

CONTACT

PUBLICATION FOR EMPLOYEES WORLDWIDE

No. 2 MARCH 1994

Eritel sees new possibilities

"We interpret the fact that Ericsson came in as full owner as a sign of confidence in our possibilities for the future," says Åke Johansson. He is president of Eritel, which since the start of the year is owned 100 percent by Ericsson.

11

Revolution for polish banks

In a short time Polish banks have entered the computer age. Instead of working with paper and pencil they now have access to highly efficient digital computer networks for their financial routines.

8

Building up in Lebanon

Ericsson got an order worth 1.2 billion kronor for reconstruction of the Lebanese tele network.

4

Good news from all areas

Ericsson's earnings report for 1993 can be seen as praise for employees in all the business areas. Last year showed improved results for all business areas.

5

Project must be justified

All projects in Ericsson must be justified businesswise. That's why a procedure is currently being used with toll-gates, where project leaders must get the project approved at a higher management level.

7



Photo: Thord Andersson

Small news is big at Ce-Bit fair

The world's smallest GSM telephone and the new radio base station RBS 2000 were Ericsson's big draw at the CeBit fair in Hannover.

See page **3**

Back in the world of figures

Ericsson has had a new controller since the first of November last year. It is Gerhard Weise who took over this important job from Åke Stavling. For Gerhard the new job is a return to the world of figures after two four-year contracts abroad, as president in Brazil and most recently in Mexico.

"It will be exciting to utilize my experiences from the job as president in my new role," says Gerhard.

Ericsson's top management is almost without exception people with wide and varied experience in different areas of activities in the company. Stimulating rotation among different job assignments and areas is an important lead in management planning. For Gerhard Weise this has meant that eight of his eighteen years with the company have been spent abroad. In 1985 he was named president of Ericsson Telecommunicacoes in Brazil, EDB, and four years later was with Teleindustria Ericsson, TIM, in Mexico as president.

"But now I am back in the world of figures," says Gerhard, an economist. He took over from Åke Stavling as corporate controller in the fall when Åke left Ericsson to become chief economist at Astra.

After ten years' work on the economy side, Gerhard left Sweden in 1985 to become president in Brazil and in 1989 he moved several hundred miles north to head up Ericsson's operations there.

Dynamic market

The tele market in Latin America offers many challenges. In recent years developments in this part of the world have been very dynamic. The old tele monopolies are on the way to being replaced by independent operators with an entirely different view of their suppliers from what Ericsson and its competitors were earlier accustomed to.

Gerhard is ready with his first earnings report

"When Telmex, the huge tele operator in Mexico, was being privatized Ericsson faced an entirely new situation," says Gerhard. "The group's almost hundred-year history as a trusted partner and supplier practically lost all meaning. Instead, it meant proving every day that Ericsson was the best business partner. Now it is a question of constantly being best in matters of price, quality, delivery times, etc. and always being compared with and measured against other suppliers."

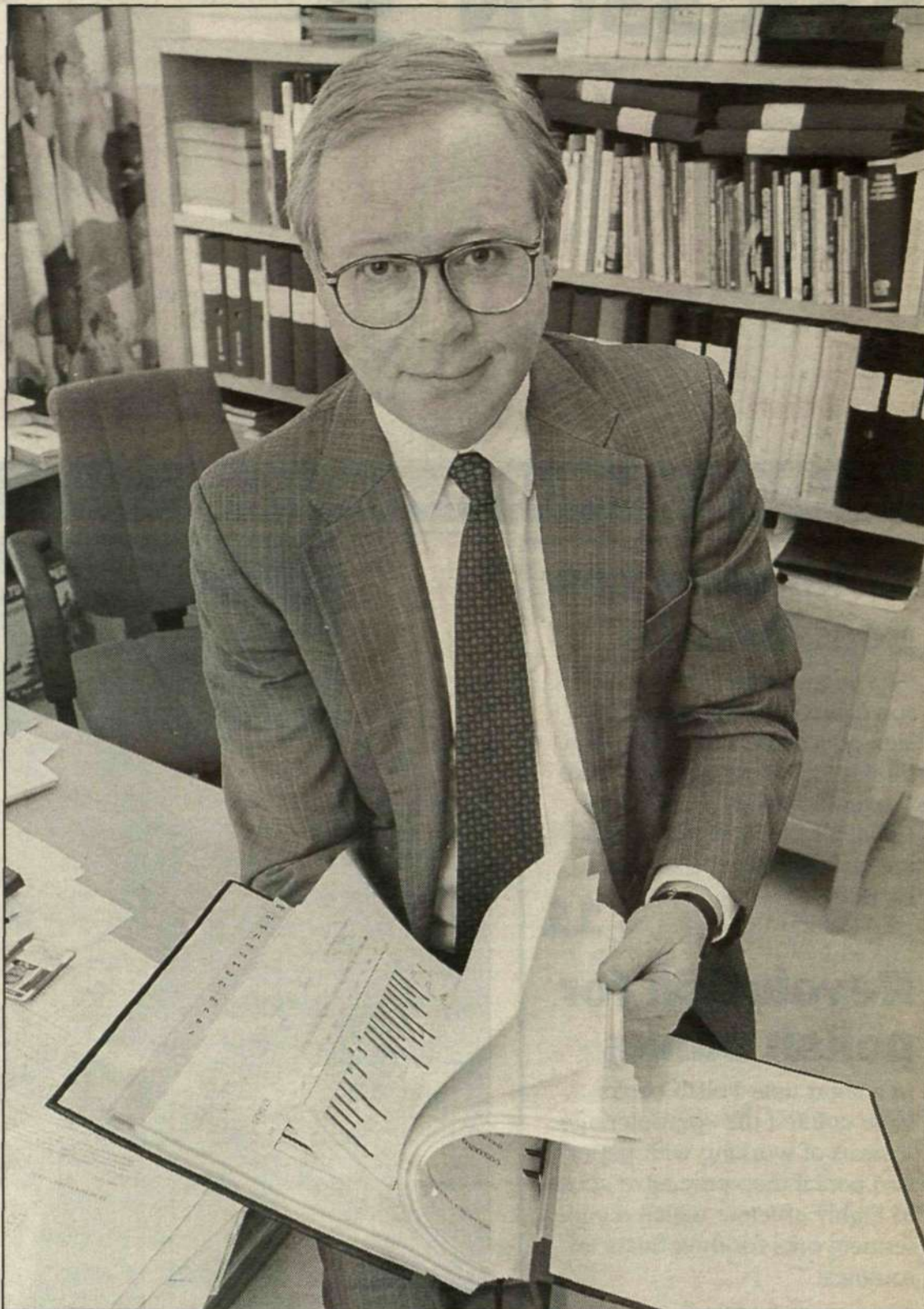
"In such a situation only one thing matters: putting the customer at the center. It is only by being aware of customer needs and demands that Ericsson can defend its position – and even strengthen it."

Thanks to Ericsson's organization in Mexico having had the ability to change and adapt to the new rules of the game, the company was able to cope with the changes quite well, at least so far. With TQM as a foremost tool TIM has become one of the companies in the group that has come very far in its quality work.

"Last year we made a preliminary assessment against the national quality prize. It was a very valuable exercise that showed up both our strong and weak points. When the weaknesses are corrected the goal is to try and take home the prestigious prize."

Important experiences

Now that Gerhard is back in Sweden, he sees many possibilities to draw on experiences from Latin America in his new job. There are lot of customers to be taken care of also for those who manage the company's work with accounting and earnings reports.



"It is also important to put the customer at the center when you deal with accounting and earnings reports. That's why we are going all out to improve the company's economic reporting," says Gerhard Weise.

"In part we have internal customers, that is to say all those units and private individuals whom we at corporate function economy must support with relevant economic information. And then we have the rest of the world – shareholders, investors, analysts, etc. They all are our customers and they all have their more or less clearly defined needs and desires on how information and reporting from Ericsson should appear."

Overview

One request that often surpasses all others is speed in information. Ericsson's earnings report comes out late compared, for example, with Motorola and Northern Telecom. Hence it would be desirable to have quicker routines for getting out at least the interim earnings results.

"Going on right now is an overview of FIRE, the group

common system for economic reporting," says Gerhard. "The system has meant a great deal in streamlining and coordinating the group's economic reporting. But now it needs to be reviewed so that it would be more effective. And quality too must be raised for information that comes out of the system."

Faster

"Cutting down on the time for getting out the earnings report is another objective with the overview that is now being done," Gerhard adds. "That's good news for many analysts and investors."

Producing the earnings results and interim reports for a company with operations in more than 100 countries and a turnover of more than 60 billion kronor is naturally a giant task. Four times a year the procedure is repeated, beginning far out in the organiza-

tion, then continuing through the subsidiaries and business areas and ending with Gerhard and his 11 colleagues at corporate level.

Teamwork

"Work with the full-year earnings report is naturally the toughest. It begins around January 20 and must be ready by the first days of March, when the final accounting is done. There is no time for respite, but rather it takes many days of efficient and hard work all around in order to accomplish the task."

"And it also calls for solid teamwork between us and the business areas," says Gerhard. "It is very important that we all really understand the contribution of and the contents in each other's job assignment. There is a lot to be done in order to develop this."

**Text: Lars-Göran Hedin
Photo: Peter Nordahl**

CONTACT

Publisher: Nils Ingvar Lundin

Editor: Lars-Göran Hedin,
tel: +46 8 7199868, memo: LMELGH.

Editorial assistant: Pia Rehnberg,
tel +46 8 719 78 69, memo: LMEPRG

Fax nr: +46 8 7191976

Distribution: Birgitta Michels,
tel: +46 8 7192814. Memo: LMELBIMI

Layout: Paues Media AB.

Print: Aftonbladet Civil, Gothenburg,
1993.

CONTACT is published by:

**Telefonaktiebolaget LM Ericsson
HF/LME/DI
S-126 25 STOCKHOLM.**

Small news turns out to be big at CeBit

Ericsson's strong standing in mobile telephony was the theme when Lars Ramqvist held his press conference at this year's CeBit fair. This year Lars presented two small but major news items – the new GSM telephone GH 337 and the new compact radio base station RBS 2000.

Ramqvist presented the world's smallest GSM-phone

CeBit in Hannover is one of the world's truly largest fairs in all categories. For Ericsson and other suppliers to the world's tele operators the fair is an annual general conscription. Literally hundreds of thousands of visitors from around the globe come here – many of them with a special interest in telecommunications. And CeBit also attracts the cream of the trade press journalists in data and telecom. That's why Ericsson has made it a tradition each year to invite them to a press conference with Lars Ramqvist during some of the first days of the fair.

Big mobile news

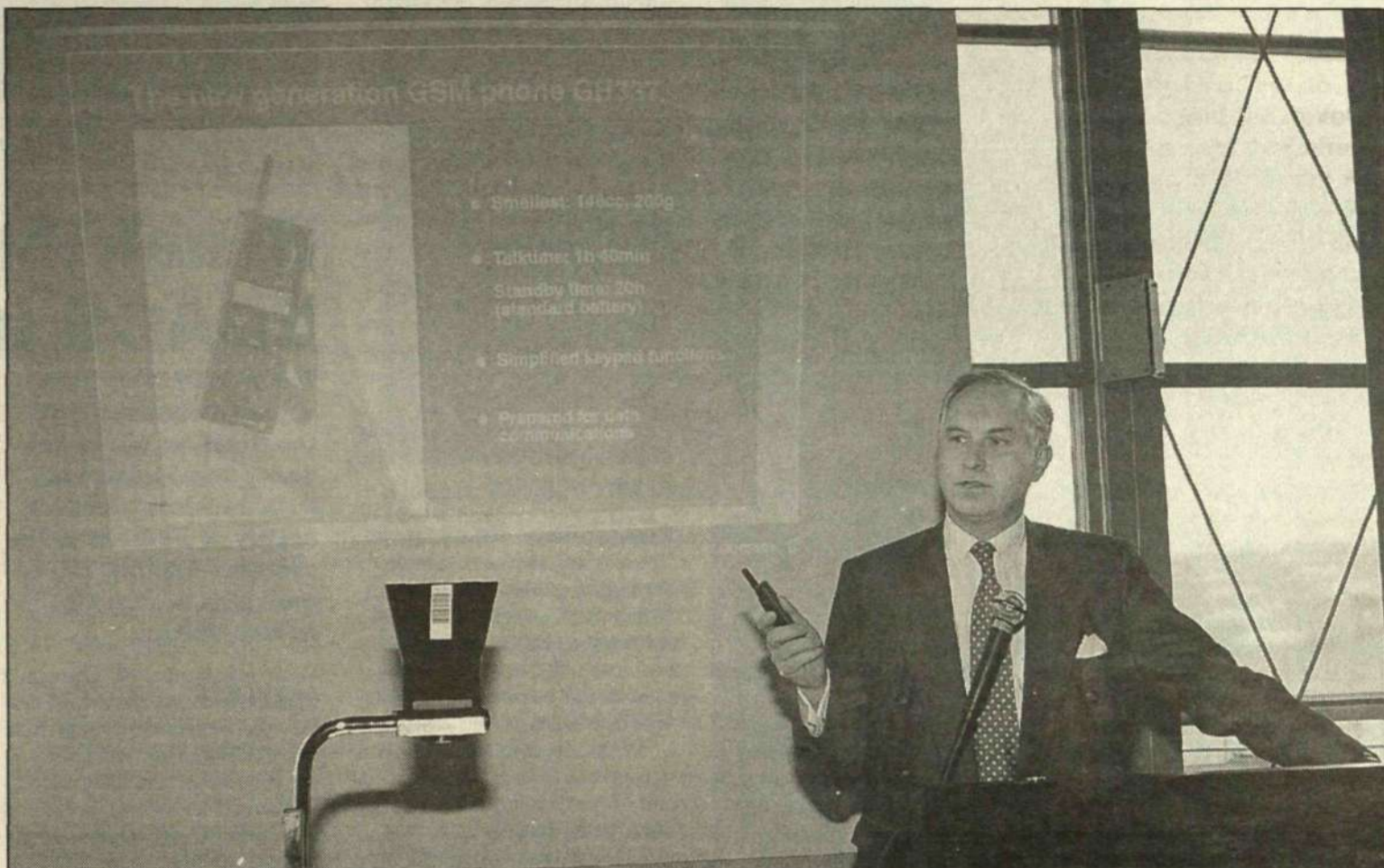
This year's press conference was strongly marked by Ericsson's solid position in mobile telephony and by the keen interest in mobile telephony and cordless communications not only in Germany but also in the entire world.

