



7. New Applications

”Socialization is not best done by segregating children into classrooms with kids of the same age. The computer is a medium in which what you make lends itself to be modified and shared. When kids get together on a project, there is abundant discussion; they show it to other kids, other kids want to see it, kids learn to share knowledge with other people much more than in the classroom.”

Seymour Papert

Telecom users, private ones as well as professional ones, are constantly offered new services via the existing telecom network. Among such services available to Swedish telecom subscribers are:

- * **answering service via the network**, the advantage being that no extra machines are necessary — the Telia service ”TeleSvar” had some 200 000 subscribers less than six months after the launch of the service;
- * a set of **”work-at-home” packages**, from a very simple one containing a fax machine and a faxbox, including a personal fax number, to a complete workstation, including an ISDN connection to the corporate computers;
- * new **telephone card services**, for instance travel cards for those wanting to call home from abroad;
- * **personal telephone numbers**, by which the subscriber always can be reached, no matter where he or she is.

The technical possibilities are there, which is no news, and now various service providers are jumping the band-waggon by offering ever more sophisticated opportunities, specifically so in the financial and banking sectors.

7.1. Cybermoney

Europe Leads Smart Card Usage

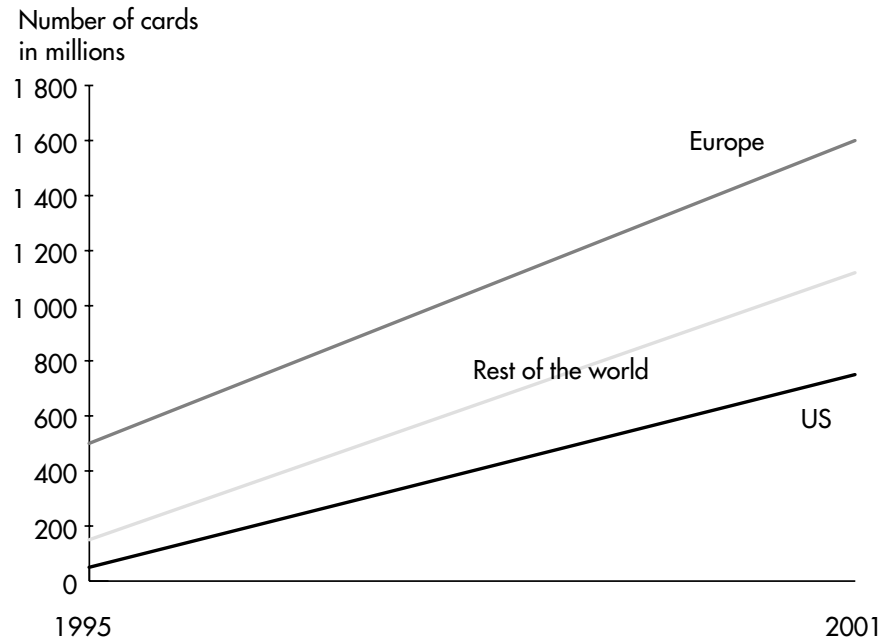


Fig 25 Feb 24: Smart cards usage is predicted to increase by 54% annually in the USA during the next five years, which is a faster growth than the 22% annual growth predicted for Europe. By the end of 1995, 482 million smart cards were already in circulation in Europe.

Sources: Datamonitor/Computer Sweden 17 January, 1997

*** Cash Cards Tested in Uppsala and Halmstad**

Sweden has been a latecomer when it comes to cash cards — the Danes have been users for several years, already. Late in the autumn of 1996, two Swedish banks, Sparbanken, and Nordbanken, announced that their customers in two cities, Uppsala and Halmstad, can buy smart cash cards to be used for small purchases instead of cash. The cash card is provided with a microchip that is loaded with money. For a start, 2 000 payment terminals are available in the two cities, mainly in kiosks, small coffee houses and similar places that do not accept existing plastic cards. In Uppsala, it is also possible to pay for taxi and bus fares. Some of the large food chains, like ICA, Vivo, and Konsum are accepting the new cash card, as well as some gasoline distributors. The SE-banken is also planning to participate, and will provide their customers with cards in early 1997.

Source: Ny teknik, 1996:46

* **Electronic ID via Nordic Post Offices**

The post offices in Denmark, Finland, Norway, and Sweden have developed a system for electronic identification, verification of authority, and signature of business agreements. This will be the basis for secure electronic transactions, whether it goes about using smart cards, signing an EDI contract, or making electronic purchases. The electronic ID is available via the post offices.

