

# The Nokia 80 and a new decade of distributed data processing



**NOKIA DATA**

# A new decade, a new approach to distributed data processing

Distributed data processing came into its own in the '70s, with the emphasis on collecting and pre-processing data at their source. Part processes in business and administration were entrusted to those who knew them best – those who were doing the job before the office automation. This was the origin of work-station EDP, and a natural prerequisite was data-processing equipment that was easy to use.

The '80s have introduced a new dimension to distributed processing: the computer network. As before, data are collected and processed at work stations, and the work is still being done by the same experts. But it is all done using computers interconnected to form a network. This eliminates duplication of work and repeated processing of the same data.

Distribution without concentration is disruption. In selecting a distributed data-processing system, it is vital to ensure that the hardware and software meet the requirements of both distribution and concentration.

The points to note in building a distributed network are:

- terminal equipment fully suited to the purpose
- adequate capacity for the terminal controllers and central processing units
- line communication facilities as advanced as possible
- efficient system software
- system versatility
- in-house programming resources and expert assistance from the supplier
- a reliable maintenance service for the computer hardware.

*The Nokia 80 system is a safe choice for the company and user alike.*





*A special feature of the Nokia video display unit is its optional Swan Neck desk-attachment arm.*



*This data management system in a public administration office includes three Mikko 3/36 computers between the main computer and 32 VDUs.*

## The Nokia 80 for demanding data-management applications

Nokia Video Display Units, Mikko computers, Mikko software and Nokia expertise make a powerful combination that can satisfy all the data-processing requirements of any company. The solution may be a Nokia 80 system with a single work station, or a computer network comprising a number of multi-terminal Nokia 80 systems.

Standard data-entry and data-communications software, together with administrative applications, answer the needs of most companies. But as demands for advanced or company-specific features grow, greater resources are required for setting up the system.

It has been proved in practice that the best results are attained by cooperation between the customer and Nokia. Naturally, too, Nokia Electronics can deliver any system on a turnkey basis, or the customer can develop a suitable system in-house. For such requirements we supply an array of efficient software development tools.

Development tools for advanced data-management systems include several high-level programming languages, efficient standard software systems, and the newest aid: Daisy.

Daisy is Nokia's answer to the problem of rising software costs. Its advantages are rapid build-up of applications, smaller resource requirements, and standardization of application structure which makes it easier to update the applications.

Company specific systems, in which the Nokia 80 excels, include order entry, purchasing and sales systems, an inventory control system, and a public administration system. All such systems feature large numbers of terminals, real-time operation and either geographic or functional distribution of the hardware.

*PBX exchange in an insurance company. The Swan Neck arms make the VDUs easy to adjust for height and angle, and they leave more room on the desk.*





*An important member of the Nokia 80 family, the WPS 80 word-processing system serves a number of terminals simultaneously. Based on a minicomputer, the system is remarkably versatile.*

*Nokia 80 used in the raw-wood reception yard of a pulp and paper mill complex. This is a good example of how the Nokia 80 can be adapted to a difficult environment without special arrangements.*



## The Nokia 80 solves small problems and meets special requirements with the same ease

A comprehensive arsenal of standard software and a wide assortment of special applications have been developed for the Nokia 80 system. The standard software is an administrative system for the following applications:

- invoicing
- general ledger
- sales and purchase ledger
- inventory control
- payroll
- order entry.

A small company can safely enter the Electronic Age with a Nokia 80 system and one of the above applications. After that, it can adopt new applications and expand its equipment as needs grow and experience accumulates.

The Nokia 80 is an ideal terminal system for connection to a central data-processing facility. Remote-batch software is available for data transfer to nearly all computers, and time-sharing connections to large computers. The combination of Nokia 80 and a data-processing centre permits advanced and data processing at low cost.

The Nokia 80 is already equipped to solve complex application problems. Nokia has joined forces with technical experts to develop applications as diverse as a word processing system, a measuring system for raw-wood reception, and a wide variety of EDP applications for universities, telephone companies and hospitals.

But for special applications the real experts are Nokia's representatives. It is they who have adapted the Nokia 80 to an ever growing number of applications in stevedoring, traffic supervision, electricity companies, accountants' offices, State administration and local government.