Lars Ramqvist presented to big and important news items within mobile telephony this year – the new radio base station RBS 2000 and the new GSM-telephone GH 337.

The common attribute for these two pieces of news is the small format. The fact that pocket phones are becoming smaller and smaller all the time and that size plays a decisive role in marketing is quite obvious. But it is perhaps not so obvious that a compact format has tremendous significance also for radio base stations today.

Adaptable

"The new radio base station can be upgraded and adapted to a



Ericsson's press conference has become a tradition at CeBit. This year Lars Ramqvist was able to present the world's smallest GSM phone, GH 337. Interest for mobile telephony is very great among trade journalists.

number of different use areas," Lars Ramqvist explained.

"It can be used in traditional installations but also when you want to build microcells or picocells. And then size is of immense significance since it is important for the operator to be able to expand his network without too large costs for factories."

New GSM telephone

The new pocket phone GH 337 is the GSM version of Ericsson's latest generation mobile telephones. With the GSM version the series is now complete, with small and powerful phones for all analog and digital standards. GH 337 and the other phones in this new generation are small and light, and they are very user friendly. The number of buttons were able to be reduced since the telephone's built-in intelligence has increased considerably.

"With the new GSM telephone we can secure our strong position when it comes to digital pocket phones," Lars Ramqvist explained.

Leader in Germany

"Ericsson, which traditionally is not particularly big in matters of analog mobile telephones, has taken a leading position when it comes to digital. In Germany, for example, last year the company had a market share for GSM telephones of 40 percent. This was

because Ericsson in the first few months of the year was, in principle, alone in being able to deliver functioning pocket phones. For this reason, the German market share in the long run will decrease. Still, the company has secured a tight position in technical developments in this area.

Similar technology

"This we got more or less thrown into the bargain since technology in the telephones and in the system itself is similar to each other," Lars Ramqvist explained.

"Everyone knows that Ericsson is a world leader when it comes to mobile telephony systems. The 40 percent market share for analog systems has increased to 60 percent regarding GSM. And all in all the company is alone in being able to deliver mobile telephone systems of all the eight analog and digital standards."

"There are more than 32 million mobile phone users in the world today. 13.3 million of these are communicating over an Ericsson system."

GSM a world standard

From its origin as a common European standard, GSM has moved eastwards. A lot of countries in Asia and Oceania has chosen this digital standard. Ericsson has won contracts from 26 countries altogether in the

world, several of which are outside Europe.

"In West Europe it is only in Belgium that we have not sold any GSM system, and we finally understand why. Presumably, politics is behind that," Lars Ramqvist said.

Outside Europe several countries in the Far East have ordered GSM, as well as two operators in Australia.

"And today we can announce our first order for GSM from the Middle East," Lars noted. "Bahrain has ordered a GSM system from Ericsson."

GSM for Local Loop

GSM has, without doubt, evolved to become a global standard for "traditional" mobile telephony. It is also an interesting solution when it comes to other applications, for example Radio in the Local Loop, that is to say when you want to expand a tele network quickly and cheaply by investing in cordless terminals instead of fixed networks out to subscribers.

Asked by one of the journalists, Lars Ramqvist recommended GSM as a technical solution for Local Loop ahead of DECT, the European standard for cordless personal telephony.

AXE just grows

Of course, Ericsson is not just mobile telephony, even if preci-

sely that area attracts a lot of interest in the mass media. Ramqvist pointed out then that last year was also a record in terms of public telecommunications.

"We have sold more AXE than ever before – 11.3 million new AXE lines were installed during 1993. AXE increased thereby its world market share from 14 to 15 percent – 16 percent if you count in local lines. This is the world's leading digital tele system," Lars noted. "Although AXE has been on the market for 20 years, we reckon on installing just as many new lines between now and the end of the century," he added.

ATM switch under way

So far AXE has existed in its traditional form. What is on everyone's lips today in the telecom branch is ATM broadband. Here Ericsson has invested a lot in developing AXE for broadband applications.

"We are proud at having been chosen to participate in Deutsche Bundespost Telekom's pilot research with ATM. The ATM node we supplied to Hamburg is up and running and it will be tested on a large scale during the summer. Apart from here in Germany, Ericsson has so far received orders for provisional installation also in Italy, Spain and Sweden," Ramqvist said.

Text: Lars-Göran Hedin
Photo: Thord Andersson

Big order from Lebanon



Ericsson will help Lebanon to rebuild the country's tele network. The order is worth 1.2 billion kronor. Photo: Torbjörn F. Gustafsson

Ericsson has won a large network construction contract from Lebanon that is worth 1.2 billion kronor. The project involves expansion and rebuilding of the country's tele network. The customer is the Lebanese Ministry of Post and Telecommunications (MPT).

Ericsson will build local and transport networks in several parts of Lebanon, including the capital city of Beirut.

The agreement also includes setting up construction that is needed for AXE exchanges, which are being supplied according to terms of an earlier contract.

Projecting, training and supply of all required material are also included in the deal.

Strengthens its position

"This is yet another example of our ability to offer total telecommunications solutions," says Bo Hildingsson, export manager for business unit Network Engineering in the business area Business Networks.

"With this contract Ericsson strengthens further its position as one of the leading telecom suppliers in the Middle East."

Mobilization work for the project will get under way immediately. It will soon provide work for hundreds of people in Lebanon.

All the work should be completed during 1996.



Ericsson i Brasilien - with a factory in São Jose dos Campos - is behind the order to Companhia Paulista de Força e Luz in the Brazilian state of São Paulo. Photo: Lars Åström

Breakthrough for EDACS in Brazil

Ericsson in Brazil has signed a contract with the Brazilian power producer Companhia Paulista de Força e Luz for supply of a mobile radio system - EDACS. The order value is about 30 million dollars.

With installation of Ericsson's EDACS system (Enhanced Digital Access System) more than two million power subscribers in the interior of the state of São Paulo will be able to get round the clock service regarding power distribution.

In a first phase the system will consist of 85 base stations that are linked together so the CPFL's entire 93,000 square kilometer large service area will be covered.

"With EDACS the CPFL can provide more efficient service to its customers since several different communications systems can now be incorporated into one EDACS system. EDACS' possibility to transmit data means that CPFL can now offer services that were not possible before," says Robert Skovholt, marketing manager for Latin America market at Ericsson GE in Lynchburg.

Breakthrough in Brazil

"This is a breakthrough for EDACS in Brazil. This is the first and most advanced of this size to be installed in a power company outside of the North American market. We are really happy and proud over that," says Staffan Svensson, vice president Land Mobile Radio International, Ericsson Mobile Communications.

World's smallest GSM phone

A new concept for mobile phones has been introduced by Ericsson. The new generation of telephones is smaller and works with an entirely new interface, which makes the phone easier to use.

Mobile telephones continue to shrink. The new GSM phone GH 337 fits in the palm of the hand and is the smallest on the market.

"We have succeeded in reducing the number of components, which makes the total format smaller, at the same time that the phone becomes lighter," explains product manager Mats Barvesten at Ericsson Mobile Communications AB.

"In addition we have lengthened talk time for this class size to 80 minutes with a lightweight battery," Mats Barvesten continues.

Simple to use

The new generation of mobile phones from Ericsson has a new

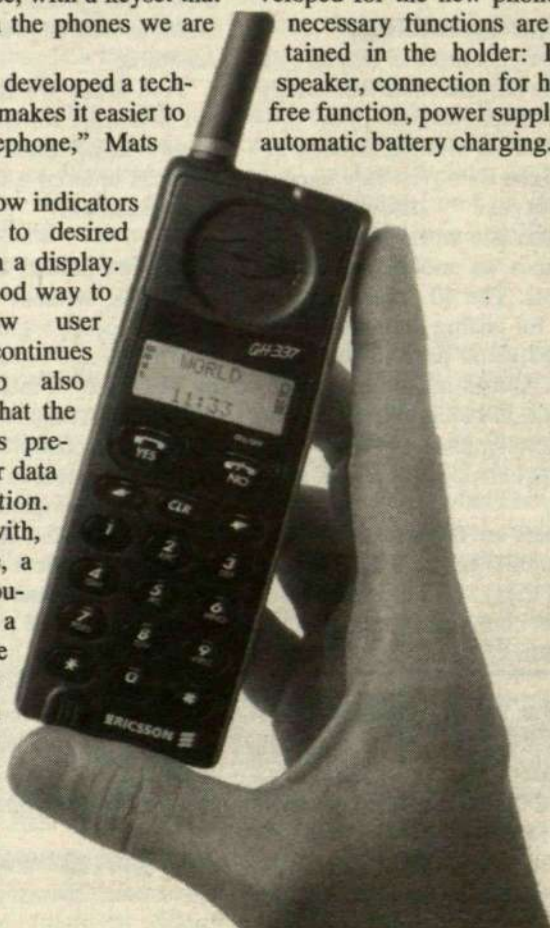
user interface, with a keyset that differs from the phones we are used to."

"We have developed a technology that makes it easier to use the telephone," Mats says.

"With arrow indicators you move to desired functions on a display. This is a good way to satisfy new user groups," continues Mats, who also points out that the telephone is pre-equipped for data communication. Together with, for example, a laptop computer with a printer one can communicate with other computers or fax machines.

A new type of installation method for cars has been de-

veloped for the new phone. All necessary functions are contained in the holder: Loudspeaker, connection for hands-free function, power supply and automatic battery charging.



Ericsson's new GSM telephone GH 337.

Along with the introduction of GH 337 Ericsson will market several mobile telephones for GSM. As a complement to GH 337 there is GH 174 and GH 198, which still offer the market's best performance when it comes to talk time and standby time, something that is welcome when you do not have access to recharging.

Ericsson mobile phone of the year

Ericsson's pocket phone EH237 has won Cellnet's prestigious CAESAR award, Mobile Telephone of the Year. A panel of eight independent experts ranked Ericsson's new mobile phone best of all on the market.

EH 237 belongs to the group's new generation of pocket phones. Just this model is used in the analog ETACS system, which is the second-largest mobile tele-

Technical data, GH 337

Size: 130x49x24mm
Weight*: 200 g
Standby time*: 15 hrs.
Talk time*: 80 mins.

*With lightweight battery
Lightweight battery = <500 mAH

phone system in the world. It exists, among other places, in Britain, Italy, Spain and China. In this new generation of pocket phones, there is also a NMT and GSM model.

"When the choice of telephone expands, consumers' demands in objective scrutiny and what is most priceworthy also increases. The idea behind our Caesar honor (The Cellnet Award for Excellence, Service and Reliability) is to satisfy these demands," says Stephen Brewer, marketing manager at Cellnet.

The art of building up a good organization

Daring ideas and broad commitment were the key words when Ericsson's core unit for microelectronic systems technology formed its organization. The foundation was laid for a new work culture.

With a tough challenge ahead of it, to put Ericsson at the frontline of microelectronics, the new core unit Microelectronics Systems Technology went into a new organization. How can one manage to grasp the opportunities in the rapid development of microelectronics?

"We realized that in order to succeed we must have access to ideas and complementary knowledge from everybody in the organization," Leif Carlsson recounts. "We therefore formed work groups out in the organization and challenged people to ideas. Preferably bold and daring ideas."

Work groups were formed that would analyze customer relations, administration, communications and collaboration, premises and organization.

"Normally, new organizations are worked out by management groups. Now we have gotten help from some fifty persons and we have a surplus," says Christer Jungsand, head of the core unit.

"Ideas have come forth that would never have emerged in a

Everyone got to be involved and devised new work methods

management group. Work in the groups has laid the base for the new organization."