Source: e.magasinet, # 6, 1996

* **EDI for Small and Medium Sized Companies**

Toppledarforum, a group of experts organised by Statskontoret, has developed and launched a package for **electronic trade** for small and medium sized companies. The first step is called PriCon Handel, and includes an electronic market place and an e-mail box. Orders and other business documents according to the Edifact standard will also be included. Electronic trade already has a history in the Swedish transportation and storing industries. Type the following addresses for more information about electronic trade for small and medium sized companies:

* <http://toppled.nutek.se>

* <http://www.edifact-transport.se>

Source: e.magasinet, # 6, 1996

* **Cybercash** may become real, at last. MasterCard International and IBM are joining forces with Danish Payment Systems, a Danish on-line bank. Together they demonstrate a system for secure business transaction via the Internet. The method is based on the SET-standard (Secure Electronic Transaction), developed by Visa and MasterCard. The pilot program includes three companies and 750 clients. After Denmark, tests will be carried out in the US, Holland, and Japan.

Open Financial Exchange is a different standard, being promoted by Microsoft, Inuit, and CheckFree Corp.

Source: Nätvärlden # 1 1997

* **Mondex, The Electronic, International Purse**

Mondex is an electronic purse, a smart card, which is not tied directly to a bank account but which has to be locked and unlocked by its user, and which gives the user direct access to foreign currencies. The maximal sum that can be loaded into the card, depends on currency. Thus, in the UK, £500 is the maximum. The card can hold five different currencies, so far. No computer registers what the user buys and for how much, but the information is loaded onto the card. There are some 90 000 Mondex cards issued by Mastercard, which recently bought the company having developed this "smart card purse". Canada and HongKong are the first regions to have adopted the purse.

Source: Dagens Nyheter, 10 April 1997

* **The Smart Card All in One — Cash, Banking, ID, Bus Fare, Telephone Card, and Health Card**

Smart card-based electronic purses are becoming ubiquitous. Visa has launched a cash card in the UK, VisaCash, first as a test program in Leeds, where 70 000 inhabitants will test the cash card during one year. England's six largest banks are participating. Within two years, there will be 25 million users, according to the banks.

Source: Dagens Nyheter, 10 April 1997

7 .2. Telebanking

New banking services — new banks based on on-line telecommunications service only — are coming to Sweden. Some of the new banks are:

- * Ikanobanken
- * Sesam Telefonbank
- * Skandiabanken
- * Stadshypoteks Bank
- * Trygg-Banken
- * Wasabanken

* **New banks mean tougher competition**

(Translated from the *Skandinaviska Enskilda Banken annual report 1995*, p.7)

”During 1995, the Swedish banking market experienced a considerably tougher competition than ever before due to the creation of a large number of specialised banks. In general, this has resulted in more and better product development and better conceived marketing efforts.

The establishment of the new banks has so far resulted in tougher competition in the private market, in particular so in the savings market segment. This is expressed through generally higher interest on loans from clients, but has also resulted in changed pricing of banking services. Regarding credits, the increased competition has resulted in lower prices and product innovations.

Part of the picture is that a number of other companies, from outside the traditional banking world, also has entered the market to compete for the placement and payment volumes of the households, for instance retailers, by offering their own payment card services and considerably higher interest rates.

In the market segment of small and mediumsized companies, the state owned PostGiro Bank has joined the competition, and a number of Nordic banks are also expressing their ambitions towards corporate clients.

The increased competition is mirrored in advertising and communication activities, in the service offering and in technical development. In the last few years, the marketing costs of the banking industry has multiplied. Locally, several other banks have followed the example of the Skandinaviska Enskilda Bank of longer and more flexible opening hours. The new telephone banks are trying to live up to the around-the-clock service the Sesam Telephone Bank is offering its clients. So far, none has followed suit totally. Many banks have the ambition to increase the number of fully trained private counsellors and sales people of for instance insurance and payment services to corporations, areas in which the S-E-Banken has been the innovator.

The information technology of the future is being tested in the Swedish banking market. In Stockholm, Uppsala, and Göteborg, the S-E-Banken is running clients' tests with so called video kiosks, in which the client can ask for credit, sign up for retirement insurance policies by talking to a clerk via a TV-screen."

The first S-E-Banken automatic banking office is situated in central Stockholm. No manned desks are available, they have been replaced by automated teller machines, monitors for the stock exchange including touch screens for buying and selling orders, and other machinery, serving the clients automatically.