*This photo shows the entire office and staff of a small company. Its EDP system is in the centre: a Nokia 80 with a single workstation. The first application was invoicing.*

# Point-of-sale and banking terminals for country-wide terminal networks



*The Nokia CRS 200 is a modern and economical point-of-sale terminal. It is ideal for shops, department stores, restaurants and service stations.*



*Nokia has supplied advanced point-of-sale terminal systems of the same type for both the Finnish and the Swedish State Alcohol Monopolies.*

Major services such as banks, insurance companies and retail outlets need special types of distributed data processing with terminal networks. Their terminals have to be specially adapted to the requirements of customer service. The terminals must be fast and versatile, with display, print-out, processing and data transfer functions. They must also be able to operate independently in the event of system disturbances. In other words, sophisticated terminals are needed.

Service-point terminals are one of Nokia's greatest successes. Nokia was the pioneer in developing the Finnish banking terminal, and it has earned an undisputed reputation in Finland and abroad for its expertise in real-time banking systems.

Nokia developed the first point-of-sale terminal systems for the Finnish State Monopoly's wine and spirit retail shops in the early

'70s. Each system was based on separate point-of-sale terminals and a Mikko computer. At the end of the '70s the second-generation point-of-sale terminal, the CRS 200, and Mikko were ready for ex-

port to the West. The Swedish State alcohol monopoly, Systembolaget, has chosen the Nokia terminal system for its shops.

Nokia is a serious contender for point-of-sale and banking terminals alike. International cooperation on a broad scale is being intensified. Relying on its development capacity and adaptability to rapid change, Nokia plans to increase its exports of large terminal systems.



*Some of Nokia's latest banking terminal equipment.*



*A modern banking terminal also includes a video display unit, as well as a printer and keyboard.*

# The Nokia 80 – Ergonomics and style



High demands are placed on comfort and the working environment in Scandinavia. Finnish furniture and utility ware have long been famous for their superior design and practicality. This tradition of excellence has spread to Nokia's VDU display unit.

The Nokia 80 is designed to serve the user as an everyday tool. Thus ergonomic factors are paramount: the Nokia system design team includes industrial designers and occupational health experts as permanent members.

Our knowledge of ergonomics is accumulating as the demands increase. System development is a continual process. Today, ergonomic design at Nokia extends to the software of computers that communicate interactively with human users.

The first-generation Nokia 80 work station incorporated advanced ergonomic design, with adjustable desks and display units. These features have been developed to a further level of perfection in the new equipment.

The main effort recently has gone into eliminating the strain on the operator's eyes. New accessories include a copy holder and a detachable VDU screen shade