Today Kista is home base – a pivot around which the core unit must revolve. Many work for longer or shorter periods with customers within Ericsson. Others with partners outside of Ericsson, for example Texas Instruments. These functions are known popularly as satellite functions.

The choice of future technology for telecommunications calls for broad and deep knowledge. Cross-scientific work must be driven across area borders for technical solutions that are often a combination of different technologies.

Right time, right place

A pre-requirement for a geographically diverse operation is that communication and collaboration must function. Otherwise the risk is great that information and even competence would not be forthcoming at the right time and in the right place. "We must get to the core of our own technology, otherwise we will never be anywhere near the frontline," the work groups say.



A group in the core unit for microelectronic systems technology that accepted the challenge to move forward Ericsson's positions in microelectronics. The work groups that got the idea for the new organization worked under the leadership of Leif Carlsson (inset). Photos: Magnus Torie and Anders Anjou.

Effective means of communication are necessary, geographical distances should play no role. This means high communications standards with databases, E-mail, voice mail, multimedia and mobile aids.

To reach the broad, deep knowledge needed for research and development there is also a network that reaches universities, technical institutions and research centers all over the world. Communication and collaboration are key words here too.

Customer relations and competence development were heavy

command points in the work groups. The need to give leeway for driving, idea-rich people was an important point too. This also led to a level organization with major responsibility for the individual, project organization with full operative responsibility, a more complete manager role with full budget responsibility.

Another aspect concerned premises. Work premises should visually be a reflection of activities. They should be able to be adapted according to present needs and provide room for guest researchers and industry folk.

We got an unequivocal answer as to how it was to work in the newly formed work groups.

"A marvelous feeling to have the chance to influence. We have gotten the opportunity to compare different viewpoints and to make contacts crossways," says Jolanta Norén.

"This work method is here to stay," says Christer Jungsand. "It gives us a clear indication of how we must work in future."

A work culture adapted to a modern communications world is in the process of growing.

Inger Björklind Bengtsson

Increased revenues all over

Ericsson's earnings report for 1993 was published on March 11. It confirmed that revenues increased sharply last year:

Ericsson's net sales in 1993 amounted to SEK 62,954 million, an increase of 34 percent compared with sales of SEK 47,020 m. in the preceding year. Markets outside Sweden accounted for 90 percent of the sales, and 36 percent were attributable to countries within the European Union (EU). Order bookings totaled SEK 67,693 m., an increase of 27 percent. The order backlog at year-end amounted to SEK 45,296 m. (38,050).

Income

Ericsson's income before taxes rose 150 percent, to SEK 3,108 m. (1,241). Income included a net capital loss of SEK 36 m. after deduction for minority interests, compared with a net capital gain of SEK 57 m. in 1992. All business areas contributed to the positive trend of earnings. Income before taxes in the fourth

quarter was charged with SEK 305 m. for an extraordinary write-down of goodwill in Orbitel Mobile Communications Ltd., in which Ericsson has a 50-percent interest. The write-down was charged against share of income in associated companies.

The substantial investments in technical development and capital expenditures for technical equipment have continued. At the same time, all business areas reported improved operating results after depreciation. Total operating income amounted to SEK 3,530 m. (1,754).

Minority interests in income before taxes amounted to SEK 430 m. (309). Minority interests were affected by the improvements in income reported in Ericsson's companies in Mexico.

Financing

The financial net improved sharply, amounting to SEK 8 m., compared with a loss of SEK 204 m. in 1992. Declining interest rates and a successful issue of convertible debentures contributed to the positive trend. As a result of the sharp rise in volume of bu-

ness, capital employed increased and cash flow was negative in the amount of SEK 1,709 m., compared with negative cash flow of SEK 1,593 m. 1992.

The rate of capital turnover rose from 0.89 in 1992 to 1.09 in 1993. Ericsson's accounts receivable increased during the year but declined as a percentage of sales, from 34 to 29 percent. Inventories, which expanded parallel with the strong expansion in volume of business, amounted to 29 percent of net sales, unchanged from the preceding year. Ericsson's equity/assets ratio was 34.9 percent, also unchanged from 1992.

Business Areas

Net sales of the **Public Telecommunications Business Area** were higher due to continuing growth in the markets for public telephone exchanges, notably in Spain, Great Britain, Asia and Mexico.

The **Radio Communications Business Area** reported continuing strong growth in net sales. The increase was attributable entirely to two product areas, mobi-

le telephone systems and mobile telephones. The strong growth in the markets for mobile telephone systems occurred mainly in Asia, Europe and the United States but the markets in South America are also growing rapidly.

The dominant portion of net sales of the **Business Networks Business Area** are to European customers, in Italy and Austria in particular. The largest part of the Business Area's increase in net sales, derived from installation projects in Argentina, Pakistan and Saudi Arabia, however.

Net sales of all principal product groups were higher in the **Components Business Area**. Sales of energy systems and cable showed the largest increase. Sales of microcircuits, primarily to other Ericsson companies, increased substantially. The Business Area also took over a large number of agency operations during the year.

Net sales of the **Defense Systems Business Area** were higher in 1993. The ban on test flights of the Swedish JAS multirole military aircraft that was in effect during part of the year had only a

marginal impact on sales.

R&D

Ericsson's total research and development costs, including costs related to customers' orders, remain high as a result of the continuous development programs.

In 1993 these costs amounted to SEK 10,924 m. (7,77), equal to 17 (16) percent of net sales. Total technical costs, which include costs of modifying systems and products for specific markets, amounted to SEK 13,311 m. (10,300), equal to 21 (22) percent of net sales.

Capital expenditures

Investments in property, plant and equipment amounted to SEK 3,805 m. (3,847). Capital expenditures in Sweden amounted to SEK 1,981 m. (1,248). Of the total invested, SEK 703 m. was attributable to projects in countries within the European Union.

Outlook

Ericsson anticipates favorable growth during 1994. Income is expected to be higher than in 1993.

Customer meeting amid the Olympics

The Olympic games in Norway was a large display of mobility. Thus, it didn't feel entirely wrong when Ericsson arranged a "mobility seminar" in Oslo, naturally geared toward mobility in telecommunications.

Toward the final days in Lillehammer about 100 persons gathered in Oslo to participate in Ericsson's all-day seminar on mobile communications. They were Ericsson employees from companies around the world, ostensibly in the company of important customers.

In hurricane's eye

Under the heading "In the eye of the hurricane" Åke Lundquist spoke about mobile telephony's hurricane future but also stressed that it could be very quiet in the eye of the hurricane.

Today's market structure is changed and frontiers between manufacturers and operators are unclear.

Noted suppliers are also planning to go in as operators and vice-versa (known as vertical integration).

The operator's role is also changed. They risk being reduced to mere transporters of com-

munications, that is to be responsible only for the transport network between end users and the various companies that offer services.

If operators do not want to silently witness how money is passing them by they must use their unique knowhow and bind subscribers to intelligent services in the network.

Forecasts

A mobility seminar understandably is easily characterized by thoughts of the future and forecasts, for example how many people in the year 2000 will communicate with cordless. By cordless is meant not only mobile telephones but also mobile computers, people paging, cordless office phones (DECT), etc.

Even if the forecasts do not entirely gel with each other, they all pointed to the fact that mobile communications is the fastest growing area.

Seth Myrby, vice president for Telia Mobitel, estimated that 90 percent of all Swedes will have cordless phones by 2000.

And as for mobile computers, John Jarvis from RAM Mobile Data Ltd. and Per Stein from Ericsson Radio painted a picture of a branch that was headed for very hectic development, as soon as customers could be offered simple usage and terminals.

The possibilities of the DECT system were described by Ericsson's Albert Jokubaitis, who was backed up by John Lindbergh from Holland, a very satisfied customer who, against the warnings of his colleagues, dared to invest in a Freeset system.

"This is precisely the system we needed, but why has no-one designed it before?"

"In the year 2000 30 percent of business calls will be made through cordless," Albert Jokubaitis predicted.

GSM in the world

The GSM system's evolution from a pan-European standard to a world standard Global System for Mobile Communications was highlighted by Jan-Anders Dalenstam, marketing director at Ericsson Radio.

GSM's evolution as a world standard has occurred in just a couple of years and today there are some 100 GSM licenses in 60 countries.

GSM has its largest spread in Europe, with 52 operators in 27 countries, but Asia with 35 operators in 24 countries is not far behind.

The growth of subscribers has only now begun to take off and today there are about 1.5 million GSM users, of whom a full 70 percent are in the two German networks.



Jan Stenberg presided over the mobility seminar in Oslo. It was one of his last tasks before resigning as vice president at Ericsson.

Ericsson's share of the world market is reckoned to be more than 50 percent by year's end.

Single number

Thor Halvorsen from Norwegian TeleTotal AS spoke about Universal Personal Telecommunications, the future's personal telephony where today's host of telephone numbers, mobile phone numbers, DECT numbers, fax numbers etc. will be replaced by a single personal telephone number.

And added to that one can plan in a daily or weekly calendar so that a subscriber can choose, for example between 9 and 10, to forward his calls to a secretary, between 10 and 11 answer on his cordless office phone etc.

In a few instances the discussions got heated. For example,

when it came to mobile telephones themselves.

Only one terminal

"Must we carry with us so many different phones," one of the participants wondered. "Why don't we merge the GSM phone with the cordless office phone Freeset."

"Of course it can be done," said Jan Uddenfeldt, head of Research and Development at Ericsson Radio. But the phone would be bigger and dearer. We cannot at this point integrate DECT and GSM as they did in the U.S. with the analog and digital AMPS phones.

"But still the customer wants a single personal telephone," the seminar's chairman, Jan Stenberg, concluded.

Lars Cederquist

Ericsson expands collaboration with Ascom

Ericsson and Ascom, the Swiss telecommunications company, have signed a letter of intent to establish a joint company in public telecommunications in fixed and mobile networks.

The new company will have its head office in Switzerland and will work with marketing, development, installation and support. The company will have approximately 900 employees and is expected to have a turnover of more than two billion kronor a year.

According to plans negotiations will be completed by the end of the summer and the new company will begin operations by the start of next year.

The exact ratio of ownership will be determined in the ongoing negotiations, but the intention is that Ericsson will be majority owner. The final agreement must be approved by the EU.

Old partners

Ascom and Ericsson have had close collaboration for a long time in the area of public telecommunications. In 1984 Ascom signed a licensing agreement with Ericsson for AXE. In 1992 the two companies formed a joint company in the area of transmission systems, Ascom Ericsson Transmission, AG. Both operations will be incorporated into the new company.

"By expanding collaboration with Ascom we are strengthening our position on the Swiss market and creating the possibilities for advanced development of our product portfolio in public telecommunications," says Håkan Jansson, president of Business Area Public Telecommunications.

Largest system cut over ready

The largest cut-over in mobile telephone systems ever made in the world was recently carried out in Dallas, Texas. It was the operator Metrocel who changed its Motorola system for a system from Ericsson.

It took nine hours for Ericsson and Metrocel to set the new system in operation. At a selected time - so as to interrupt traffic as little as possible - all base stations and all switching equi-

ipment over the entire Dallas/Fort Worth area was changed. Before this momentous cut-over, Ericsson worked eight months on installing new base stations and switching centers and duplicating equipment as such that was found in the previous network. The cut-over was made in stages, as the new Ericsson equipment came on stream.

Metrocel is an operator that is part of McCaw Cellular/Lin Broadcasting, Ericsson's largest customer in the U.S. and the largest mobile telephone operator in the country.

NEWS IN BRIEF

EDACS NETWORK FOR ESTONIA. Ericsson in Finland will supply an EDACS system for the Estonian communications department.

EDACS is Ericsson's digital system for land mobile radio and is used by, among others, the police and rescue services. The order is an initial phase for further expansion and is worth about 50 million kronor.

NEW AXE ORDER FROM INDIA. 100,000 local AXE lines have been ordered by the Indian telecommunications department. 50,000 will be installed in New Delhi, the rest in Bangalore, Ernakulam and Coimbatore. It has to do with the absolute latest in AXE technology, with, among other things, ISDN. The project will be completed in summer.



93 Days left

Wake up!

CSDD closes down permanently, will this affect You?



For more information, contact your local PRIM consultant or

Ericsson Telecom AB
Product Information Management
Henry Riihimäki
Telephone: +46 8 719 8887
Memo: ERIETX.ETXR11

Control points on way to a successful project

All projects undertaken in the Ericsson group must be justified businesswise. In order to assure that, there is the Tollgate model, the Ericsson group's common decision model for projects.

The Tollgate model is one of Ericsson's few companywide directives and also forms part of the Ericsson Quality Manual. According to the directive the decision model must be used for all types of projects in all business areas and local companies.

"By using the Tollgate model we can be sure that the result of a project corresponds to the market demands," says Sture Ögren, Ericsson's quality director.

Common language

He reminds us that this also applies internally, when an Ericsson unit drives a project on assignment from another. The model also gives the group a common language.

"Large, important projects often include several business areas and local companies. Hence it is necessary for us to have a common model for which decisions are to be made on a project and when they are to be made."