7.3. Industrial Applications

SCM Programs for Control of Flows and Logistics Show Global Increase

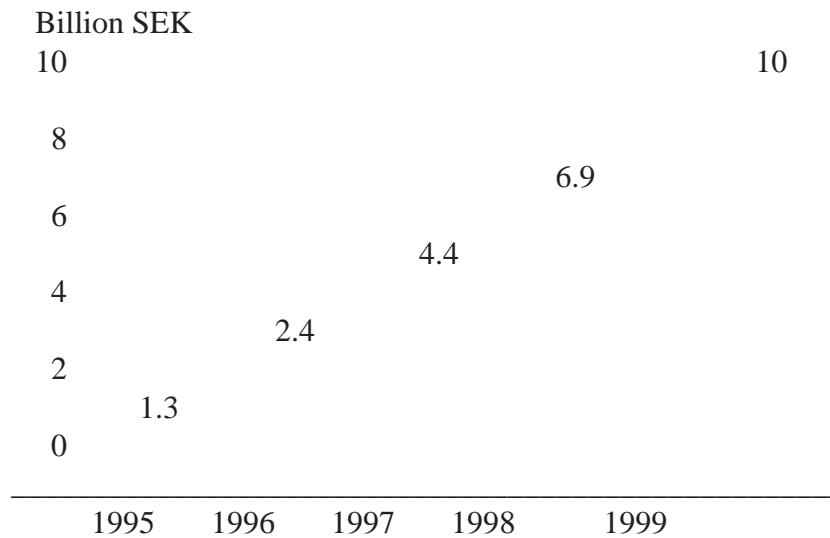


Fig. 28 april 4: The global market for SCM (Supply Chain Management) programs, are predicted to increase from 2.4 billion SEK in 1996 to some 10 billion SEK in 1999 by the Institute for Advanced Manufacturing Research. The programs become more and more powerful as they can link more and more administrative processes from the ordering of rawmaterials to the delivery of the finished products to the seller/user. International competition among manufacturing companies is one of the factors behind this rather remarkable growth.

Sources: Advanced Manufacturing Research/Computer Sweden 7 March 1997

7.4. Do You Know This About New Applications?

* **POSTNet www.torget.se** is the largest Internet site in all of Europe, at least according to Netscape. 51 273 visitors were noted as the top number of visitors during one day in November, 1996. Torget (The Market) was launched by the Swedish Post Office by the end of the summer 1996. Telia and Tele2 are Internet suppliers. Before the end of 1996, Torget had some 23 000 members, many of them mail order companies, offering their goods electronically as a complement to their traditional catalogs.

Torget has developed a special security system, so that buyers will not have to send the numbers of their plastic cards via the Net — they are using a personal code instead. International as well as national credit cards are accepted, right now (December 1996) Visa, Mastercard, Rikskort, Köpkort, Eurocard, and bank cards can be used. More will come.

But not only mail order companies see the benefits of Torget. Voluntary aid organisations like Rädde Barnen (Save the Children) is one of the users. Rädde Barnen is collecting money for their various projects by having well known and popular artists signing a computer mouse, which is auctioned via the Net.

And, if your horse is ailing, you can get in contact with a specialised veterinary service. There are priests and clergymen to talk to. The number and variety of services is growing by the minute.

The E-mail address is: mail@postnet.se

Source: e.magasinet, # 6, 1996

* The Swedish State department for civilian questions (Civildepartementet) is using new technology, i.e. the Internet, to provide a service called "Samhället Direkt" (The Society Directly). The idea is that in particular young people should be enticed to learn more about how society functions and to participate directly in the democratic process. Via mail-boxes and data bases any user can find out what questions the different state agencies are involved in at a specific moment.

Source: Statskontoret: Öppna system # 4:1995

* Freephone is a service, offering the Swedish-speaking user free telephone calls via a special 0200 number. The only thing the user has to do is to listen to advertising messages at the start of the call and then every 60 seconds.

Source: Computer Sweden, 25 February, 1997

* In Sweden, telemedicine has a new centre, **Telemedicinskt utvecklingscentrum, TMC**, (The Telemedical Development Centre), at the hospital of Huddinge to the south of Stockholm. The centre is owned by the hospitals of Huddinge and Visby, situated on Gotland, the largest island in the Baltic. TMC will be involved in research and development, in training, teaching, and demonstrations of telemedical applications.

Thanks to TMC, a doctor in Visby, having difficulties in diagnosing a patient can connect via a PC, a telephone, and a video camera to the specialists at Huddinge, which is an academic hospital, and get second opinions. The new, digital X-ray unit of the Visby hospital can also connect to the network, whenever needed. The patient will not have to fly or go by boat to a hospital at the Swedish mainland, and can be treated faster than before. Moreover, doctors in local clinics can connect to the centre and get help.

In addition, two studios for video conferencing are built at Huddinge and Visby. These will be used for competence development of the medical staff, among other things. Within some years, TMC will also offer its vocational training and educational services to the Baltic countries.

Source: Medicinsk vetenskap vid Karolinska Institutet, # 3, 1996

* **Super fax is chasing thieves and shoplifters.** The trivial fax machine has become a medium for chasing and nailing down thieves and shoplifters. Each year, goods worth some 5 billion SEK are stolen from Swedish shops. Any shopkeeper in the country can ask to be hooked up to a central fax machine at Köpmannaförbundet (The Shop Keepers' Association) in Stockholm. As soon as a shop keeper encounters a problem, she/he sends a fax to the central fax machine, which in turn distributes a warning to all the other shops connected. In 40 minutes, 5 000 warnings can be sent. So, for instance, earlier this year, a general store detected that false 100 crown notes had been used in his shop. Within a few minutes a warning had been sent to some 200 shops in the same area of Stockholm.