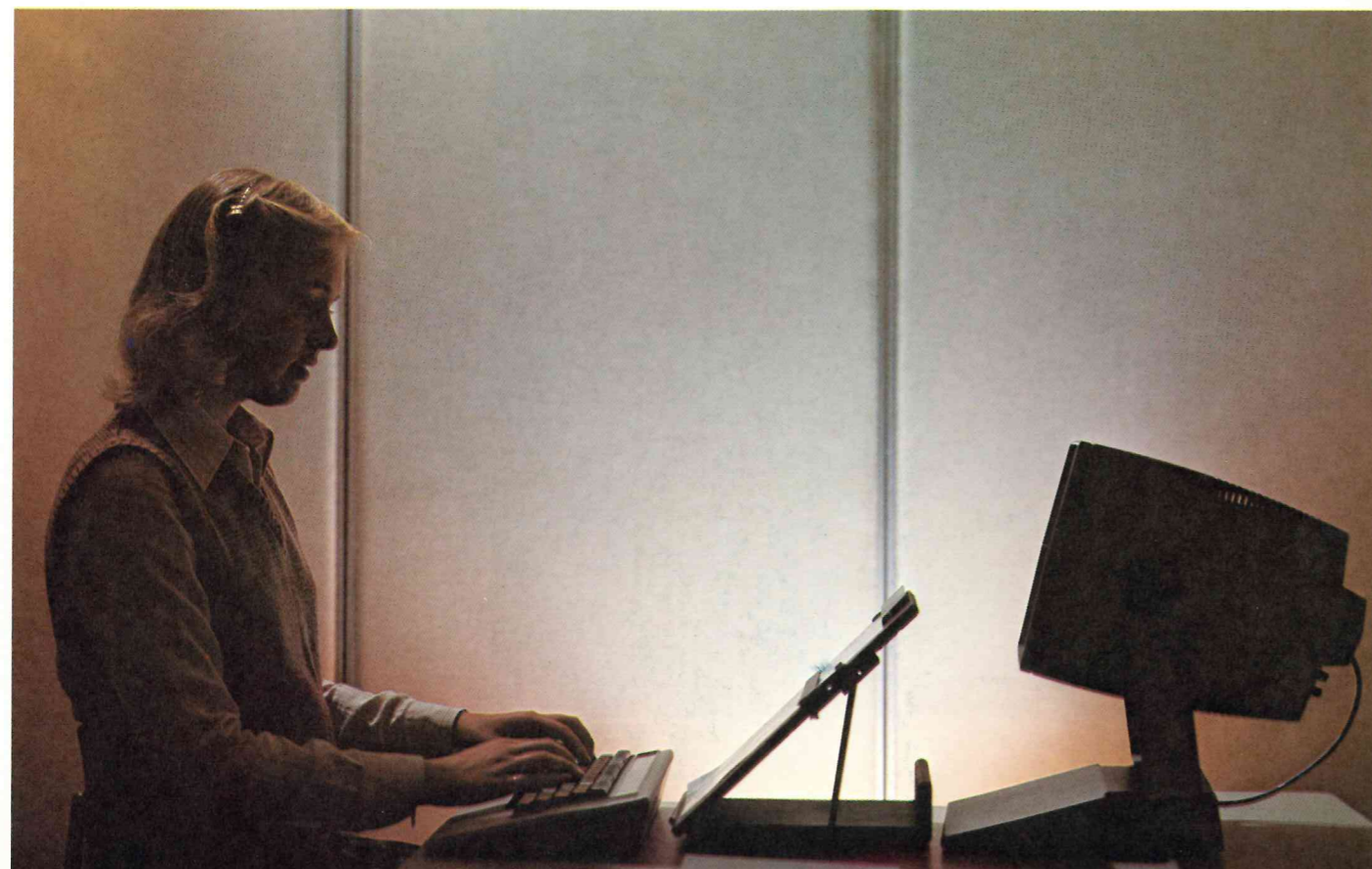
*The control unit of the VDU 210 display terminal can be installed in the base of the terminal or outside the user's field of view, as the photo shows.*

*The best place for the copy holder, one of our new accessories, is between the display terminal and the keyboard.*



that diminishes reflection from ceiling lamps or windows. The colour of the screen phosphor and the edges of the screen do not contrast excessively with its surface. The key buttons are of a neutral colour which does not strain the eyes with gloss or contrast. Naturally the screen surface is non-reflecting, and the display brightness is adjustable.

*The VDU is a key factor in the overall appearance and ergonomics of the Nokia 80 system. Its development set a major challenge on Nokia and its suppliers.*



# The Mikko

## The stout heart of the Nokia 80

Nokia computer hardware is no stranger to any other make of computer or terminal. It can work side by side with them, and communicate with all the main international computers.

The performance of a Nokia 80 system can always be matched to the user's needs. The most important question in setting up a computer application is the choice of a central processor. The Mikko comes in three sizes, which are mutually compatible.

The Mikko 4/06A is a compact, efficient computer for applications where four terminals are adequate.

The Mikko 3/18 is a faster and more powerful than its predecessor, the Mikko 3/16 CPU – a regular jack-of-all-trades. This diskette-based processor is equally suitable as part of a Mikko network or as a stand-alone computer. It is the natural choice for applications like administrative data-processing and word-processing systems.

The Mikko 3/38, the king of the Mikko Family, is faster and more powerful than the 3/36. It is the computer for demanding special applications and for the heart of computer networks.

	Mikko 4/06A	Mikko 3/18	Mikko 3/38
Main Memory (Kbytes)	256	256	512
Terminals	4	7	24
Floppy Disk Units	1	2...4	4...8
Disk Memory (Mbytes)	-	5	384
Communication Controllers	1	1	3



Mikko 4/06A



Mikko 3/18



Mikko 3/38



# Nokia 80 – a computer system for any company

This brochure tells you why the Nokia 80 answers the electronic data-processing needs of any company – either as the entire EDP system of a small or medium-sized company or as a component in the extensive system of a big company.

- The Nokia 80 system features standard administrative software.
- Numerous special applications have been designed for the Nokia 80.

- Easy-to-use tools are offered for in-house application development.

- The hardware is easy to expand.

- A computer centre and a Nokia 80 make a rational combination.

- The Nokia 80 is at home in difficult environments.

- Application development is guaranteed by Nokia know-how.

- Efficient maintenance: ask your dealer.



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