In the hunt for shorter lead times the coordination of various partial projects in a unit becomes ever more important. When a product is designed and ready for launching, documentation and marketing communication material must also be ready. The decision model facilitates such coordination.

How does the Tollgate model work? Sture explains.

"In order to drive a project you need to have processes, project steering and a decision model. The base is made up of processes, how you work concretely in the project to bring about the end result.

Project leaders drive the project. Very often they work according to Props, Ericsson's method for project steering. The project leaders' focus is to get the project completed within a given time and on budget with high quality in the end result.

The Tollgate model comes in at the decision level when the company's management takes stock of a project. It is their responsibility to inject the business aspects in the decision about the project's scope and direction.

"The Tollgate decision must always be made outside of the project itself by those ordering the project or those assigning it," says Sture.

One can say that a tollgate is a sort of fine-tuning in the course of project work. According to the



Orienters head for control posts in the woods on their way to the finish line. The Tollgate model functions in a similar way. In several instances during the process of project work tollgates – control posts – have been set up to control that the project businesswise is justified.

Photo: Tobias Röstlund



"By using the Tollgate model we assure ourselves that the project corresponds to the market demands," says Sture Ögren.

model there is a bit of this at the beginning, a bit midway and some at the end of the project.

When a tollgate is to be passed there must be enough foundation laid so that one can make a decision to go further, terminate or redirect a project if market conditions changed since it began. In the final tollgate you assess whether what was expected of the project has actually been accomplished and whether the results satisfy customer needs, expectations and demands.

If several projects need to be coordinated the fine-tuning in the respective projects can be combined. For the respective projects to be able to pass, certain crosswise specified demands have to be met.

Used professionally

The Tollgate model was introduced about five years ago. Since then it has been adapted and updated several times.

"Now we have arrived at a format that works," says Sture. "Now we will work further with applications of the model."

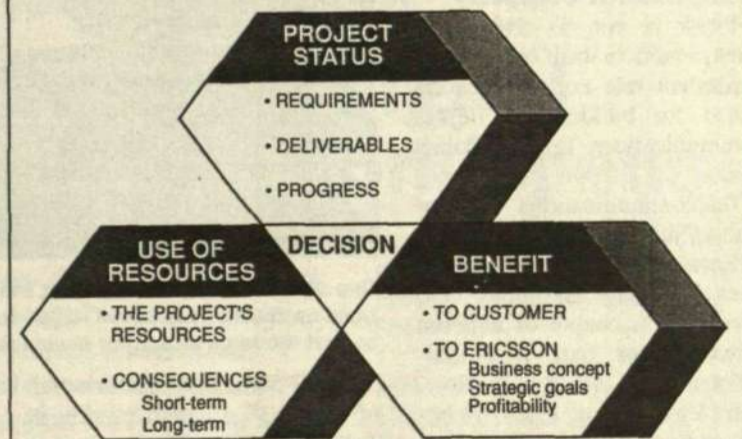
In many places in the company they have already come far along the way. The model is used more and more professionally.

"Traditionally, we have looked backwards with tollgate," says Sture. "We have seen that everything that had to be done was done. But now we must look forward too and ask ourselves if what we have done is good enough for what we have ahead of us.

For example, it is not enough to confirm that we have done the tests we planned; we must also ask ourselves if the test results are good enough so that we can deliver the product."

Maria Rudell

The Tollgate decisions



The decision must be made in a commercial perspective so that we use our limited resources in the right way.

Five control posts on the way to a finished project

- TG 1** Decision on start of project research
- TG 2** Decision on project implementation
- TG 3** Decision on continued project implementation. Confirming or revising of frameworks, realizing of design, etc.
- TG 4** Decision on use of project's results. Handover to customer, limited market introduction, etc.
- TG 5** Decision on end of project.

A revolution in the Polish banking system

"Previously, it could take up to two weeks before a transaction between two banking offices was cleared. A lot of paper was shuttled back and forth. Now it is done in a few seconds," says Andrzej Cichy, president of Telbank. And you can't mistake his satisfaction.



It is not believed to be a problem for Telbank to win customers. "We have a list of between 400 and 600 interested users," says Telbank's president, Andrzej Cichy (standing to the right).

Digital data network offers new possibilities

Yes, what is going on now is nothing short of a revolution for the Polish banking system. Profits are also huge for the outstanding company that chooses to use Poland's new digital network for data transfer, designed by Ericsson.

In a low, small, rundown office not far from the center of Warsaw, Telbank has set up shop. The premises are in no way eye-catching: long corridors, small rooms full of computers and tele equipment.

Independent company

Telbank is not, as one might think, a bank in itself but is an independent tele company established for building up digital communications for the Polish banks.

Telecommunications in Poland is, just as in most countries in Eastern Europe, much sought after. For some time now there have been a couple of national networks for data communications, but quality is low. Transfer is analog, loads are heavy and security is nowhere near the level demanded by the banks.

"Banks are strategic customers. They have a need for fast and problem-free data communications. They also demand comprehensive secrecy. Apart from this it is important for us to maintain a high service level," says Telbank's president, Andrzej Cichy.



One of the major challenges for the company is to help customers to build up their own internal network. An important part of this work is to test modems and other associated equipment.

Today 55 banks are connected, of which 15 are also owners in Telbank. It is not felt that there is a problem to get customers. "We have a list of 400-600 interested users," says Andrzej Cichy.

In total Telbank has 130 employees. Most of them are young. The average age is around 35 and the education level is high. In

Established 1992

Telbank was officially established in September 1992. Although traffic on the network has been in progress only some months, use has increased very quickly.

The Telbank network consists of:

- 1 Telbank-M, (MUX) long-distance network. 2 mb radio systems with multiplexors at each end.
- 2 Telbank-P. Packet switched computer network, built on Eripar X-25.
- 2 Telbank-T. A PABX network.
- 2 Telbank-VSAT, satellite network.

Three in Warsaw

There are three nodes in Warsaw and several others in the rest of the country. In principle development possibilities are unlimited. In the network there is space for E-mail and CC mail. A nationwide automated bank-



"We saw an immense need for modernizing the country's banking system," says Krzysztof Imielowski, director for telecommunications at the Polish Central Bank.

king system involving several banks is in the planning stage.

Important to integrate

The different banks have over the years built up their own more or less advanced computer solutions and a number of banks have had their own communications network, even if this was often of low quality.

One of the biggest challenges now is to integrate these as well as help customers to build up their own internal network, where this is required. An important part of this work is to test different modems and other associated equipment.

Among other things Eripar is used for this. For the same reason a training center has also been set

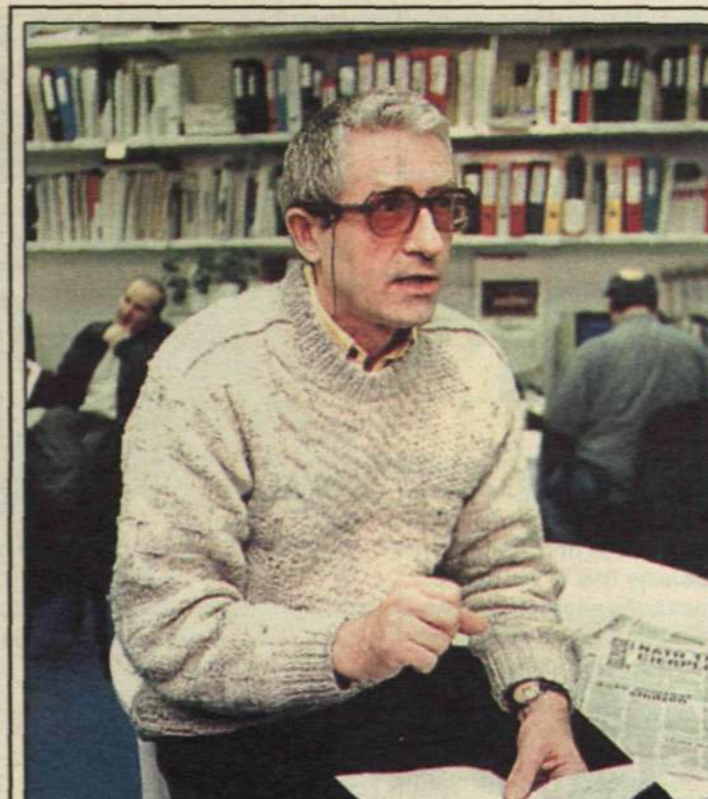
up for personnel from the different users.

"We do not recommend anyone to use any particular equipment, but rather we talk about only what is compatible with the system," says Andrzej Cichy.

Knows banking branch

It was in 1991 that Ericsson Schrack got the job of designing Telbank after international negotiations.

"Ericsson had a lot of experience in working with banks, which was important for us. At Scrack they also undertook to develop a software, adapted to the needs of the Polish banks, which they promise to update regularly. This was an important argument when we decided," says Andrzej



"In future we reckon with being able to move up press time several hours thanks to Telbank," says Jerzy Borza, head of communications at Gazeta Wyborcza.

Color photos thanks to Telbank

Telbank's network is also used by companies outside of the banking world. One of these users is Gazeta Wyborcza, Poland's largest newspaper with a print run of 600,000 copies.

Gazeta Wyborcza comes out in 18 different editions and the paper is printed in four different places simultaneously, which places heavy demands for a smooth-running communications network.

"The method of transmitting pages has varied. In some instances the plates are taken by car between the editorial floor and the printing shop. In other cases we have used ordinary telephone modems," says Jerzy Borza, head of telecommunications at Gazeta Wyborcza.

80 pages a day

The paper is produced in its entirety by PC and Macintosh computers and pictures are scanned in. Already today they gather material from four cities,

three of these via Telbank's lines. In total they put out 80 pages at the editorial center in Warsaw.

Developments are limited today by the equipment the paper itself has and the capacity of analog telephone lines that are connected to the Telbank network.

In future all the pages will be able to be sent over the digital network. With increased transmission speed, from today's maximum 14.4 kb/s to a minimum 0.5 mb/s, the paper's needs could be satisfied.

Save hours

Greater flexibility and better edition times are other advantages with digitalized transmission. Jerzy Borza reckons in future with being able to move up presstime several hours.

"So far only our Sunday magazine is printed in color, but in future more and more parts of the paper will be printed in color, and then functioning data communications is a prerequisite for editorial work," says Jerzy Borza.

Cichy, who is very happy with the network.

"During the course of the work we encountered a number of technical problems, but with good collaboration it was possible to resolve these and get the network moving."

Telbank opens up a lot of new possibilities but it also places new demands on users. As Andrzej Cichy puts it:

"No one really thought it would be possible to build up such a network. Today no bank can attribute bad service to its telecommunications not working."

Driven by Central Bank

Telbank is owned 50 percent by the Polish Central Bank and it is they who have been the driving

force in setting up the communications network.

"The thinking behind building up the data network originated with us. We saw a tremendous need to modernize the country's banking system," says Krzysztof Imielowski, director for telecommunications at BPT, the Polish Central Bank.

For four years now the Polish Central Bank has driven collaboration with the Austrian Central Bank in which Schrack also came in as a partner.

"Telbank is an Ericsson idea but a Polish project with Polish engineers," says Krzysztof Imielowski. He feels Telbank is a very important instrument that will hold important competition advantages for the Polish economy.

"Telbank is the only fully digital network in East Europe and I believe this can serve as a good example for our neighboring countries. For our part it is now a question of moving ahead and developing the network further."

The Central Bank also handles business matters for state-owned companies and institutions. Jadwiga Kopciuch is head of operations, and for her department all this means a considerable reduction in paperwork.

"So far we are using two systems side by side, and it will take about three to five years before we go over fully to electronic processing. But we have come a long way."

**Text: David Isaaksson
Photos: Victor Lenson Brott**



Intracom, Ericsson's Greek joint partner, plays an active role in the area of ISDN in the Greek tele network.

Intracom showed ISDN

Ericsson's Greek joint partner, Intracom S.A., was one of the companies that took part in the large Eurie exhibition to show Euro-ISDN all over Europe. The company's department for AXE participated in the Greek part of the exhibition.

Intracom showed a number of different applications and services for ISDN. Calls were connected to show video conferences, hooking up of different local data networks and high-speed faxing. Similarly they showed how with ISDN you could get better debiting information and identification of the caller in one's own telephone display.

The exhibition was based on ISDN products that Ericsson developed in the framework of the so-called FM P2 project. This was partly adapted for Greek customers by engineers at Intracom.

Ericsson's partner in Greece plays an important and active ro-

le in the area of ISDN in the Greek tele network. Work is now going on with introducing ISDN functionality both on the access and network sides in AXE 10 switches.

Software developers at Intracom are working with software for ISDN access and user-directed ISDN products for AXE10 not only for the Greek market but for all of Ericsson.

They are also sharing in various research programs in the framework of RACE II, the EU's investment in advanced communications technology for the future Europe.

The Greek tele organization, OTE, plans to introduce ISDN in all the larger cities by the end of the year.

In January 1998 they reckon that 60-80 percent of all the country's tele subscribers will have access to ISDN if they so desire.