Descriptions of stolen goods, serial numbers, anything, that can help others to avoid theft, are shared in this way.

Source: Dagens Nyheter, November 14, 1996

* Early in 1997, **Pulpex**, an electronic exchange for trade in Swedish paper and pulp, will start running in London. The paper and pulp market is known for its rather violent price fluctuations. SOP, The Option Exchange in Helsinki, Finland, has plans for a similar electronic exchange, covering the products of the Finnish forestry industry.

Source: Svenska Dagbladet, August 30, 1996

* **Electronics to the Tenants**

* Owners of large apartment houses in Sweden are considering new ways of increasing their service to tenants via existing cable television networks. Time booking of central utilities like laundries, electronic doorlocks, temperature control, and similar services are being considered by companies like Svenska Bostäder and Sabo. Their networks will be made available to all tenants.

Source: Dagens Nyheter, November 14, 1996

* **Damaged Retinas to be Replaced by Chips?**

Nobody has tried it yet, but researchers at the North Carolina State University have created a 2x2 millimeter electronic chip that can be operated into the eye and connected to the visual nervesystem. It will not restore full sight, but can give a totally blind person some sight back. The chip will be tested during 1997 at the John Hopkins University in Baltimore.

Source: Computer Sweden, 21 February 1997

* **Home Shopping in the US — Catalogs Beat Internet**

According to the Direct Marketing Association (DMA) of America, home shoppers picking their preferred goods from old fashioned paper catalogs spent 70 billion US dollars in 1995. 43 billion were spent by consumers, the rest by businesses. Sales through informercials and direct-response advertising on television amounted to 4.5 billion US dollars. Out of these, 2.6 billion dollars were generated by dedicated home shopping channels. According to Forrester Research, an American consultancy, sales of goods via the Internet and other on-line services were worth 518 million US dollars.

In 1995, 13.2 billion catalogs were sent by mail in the US. In 1983, the number was 8.7 billion. The DMA projects that the number of mailed catalogs will grow by 7% annually, until the end of the decade.

Source: The Economist, October 12th, 1996

* **Software for Robust Distributed Computer Systems**

A distributed computing system has been defined as "one in which the failure of a computer you didn't even know existed can render your own computer unusable". So called "brownouts", when it is impossible to communicate on the Internet, are fairly well known to Net users. They are often attributed to software errors, excessive traffic on transmission lines and overload failure of the Web servers.

Such failures are not acceptable in for instance networks for medical care, traffic control, financial services, and similar systems for surveillance, transmission, and warning. At US universities, such as Cornell, researchers have developed software packages for **robust distributed computing systems**. These packages contain tools that replicate and update data, keep track of process groups and assist in handling membership changes. More information about the system called Horus developed at Cornell is available from <http://www.cs.cornell.edu/Info/Projects/HORUS/>

Source: Scientific American May 1996

* **Digital cameras** belong to the emerging ICT consumer equipment. A few issues are not quite solved yet, such as for instance picture format — pictures are so far in proprietary formats, and thus cannot be used with common PC software, like Adobe Photoshop. Available now are cameras with displays and five megabyte memory for storage.

Source: Business Week, February 17, 1997

* **Digital toys** are being launched by a number of companies in the US. Home PC add-ons for toddlers, children's software, and talking, walking, singing robots, help the very young to get accustomed to computers. Just keep your eyes open — Bill Gates, a proud dad, is already there!

Sources: Several

* Microsoft Sidewalk is an entertainment guide, available on the Internet, for several American cities. The first city is Seattle, the home town of the firm. Before the end of 1997, Sidewalk is planned to be available for some fifteen cities, among others New York and San Francisco. The service will be paid for by advertising. The idea is that the user should be able to type in her interest profile and ask for special information about areas of interest.

Source: Ny Teknik 10 April 1997

* **Tamagotchi — The Electronic Chicken**

Easter 1997 brought a new phenomena to the Japanese, the Tamagotchi, or the electronic chicken. It is a small electronic device, containing some very smart programming, creating an "almost-alive" chicken on a minimal screen, a chicken that wants to be fed, comforted, cuddled... you name it! It brings out the parenting instincts in anyone, from very young children, to elderly distinguished gentlemen. As soon as a Tamagotchi is malcontent, it gives away an array of sounds, and becomes ill, when not properly looked after. Well... we will have to wait and see how Europeans and Americans will react to this electronic chick.

Sources: Several, among others Ny Teknik, 10 April 1997