

systems based on technology TI has drawn from LISP Machine Corporation and MIT. Another agreement is with Intel Corporation for Sperry to market KEE, its "expert system shell."

The centre itself consists of about 13 professionals based at Bloomington and another five "in the field," at key centres of AI application in the U.S. and Europe. Defence is expected to provide the main impetus, but Dr Corbin sees three particular target areas for AI exploitation where the Pentagon will be showing particular interest.

One is advanced aerospace and marine systems such as the "second pilot" in the cockpit. It is already teamed with Rockwell and BDM, a defence consulting group, in studying AI applications in battle management, a project funded by the Strategic Defence Initiative Organisation ("Star Wars"). The centre is also working with Rockwell on NASA's \$9bn inter-

national space station, where AI is seen as the way to minimise the number of astronauts needed in space.

Another target must be manufacture, where Dr Corbin says Sperry's own product divisions are already proving "very receptive." The centre is developing an expert system to find flaws in very sophisticated printed circuit boards, as well as doing all the inter-connecting—a task at present so complex it must be completed by hand.

The third target he foresees is applying AI to help the procurement of AI software—"not the kind of problem we'd normally think of."

**Tomorrow: making computers easier for the military to use**