Ericsson has together with Intracom been one of the leading suppliers of tele equipment for the Greek market since the mid-'80s.

Europe's digital tele network opens

In December 1993 the new digital tele network for business communications, Euro-ISDN, Integrated Services Digital Network, was inaugurated at the Eurie 93 conference.

Euro-ISDN is the result of a project where 21 European tele operators are working together to achieve a common ISDN network in Europe.

The system was introduced with the help of an ISDN-relayed video conference to the 17 countries that are linked up, among them Sweden. Both manufacturers of equipment and users took part in the three-day conference.

The ISDN system means in practice faster telephone connections as well as more secure computer communications and picture transmission. In Sweden

the conference was seen in four places simultaneously, in Gothenburg, Stockholm, Malmö and Sundsvall.

"Since May 1993 the ISDN network in Sweden has been well built up and there is lot of interest in it," says Olle Åberg, marketing manager for transmission at the sales unit Ericsson Telecom Sweden, ETX/N.

The new digital ISDN network makes the company no longer dependent on direct geographic proximity to its markets. It contributes to the company's localizing being more evenly spread over different regions.

"The technical systems development has taken many years but now the network is so well developed in Europe that it reaches very many users," says Olle Åberg. A million companies and institutions in Germany, France and England have already signed up as subscribers.

Ericsson gets a common "nerve system"

On June 23 the old product information system CSDD will close for good. It will be replaced by Prim, a more modern system that will be common to the entire company.

Right now there are two product information systems going simultaneously in the company. The new system Prim and the old one, CSDD. The systems have been driven parallel since the beginning of 1993 but on June 23, 1994, the old system will be closed down.

Prim stands for product information management. It is a system where users can find data about Ericsson's different products. Instant access, good search functions and user friendliness are some of the qualities that characterize Prim.

"Already today the system has more than 6,000 users and it is

easy to use," says Lars-Olof Lindgren, head of Product Information in the core unit Basic Systems in Ericsson Telecom.

It is easy to hop through different images to quickly arrive at the data you need. There is also an aid function "On-line" which functions as a support for the user.

"The aid function is updated constantly and is used instead of manuals which are often outdated," says Henry Riihimäki, introduction responsible for Prim.

Who uses Prim?

When the old system is closed down, Prim will have about 15,000 users from all the business areas. They are all those who need information about Ericsson's different products that use the system. Prim contains data about the company's entire product range, more than 900,000 products, and that includes everything from nuts and screws to entire systems.

Data in Prim is stored in a data base that is being updated all the time and it gives users correct information at all times. Now, even preliminary data is accessible.

One of the goals with the system was to be able to process preliminary data so that information would be accessible to other persons than the one acquiring it. Today this is applied in Prim and as a direct result lead times can be shortened. Data in Prim is stored in one place and in this way it is always uniform. In the previous system the same data was stored in different places.

Tough demands

All the business areas have participated actively in the Prim project and with solid commitment have contributed in developing the system. Project responsibility lay with Ericsson Telecom, which worked closely with Ericsson Data. Demands were very tough and expectations high for the project to succeed.



"The system is so simple to use that even I can manage it," says Lars-Olof Lindgren. Photo: Josef Benkovic

The project group worked hard to make Prim a flexible system and thus simple to further develop and to adapt to new product areas.

Rules and principles for how different products should be handled are determined by table-guided rules that are easy to change or add to.

Now CSDD is closing

CSDD, with roots going back to the mid-'70s, has served its purpose well but times have passed it by. The system cannot manage to handle all the data related to new product areas. Instead, we have chosen to invest in a new and more effective system.

For the moment altered data in Prim is being switched over to CSDD. This means that a part of Prim system's functions cannot be used today.

"As it is now we are prevented from making the function shifts for users in Prim that we want to," says Rolf Gustavsson at Product Information.

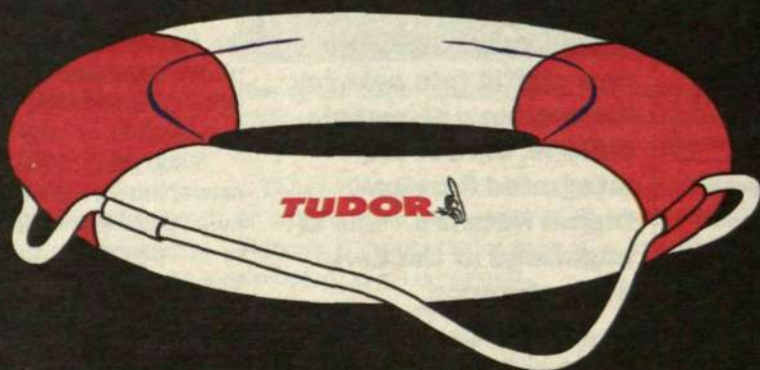
"The closing of CSDD is therefore necessary and when it is done the Prim system can be adapted to different demands from new product areas, for example the broadband area.

CSDD will close for good the day before midsummer, that is June 23, 1994.

Johan Torbiörnsson



The answer to your SOS is SGV!



Every year sees a starburst increase in the volume and frequency of voice, fax and computer telecommunications. The frontiers of technology are being pushed back at breakneck speed. And the exchanges are working full out.

Until a power failure threatens to pull the plug.

Then Tudor steps in and saves the day. With compact installations and reliable, virtually maintenance-free batteries



TUDOR

Fax us on +46 303 423 30 and we'll send you our power-packed Specifier's Manual on VR (Valve Regulated) SGV batteries.

Eritel takes important step into Ericsson

In newly built offices just outside of the center of Gothenburg is housed Eritel. Here they develop advanced systems for mobile data communications. The fact that Ericsson took over ownership since the beginning of the year has injected strong self-confidence for the future.

Eritel's main product – Mobitex – is a system for land-based mobile data and voice communication that is sold to countries all over the world.

The Mobitex system is found today in many countries.

– Ericsson's take over has increased our selfconfidence

Users are often haulage companies, taxis, ambulances and others in transport business with a need for effective directing and coordinating of traffic. Other common areas of use are credit card verification.

“Along with specially designed software, Mobitex has almost unlimited variation possibilities in the area of mobile data communications,” says Åke Johansson, president of Eritel.

Joint venture

Eritel's history began in 1988 when the company was formed as a joint venture between Ericsson and the then Teli. But already in 1980 a small group in Televerket Radio, Teli Mobitel today, had begun to develop mobile data, and most of the members of this “core troop” are still with today's Eritel.

Today the number of employees has grown to close to 130 persons. More than two years ago it was time to move out of Televerket's offices and into its own. In the airy premises there are offices, a large apparatus room where various Mobitex networks are assembled for testing, prototype workshops, operator centers, their own restaurant and even a pub to get together on evenings.

At the turn of '93-94 when it became clear that Ericsson



100 PERCENT ERICSSON. Since the start of the year the development company in mobile data – Eritel in Gothenburg – has been a wholly owned subsidiary of Ericsson. President Åke Johansson poses in front of the offices (small picture). Large picture: Roger Nilsson (left) and Eine Mellström system tests parts of a complete Mobitex system in as realistic an operator milieu as possible.

would take over ownership completely it was good news for Eritel's employees.

Explanation of trust

“We interpreted the fact that Ericsson opted to be full owner as confidence in the company's possibilities for the future,” says Åke.

As far as Mobitex is concerned it is Ericsson that has sales responsibility and is Eritel's assignee. Eritel is also working with other Ericsson units, among other things in mobile telephony.

Lennart Agestam works for the systems technology department where they study future functions, both for Mobitex and other mobile data products.

Follows trend

We are following some of the new trends and devote a lot of time to participating actively in international standardization work in the telecom area.”

According to Lennart, there are two future development alternatives for Mobitex. In the one it is a matter of using Mobitex as a platform for systems according

to coming standards from the international standardization bodies.

In the other alternative it is a question of developing, within the framework of today's Mobitex, functions that exist or that are in the process of being developed in competing systems. This can be higher transmission speeds or increased security demands for preventing eavesdropping.

Developments in mobile telephony are moving toward GSM having data services by the end of the '90s. At Eritel, however, they are equipped to meet these competitive services, both within and without today's competing systems.

“Mobile data will always have a market alongside that of mobile telephony,” says Lennart Agestam.

Customer project

All development work is done in project form, often as customer projects. The project draws on personnel from line organizations, where chief responsibility for the different project lies.



Ann-Christine Angelstrand and Hans Agardh in the development department's test and verification lab.

In the development department they work across a broad spectrum.

“Among other things we develop software for operations supervisory systems, user interface and data communications and also have significant hardware development,” says Hans Ågardh, responsible for the network section, where they are developing software in the Mobitex net-

work's switches, packet switching, radio signalling, etc.

Pontus Lindquist, who works on the development staff, says that a new base station for Mobitex will be released.

“Besides having a lower price per performance it is also the first base station for outdoor use,” Pontus lets on.

**Text: Helena Andersson
Photo: Cicci Jonson**



BULGARIA SHOOTS FOR THE STARS

At the end of February the mobile telephone network in Sofia was inaugurated and since half a year earlier a nationwide digital tele network was laid in a large octagon over Bulgaria's old overloaded tele network. Ericsson shared in both events, and is now contributing to Bulgaria's being the fastest developing country in the former East Europe.

In August last fall Roland Engman went down to Bulgaria to open an Ericsson office in the capital city of Sofia. An early signal that Ericsson would be investing in Bulgaria.

Fastest tele network expansion in East Europe

Today more than 1,500 persons call in the mobile telephone network and more than 100 new subscribers are added every week. And when it comes to the fixed network, the DON project is moving full speed ahead. DON, which stands for Digital Overlay Network, means in effect that a modern fiber optic network is being laid parallel with and linked together to the old network.

For customers this will mean better quality, faster connection and new services.

Westward

Like all the former East European states, Bulgaria is undergoing rapid change. From having been previously oriented toward the Soviet Union the country has turned westward, toward West Europe, international banks, etc.

The country's tele administration, BTC, Bulgarian Tele Com, is investing heavily on developing a tele structure. A prerequisite for economic upswing is, just like in all other countries, an improvement in infrastructure, facilitating international telecommunications, etc.

"Nevertheless, the country is starting from a very high level, about 25 percent of the population has subscriptions, which is a lot in Eastern Europe," explains Gerhard Zelenka, responsible for marketing in Bulgaria at Ericsson Telecom. "On the other hand the network is old and overloaded and it is very difficult to make international calls."

Several suppliers

It is against this background that one should see the investment in the hyper-modern DON project.



WELL-EDUCATED PEOPLE. The university in Sofia. Bulgaria has, according to certain sources, more university educated people per capita than any other country.



The mobile telephone network gets 100 new subscribers every week, which is something of a record for East Europe.



FULL SPEED AHEAD WITH EXPANSION. From inside the site in Sofia where Ericsson's switch was expanded upon at a fast pace for new channels in the mobile telephone system.

lations will begin in April 1994 in order later to continue up to mid-1966 when the network will be ready to be put into operation. The contract is reckoned to be worth about 130 million kronor.

The DON project's seventh part, which refer to local and transit exchanges in the country's northern area, went to Siemens.

Two additional parts will be added to these seven, one for supervision of the network and one

for supervision of the switches. In the last instance it is clear that Ericsson will handle supervision of its own transit centers.

With the DON network the Bulgarians will now get a capacity for a further 100,000 subscribers. This can be compared with today's more than two million subscribers and you will see that it is not the number of lines of itself that is important but rather that the new network increases access considerably.



WITH EYES SET ON THE STARS. An NMT antenna being mounted at site 74 in Sofia. The picture was taken last October. At that time the network was being built up so as to be able to be put into operation already by Christmas.

The fiber optic network with the transit centers is very powerful and manages to direct calls both in the new and the old network. The network is tied in together with the local and transit centers. A call between two subscribers in the old network, for example from Varna to Sofia, can therefore be transferred via either the old or the new network.

Another indication that the Bulgarians are aiming high is the transmission technology in the

transport network. Instead of the tested PDH they have chosen SDH which is today's state of the art technology with several new facilities (see box).

Mobile on the way

As far as mobile telephony network is concerned that is already on the way. As has been shown, it is much quicker to set up a mobile network than a fixed one, and the technology that the Bulgarians have chosen, NMT

450i (i=improved) is well tried and tested and suitable for the mountainous terrain.

History speaks for itself: In the fall Bulgaria's mobile telephone operator Mobifon (see Point 2 in the accompanying box) signed a contract with Ericsson Radio for a 450i network in Sofia, at Christmas the system went into operation so that it could be inaugurated at the end of February.

"Subscribers were streaming in, more than 100 a week," says



BULGARIA'S DIGITAL TELE NETWORK. The new digital tele network in Bulgaria lies around two nationwide fiberoptic rings. Ericsson works with transit and local exchanges in the southern part of the country. Illustration: Gunnar Englund



Bulgarians, a people with old customs, now faces new times.

Peter Holmertz, project leader for East Europe at Ericsson Radio.

Becomes international

So far the system exists only in Sofia. During spring the Black Sea cities of Varna and Burgas will be equipped with base stations, as well as Plovdiv and the route from there up to Sofia.

With the system there are technical conditions for so-called roaming, that is to say you can move around with one and the same mobile phone across several countries. In the first place roaming applies to the NMT system in Rumania, but the network can later be coupled with other NMT networks.

At the same time as the exchange in Sofia is being built new functions are being added to the system, for example the SIS security function. But also quality and capacity-raising functions

East Europe sets sights westward

Bulgaria has as many inhabitants as Sweden but is only about a quarter as large in area.

The country's history has been chequered, marked by its geographical location between Russia and Turkey. After World War II Bulgaria was strongly oriented toward the Soviet Union and concentrated a lot on, among other things, electronics industry.

With the dismantling of the Soviet Union the old structure was abandoned and the country turned its sights westward. Inflation as well as unemployment and national debt are troubling.

On the other hand technical knowledge and the general level of education in the country are considered high.

**Text: Lars Coderquist
Photo: Rupert Trollope**

Technical terms in brief

1. SDH, Synchronous Digital Hierarchy, is reckoned in ten years to replace PDH, Plesio-synchronous Digital Hierarchy, as a standard for transmission in transport networks.

The main differences and improvements are that SDH, with a command from a center, in a very short time (ten seconds) can conduct configurations into the network, something that with PDH takes weeks or months of planning and prepara-

tion. With SDH you can easily track down faults in the network and reroute traffic. Thus it calls for fewer reserve lines with the effect that the network gets larger capacity.

2. Mobifon = RTC, Radio Telecommunication company, a joint company of the Bulgarian tele administration, 51 percent, Cable & Wireless, 39 percent, and private Bulgarian investors.

Collaboration and sensitivity crucial for customers

The customer's opinion of Ericsson as a supplier depends on several factors. But one thing is certain: If collaboration between the business areas and the local companies out there in the markets is not going well, then the customer is soon going to have a lot of problems.

This way Ericsson will strengthen its trust among customers

The interplay between customer, business area and local company is crucial to how the customer sees Ericsson. This is the departure point for an important improvement project that Ericsson Telecom in Stockholm and Ericsson A.S. in Norway have undertaken on assignment from and with full support of Håkan Jansson and Steinar Tveit.

Applies to all Ericsson

"The fundamental reason for the improvement project is the delays that have afflicted Ericsson's deliveries to Televerket in Norway, but the project will also deal with general problems in the relationship between customer, Major Local Companies and business areas," says Steinar Tveit, president of Ericsson A.S.

"We hope and believe that the conclusions we have drawn will be meaningful for large sections of the Ericsson organization - regardless of which systems or products you are working with or which customers you are serving," he adds.

In the ordinary sense the project has been given a ringing, Ericssonian designation, namely VUP 1, which stands for Verksamhets Utvecklings Pilot (Operations Development Pilot) No. 1. President Håkan Jansson at Ericsson Telecom says the project will strengthen Ericsson's trust as a supplier and he vows that the entire organization will be informed about the results.

Arne Gjertsen at Ericsson A.S. is project leader. He says the project is a TQM project with the aim of improving the entire coordination process from customer via Major Local Company to business area and business unit.

Inquiry at Televerket

Ericsson A.S. recently conducted an inquiry among key people at Televerket in Norway



STRENGTHEN TRUST - The project will strengthen Ericsson's trust as a supplier, says Håkan Jansson, president of Ericsson Telecom.

"The result reflects the frustration that delays in AXE deliveries caused in many places in Televerket," says Arne Gjertsen.

"But we do not get only criticism. We get praise too - for good systems and products. It appears that the customer is happy with the product they finally got."

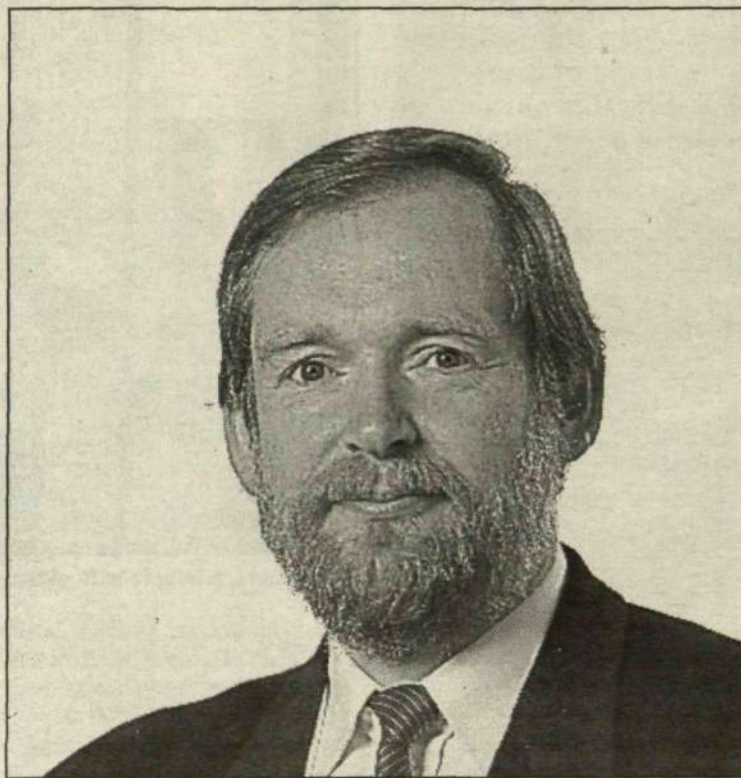
"On the other hand they are unhappy with the time it took to get the product and with Ericsson's will and ability to adapt to the customer's needs and demands."

Listen to the customer

"The customer feels quite simply that we must be better at collaborating with them. We must put ourselves in the customer's situation and environment and make an effort to help him reach his goal. And we must learn to keep our promises. Late deliveries is a common problem, not just in Norway."

The project group has taken on the most important improvement needs that the customer has indicated and is working on coming up with clear guidelines for how collaboration customer-major local company-business area-business unit could be improved. The project group has chosen to concentrate above all on the two weakest points:

- 2 Ericsson must pay more attention to customers' needs and demands. The problem area can be summed up in the word *Responsiveness*.
- 2 Ericsson must improve lead times and delivery precision. This can be summed up in the word *Timeliness*.



"We feel that the conclusions we have drawn will be valuable for the entire company," says Steinar Tveit, president of Ericsson A.S.

Close to 20 colleagues, of key significance for the project, from Ericsson Telecom and Ericsson A.S. recently took part in a workshop in Oslo, where they primarily discussed these two issues. In both areas a number of viewpoints emerged, which will now be acted on further.

Relationship

One of the suggestions is to interview key persons in the company's head office and some Major Local Company managers, to verify the project group's proposal, and to get further views on what should be done.

Project leader Arne Gjertsen says they are thinking of conducting a new workshop when the interviews with the present key persons are finished. The entire project is expected to be completed by the summer.

"It is a matter of relationship and in which ways we can collaborate. Our project alone will not bring about any major changes in Ericsson's way of thinking and treating the issue, but I hope we can contribute to improvements that are absolutely necessary if we are to survive in a customer-run tele world," Arne Gjertsen concludes. **Paul Falck**

Sweden's first "smart" mobile network

Ericsson will supply equipment to Telia Mobitel for building up the first intelligent mobile telephony network in Sweden. Telia will be able to offer its customers new services, for example personal telephone numbers attributed to a person and not to a certain phone. Ericsson's AXE-based technology lays the ground for the Intelligent Network.

New services easily

Altogether three AXE switches will be delivered and connected to Teli Mobitel's network. Apart from the switches and testing equipment for various tests, the order covers a computer-based support system that will make it easy for Telia to quickly acquire new tele services.

The first switch will be installed and tested during the spring and they reckon the entire network will be fully in operation by the fall of 1994.

Operators in Italy and Finland have previously had similar network solutions supplied by Ericsson.

Break-through for Mini-Link in East

Ericsson Radar Electronics, ERE, has received an order worth about 70 million kronor from the Czech Republic and Slovakia. The mobile telephone operator EuroTel in Prague and Bratislava has ordered radio link equipment that will be delivered over a three-year period. All in all it has to do with some 100 Mini-Link 15 terminals. Mini-Link has almost 20 kilometers reach with a normal antenna and is used for transfer of telephony and data.

The contract also includes supply of radio links from the German radio link manufacturer ANT Nachrichtentechnik GmbH. The order, which is the largest so far on the Czech market, reinforces collaboration with ANT. A collaboration that gives Ericsson access to ANT's entire radio link program. The company complements each other in a good way. Ericsson's Mini-Link functions in 15 to 38 GHz, in small and medium capacities, while ANT mainly works in 2 to 18 GHz, at high capacity.

Mobile phones surpass million mark in China



Now Ericsson mobile telephone systems in China has 1.3 million subscribers. That is still fewer than one per thousand Chinese that has a mobile phone. In Sweden almost every tenth person has a subscription.

Ericsson has a won new large mobile telephony orders from China worth about 1.7 billion kronor. With the new orders Ericsson's mobile telephony network in China will have altogether more than 1.3 million subscribers.

The contract was signed with Guangdong Machinery Import and Export Corporation Group and includes continuous expansion of the analog mobile telephony network of the TACS standard in Guangdong province in southern China. This is the largest mobile telephony contract signed so far in China.

The operator of the network, Guangdong Mobile Communications Corporation, GMCC, has today about half of the total number of mobile phone subscribers in China. Ericsson is sole suppli-

er of equipment for the mobile telephony network.

The system, which will be delivered during 1994 and 1995, will be one of the world's most advanced analog mobile telephony network. The equipment covers not only mobile switches, radio base stations and maintenance and supervision systems but also so-called Home Location Registers, that is to say data bases on the system's subscribers.

Already in 1987 Ericsson put the first mobile telephony system in operation in China and it was precisely in Guangdong, which is one of the country's most expansive provinces with 60 million inhabitants.

"Up to 1991 the increase in subscribers was quite small but in 1992 the real boom came," says Leif Ohlstenius, marketing manager for Guangzhou Ericsson Communication Company Ltd. and responsible for marketing in Guangdong and Hainan. The lar-

ge expansion in the system that has now been decided is the twelfth in a row."

Half of the radio base stations for TACS that are manufactured today at Ericsson Radio Systems' factory in Gävle will be delivered to China. The need for local manufacture is immense and last year they began to manufacture radio channels in small quantities in the Chinese cities of Guangzhou and Nanking.

Ericsson has joint companies in both places. The agreement with Guangzhou Ericsson Communication Company Ltd. was signed in December 1992. Ericsson is majority owner with 56 percent, Guangzhou Radio Factory has 30 percent and other minority owners are the mobile telephone operator Guangdong Mobile Communications Corporation as well as purchasing and export organizations in the provincial tele administration.

Gunilla Tamm

Gunder charges batteries

Batteries go dead, don't work and collapse. A constant problem for consumers and a global headache for producers and innovators in technology – even in telecommunications. In future tougher demands will be made in telecom.

Gunder Karlsson at Ericsson Energy Systems in Kungens Kurva is a battery expert with specialization in reserve power batteries for telephone plants. Besides having responsibility for the right choice of battery for telecom products he also monitors new battery technology.

"Of course one is aware that batteries are a product category, where not a great deal has occurred in terms of technology development. Batteries are most noticeable when they are a problem," says Gunder Karlsson.

"Mobile telephones and other portable equipment have batteries that are almost always seen as insufficient. The same problem applies to telecom and the one hurt is the tele operator."

Gunder Karlsson has behind him a total of seventeen years in research and development in battery technology. The Royal Institute of Technology, the Institute for Microelectronics and Catella Generics have been his places of instruction. His doctoral thesis dealt with electro catalysts, the science of acceleration of electrochemical reactions.

What is a good battery?

"Today's questions are naturally about the new and better batteries that have come about. Some are already with us, while others are still in the thinking stages.



Gunder Karlsson and a traditional valve regulated lead battery.

Ericsson is continuously being contacted by traditional battery suppliers and by battery innovators. But all that's new is not always good.

"It falls on us to judge the new battery systems that are recommended to Ericsson. Ericsson Mobile Communications in Lund tests batteries for mobile telephones and has very qualified equipment for small batteries. Larger batteries for telephone exchanges are tested in Kungens Kurva."

In Sweden a research group connected with Arrhenius Lab at Stockholm University has taken the initiative to develop Nickel Metal hybrid batteries. These



The battery world is crammed with overjoyed hands this winter. After seven mild winters all the car batteries are suddenly dead in Sweden. Batteries are most noticeable when they pose a problem.

batteries are more energy-rich and are a less environment-damaging alternative to Nickel Cadmium batteries.

Environment

Small batteries often end up in household garbage, simply because they are small. Environment consciousness does not extend to them. When NiCd cadmium batteries are thrown out in the garbage the environment-damaging cadmium is dispersed when the garbage is burned. As an even lesser environment-damaging alternative to traditional nickel batteries rechargeable lithium batteries are now being introduced.

Access products in telecommunications are becoming smaller and smaller and are moving ever closer to the subscriber. More and more they will resemble small drawers and the contents will be electronic. Traditional types of batteries will be too large.

"The chief problem is the extreme temperatures. With traditional valve regulated lead batteries we would be forced to invest in costly technology for climate control.

Now there are new advanced battery types, among others those developed for portable products, that can withstand huge climatic effects."

The fact that the new access products are small does not lessen the demand that they be able to function for a long time without electric current. On the contrary, longer reserve time is being called for. The new accesses will be so many and so widespread that it will be impossible to send out reserve power.

"If we do not resolve reserve supply there is an obvious risk that access to the tele network will be reduced or that the entire network structure could collapse. It is important for us to begin now to plan for alternative battery technology for telecom."

Inger Björklind Bengtsson
Photo: Anders Anjou

Target: First in India

There is a need here for 150 million new lines

Today there are seven million lines for a population of about 850 million people, says Per Karlberg, responsible for Ericsson Telecommunications in New Delhi. 15-20 percent of them should need a phone in their jobs - this makes a potential for perhaps 150 million new lines.

Telecommunications is an area that India will be investing in to develop its industry and increase its economic growth.

"In an initial phase the Indians have decided to install seven million new lines - a doubling in two years. The only limitation I see is financing, which they are trying to resolve in, among other ways, by privatizing certain networks," says Per Karlberg.

Right now Ericsson is growing very fast in India.

"When we began seriously in January 1993 we were only five persons at the office here in New Delhi," recalls Per Karlberg. "Today we are 66. We have already outgrown our office and are in the process of looking for something new. By the end of the year we will be about 200 persons."

Ericsson's customer is the Indian Department of Telecommunication (DOT). DOT has divided up India geographically among the various tele suppliers. The first orders for Ericsson apply to lines in New Delhi, Bangalore, Madras and Trivandrum in southern India.

"Now we must quickly establish ourselves regionally so as to be able to give our customers close service and solid support. This means local offices in a number of India's many states."

Ericsson aims at being No. 1

All the big suppliers are on site. Siemens is largest, with about 27 percent of the market while Ericsson has about 21 percent. Right on their heels are Fujitsu and Alcatel, with almost 20 percent each. Ericsson is working hard to be number one - and is well on the way.

"Everybody has been working hard to get in," says Per Karlberg. "That's why pricing levels are down and they are all selling at the same price. It is now we at Ericsson who must show the Indians that our switches and our services are best. We must understand the customer's intentions - and react accordingly."

India is the world's tenth-largest industrial nation and in terms of total purchasing power it is in fifth place. The country still has just a few percent of world trade. This is something that the present regime, with Finance Minister Singh at the fore, is trying to change - and quickly too. GNP growth has quickly risen from three to five percent a year.

It was only a few years ago that India opened up the country to foreign investments. Previously it maintained a so-called import substitution policy, which meant that it aimed at self-sufficiency from within the country. In the end they saw that it did not work. Efficiency and quality of locally manufactured products were too low.

Liberalization of the business sector and the possibilities for foreign majority ownership has had the desired effect. A long list of foreign companies have quickly established themselves in India and are now at the starting gate of the expected expansion.

"The first order from DOT came in September 1993 and was for 100,000 lines. This was quickly followed by a similarly large order. Both are based on direct supply from Sweden. Now we are discussing a further contract".

Indian and digital

The Indian tele company ITI previously had an almost monopoly for supply of exchanges on the Indian market. ITI handled manufacturing entirely on its own - without outside help. ITI also developed a digital switch, called C-DOT. This was used mainly in the Indian countryside and could handle up to 2,000 subscribers. Manufacture is licensed to 33 local manufacturers.

How have things gone? "Quite good - bearing circumstances in mind. Growth is robust, no need for air-conditioning and they overcome tough situations, for example poor power supply. But they have a limited capacity and are about maybe five years behind in development."

Berndt Ullersten is site manager for Ericsson's regional logistics center which is being built in Jaipur in Rajasthan

state. In the first place the factory will manufacture AXE switches. In the next step it could actually take on manufacture in transmission and mobile telephony.

"We will manufacture and assemble a large part of equipment for our telephone exchanges," says Berndt Ullersten. "The switch processors, however, will continue to be manufactured in Sweden."

Oxen still used

The new factory will be strategically placed between New Delhi and Bombay. Ericsson has engaged a local building firm from Jaipur to do the construction. Much of the work is being done manually and oxen are still being used. Despite this the tempo is high and construction is going according to plan.

The new factory is expected to be ready in May 1994. Then, in a first phase, equipment will be manufactured for 300,000 lines a year. Fully operational, the plant will have some 250 workers.

Ericsson wants to be seen as an Indian actor in India. Hence we are going local. When Ericsson builds its factories, for example, it is using the local capital market and Indian banks.

"We are a local company that is selling in local currency. That's why we also finance operations in rupees. However, the Indian currency is still not fully convertible - we must still prove that we have made a business transaction in order to be able to transfer currency."

By starting to manufacture in India, Ericsson avoids high import duties. For telecom products duties can be as high as 80 percent. However, India has signed the GATT agreement and will reduce its tariffs in the coming year.

Must have patience

What's it like doing business in India compared with other areas of the world?

"It is difficult to generalize because of the big differences between states, population groups and educational levels," says Per. "But it is absolutely clear that you must have a lot of patience and be perseverant. India is the world's largest democracy - and there are many who want to be involved and who want to give their opinions. India has an administration of impressive size. It is often said that the British gave India bureaucracy - but that the Indian refined it."

"There is an enormous procedure of regulation, which one will do best to follow - otherwise you will have problems. It can take forever to get something done if you do not proceed the right way".

There are many advantages to doing business in India.

"All educated Indians speak English - and often excellently" - says Per. "It is not like in so many other parts of the world, where you are never quite sure whether or not the customer has understood what you say."

"India also has a good education system and many Indians have solid theoretical competence. However, there is a shortage of experience. Hence there is immense interest in turning to multinational companies like Ericsson - with huge resources and the latest technology."

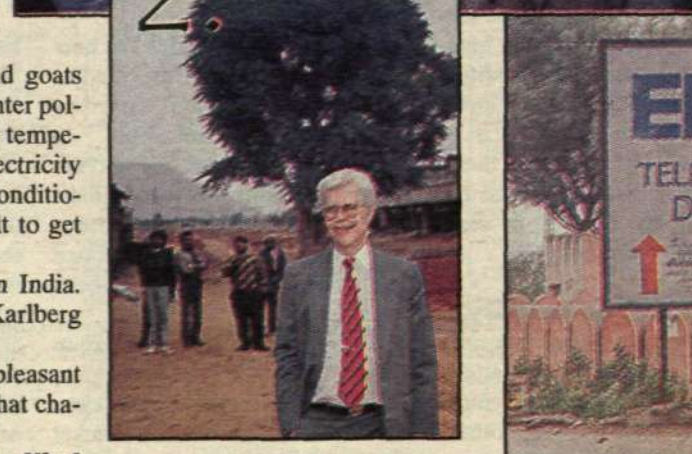
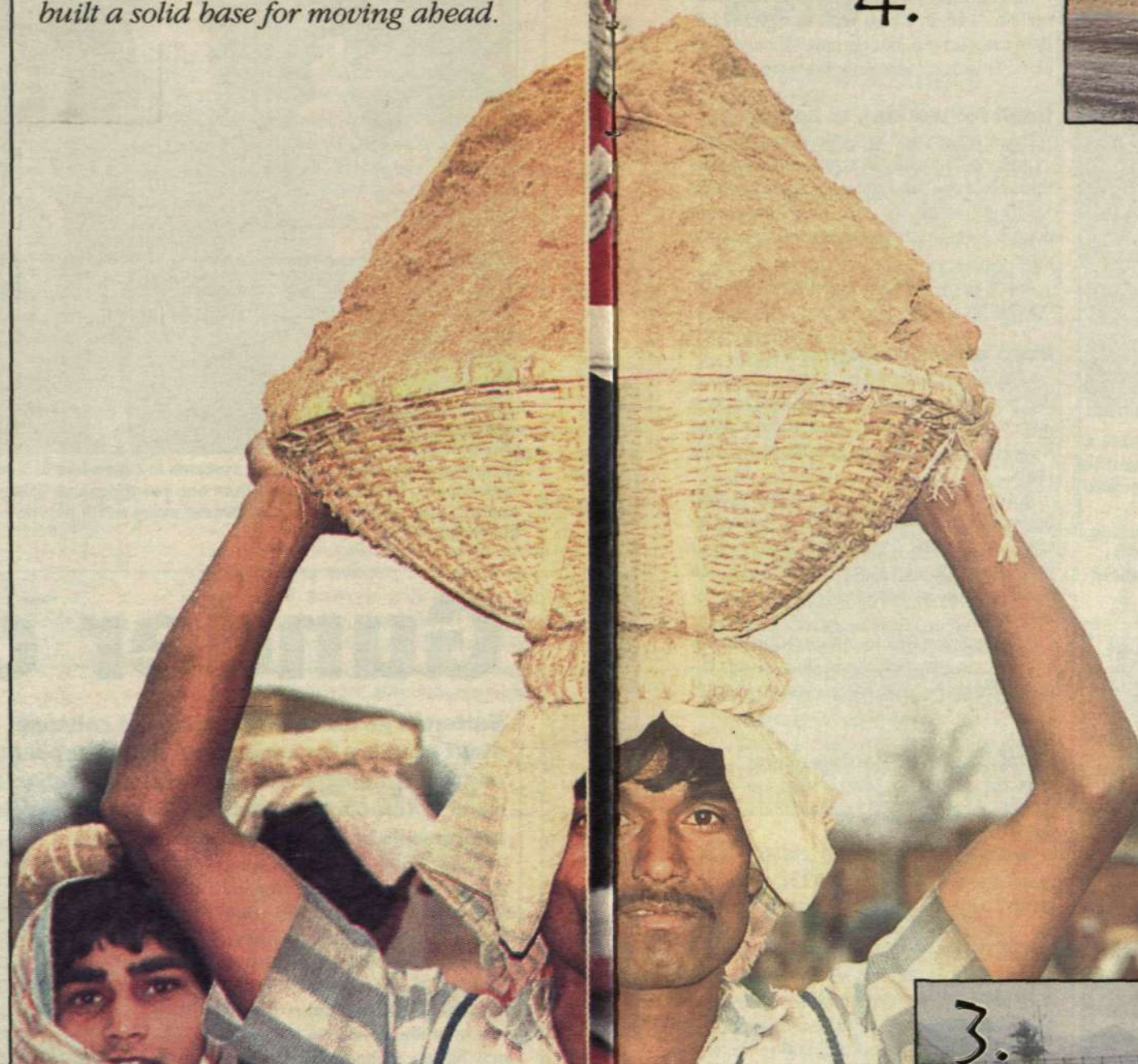
Positive view

Working and living in India has its pros and cons. Getting to work can be a time-consuming but exciting adventure, with cows and goats making their way among cars in traffic. In winter pollution gets bad and from April to August the temperature can reach over 40 degrees C - with electricity blackouts at the same time. And when air-conditioning and computers break down it's difficult to get offices to function.

But there is a lot positive about living in India. Among other things, a friendliness that Per Karlberg cherishes.

"As a rule Indians are very friendly and pleasant people. Hinduism has a positive basic view that characterizes the entire social climate."

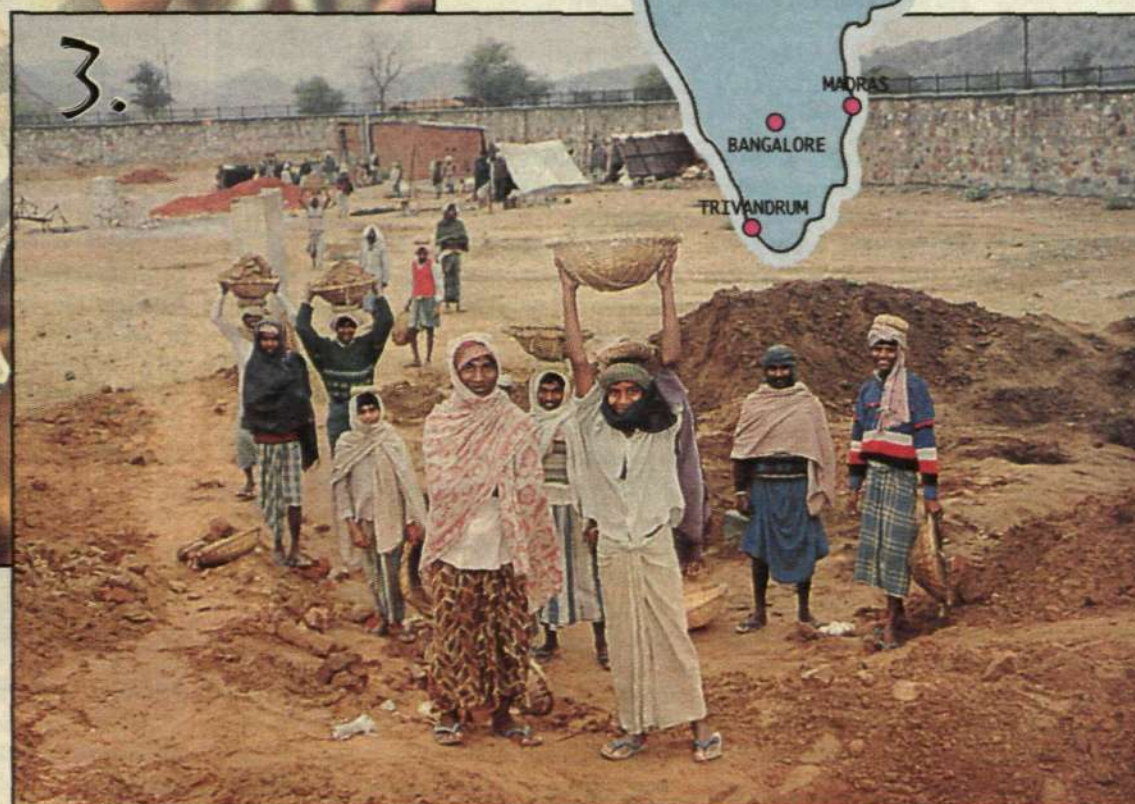
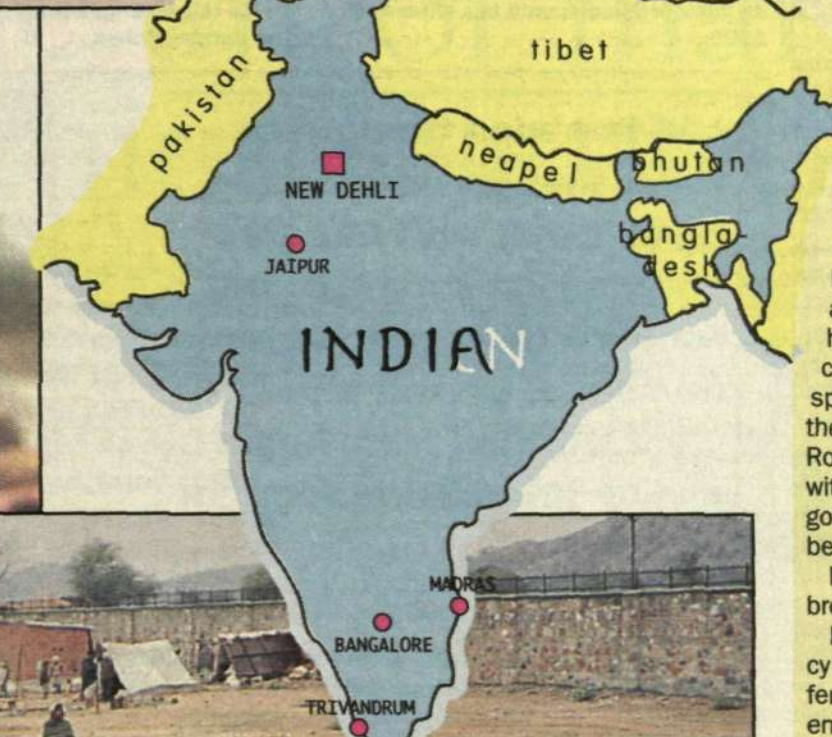
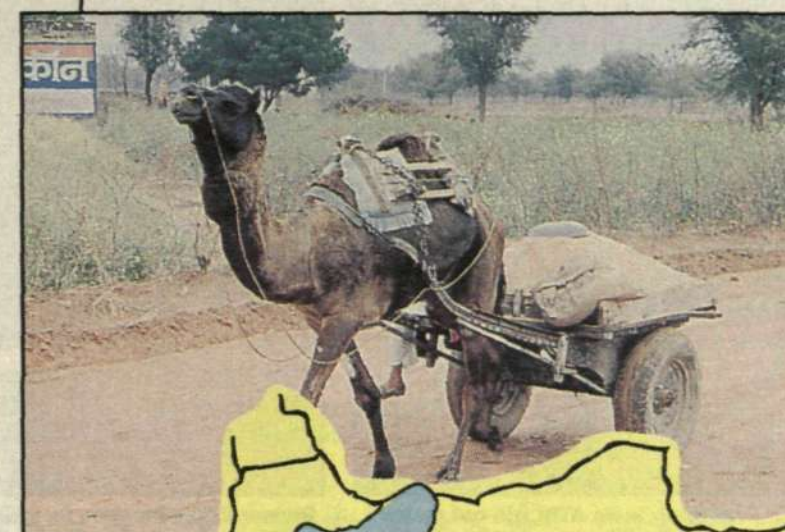
India is the last white dot on the world telecommunications map. After China, the country has the largest potential as a telecom market in the coming years. And Ericsson has built a solid base for moving ahead.



Jan Kind



4.



1. Per Karlberg, responsible for Ericsson Telecommunications in New Delhi, together with a night watchman.
2. Berndt Ullersten is site manager for Ericsson's regional logistics center that is being built in Jaipur. The factory will initially manufacture AXE switches.
3. Much of the work with the new factory is done manually and with animals. But the tempo is still high, and in May this year the plant will be ready.
4. At the office in New Delhi the Hindu goddess Lakshmi oversees the work. She represents success and wealth.

Photos: Jan Kind

Facts about India

India has an area of about 3.2 million square kilometers, the seventh-largest country in the world. There are about 850 million inhabitants. This compares with Sweden's 449,964 square kilometers and 8.7 million inhabitants. The capital city is New Delhi. India is a union consisting of 25 states and seven centrally administered union territories.

Democratic republic
India became independent on August 15, 1947. Today the country is an elected democratic republic with parliamentary rule.

Some 40 percent of the country's revenue comes from agriculture. India is the world's largest tea producer. The country also produces more than 800 films a year, the greatest number in the world.

Fifteen languages
Hindi is the official language. In addition there is Assamese, Bengali, Gujarati, Kannada, Kashmiri, Malayalam, Marathi, Oriya, Punjabi, Sanskrit, Sindhi, Tamil, Telugu and Urdu. The difference between languages is large. The constitution recognizes English as the language in official contexts.

Tiger - India's national animal
India's national animal is the tiger, the brightly-plumed peacock is the national bird and hockey is the national sport.

Religions
About 80 percent of the population is Hindu. About 12 percent are Muslims. In addition there are, among others, Christians, Sikhs, Buddhists and Jainins.

Colorful, spicy food
Indian food has always had a strong attraction. Throughout time, India has been known for its fantastic spices and its colorful, fantasy-rich and spicy foods. Spices was a magnet for the world's known seafarers. Greeks, Romans, Arabs and Chinese traded with India's spices as it they were gold. The fact is pepper was valued at being worth more than gold.

It was also the spice trade that brought the first Europeans to India.

Indian food does not have to be spicy but can be varied according to preference and taste. The basic ingredient is rice. This is often accompanied by a bread, for example "roti" or "chapati" and small dishes of different sauces. Lentils and beans are very popular.

What characterizes the taste are the different blendings of spices. Every Indian cook has his own special blending, "garam massala."

Indian food is fun and relatively easy to prepare.

The recipe is for spicy mint chutney. "Poodna Chatni."

- 4 dl. natural yoghurt
- 1 tsp dried mint or 1 sprig fresh
- 1-2 chilli peppers
- 1 pinch salt

You may use the yoghurt as is or pass it through a coffee filter so that it becomes a bit thicker. Finely chop the mint and the chillies. Mix all the ingredients together and add salt according to taste. The sauce goes with most dishes and can also be used as a vegetable dip.

Joséphine Edwall

"New possibilities with ATM"

Ericsson Business Network is now developing products for the future's rapid traffic of data and multimedia on broadband. One partner is the American company N.E.T., Network Equipment Technology.

"We are combining their knowledge in ATM (Asynchronous Transfer Mode) and LAN (Local Network) with our competence in data network and telecommunications. The collaboration is very promising."

So says Ragnar Erkander who has marketing responsibility for ATM and broadband in the data network division in Ericsson Business Network. Broadband makes it possible to transfer huge quantities of information at high speed. ATM is a method of effectively filling lines with information. This is how you would briefly describe two of the "hottest" concepts right now in telecommunications and data.

Much more traffic

In the world of ATM all information is processed alike, regardless of whether it is voice, data or moving images. It should not call for separate telephone networks, computer networks or video networks. A single network should suffice – a broadband network.

There are not many that are actively using broadband and ATM technology – yet. Initially ATM will be mostly used for a company's local traffic, for example to transfer data files at high speed.

Local networks

Companies are going more and more from terminal-based systems to local networks with powerful personal computers. This drives the evolution of ATM and broadband.

"A PC today has the capacity that a large computer had a few years ago," says Ragnar Erkander. "Powerful work stations achieve much more traffic than before. Moreover, the number of users are growing. Combined communications on the network is therefore increasing dramatically."

"In local networks users are spoiled with high bandwidths. They want to retain the bandwidth in communications too with the rest of the world."

Multimedia

Multimedia is a concept that has long been around but that actually took a major step forward with ATM.

"The applications that arouse greatest interest are data transfer at high speed and multimedia," says Stig Fägerborn, who is responsible for business development at Ericsson Business Network.

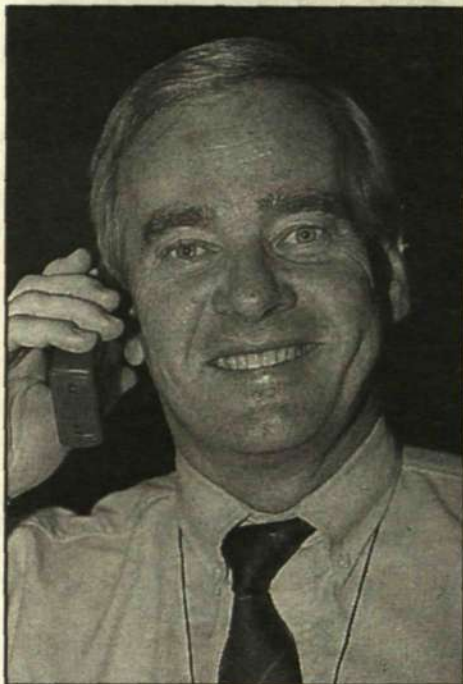
"Suddenly a mass of new possibilities has opened up; transfer of moving film, video conferences, access to databases, lapse illustrations, training films etc. Moving images is more than just looking at each other."

"Multimedia is in line with our own aims," says Ragnar Erkander. "We at Ericsson Business Networks are now used to integrating data and voice. In the future ATM world teleswitching will be an integrated part of the communications network."

Leading partner

Ericsson Business Network has, since 1989, had a collaboration partner in the American company N.E.T. (Network Equipment Technologies).

"We sell several of their products, among others IDNX, a voice and data integrator (multiplexor)," says Ragnar Erkander. "For example, this can compress voice



Stig Fägerborn feels ATM will not make its mark in Sweden until the latter half of 1995.



Ragnar Erkander goes for collaboration with the American N.E.T. in development of data switches.

"It is a nice thought to think that grandma could be in touch with her grandchildren via a screen, but for sure there won't be wide usage. On the other hand working from home can be interesting for a lot of people."



Claes-Göran Vestin is responsible for ATM in Ericsson Telecom.

so that the expensive broadband in the long-distance network can be utilized effectively.

"N.E.T. has been working with ATM and LAN for several years now. We are now combining their knowhow in ATM and LAN with our own knowhow in data networks and telecommunications."

Joint project

Ericsson has a joint project with N.E.T. in Redwood City, California. There are Ericsson people on site, working side by side with N.E.T. personnel.

"We are working on a new product that does not have a name as yet and that goes under the designation Enterprise Switch," says Ragnar Erkander.

"In its first venture it handled just data, but it will be developed to deal with voice and image – and with that multimedia. It will be on stream by 1995."

Build up own network

Enterprise Switch will, above all, use leased connections between a company's offices in different sites, or own its own broadband cables within the company.

"Above all, the customers are large and medium-sized companies, communes and

municipalities. Also companies that themselves have access to infrastructure can be interesting.

For example, I am thinking of SJ, the Swedish railways, with its tracks, or power companies, with their power supply lines," says Ragnar Erkander.

"They have the possibility to build up their own broadband network that they can both use themselves and offer to outside customers. This way they can compete directly with Telia, for example."

Video via filament

Video services have become the most talked-about among the private ATM services to come in the future.

"In the U.S. interest for "Video on Demand" is growing rapidly," says Stig Fägerborn. "It calls for using a bandwidth such that you can send video films via filament directly to the home for the household."

Still most commonly used is synchronous transfer, but ATM is coming into the picture more and more."

Multimedia for the home is a possibility that could be realized in a few years. In effect, distance working will be the biggest target.

"It is a nice thought to think that grandma could be in touch with her grandchildren via a screen, but for sure there will not be wide usage," says Stig Fägerborn.

Good for working at home

"On the other hand it is interesting for many to be able to stay at home and work and through broadband get access to the same functions as on the job. Consultants and people out in rural areas are two such groups."

ATM also creates advantages for tele operators.

More effective network

"ATM technology gives Telia and others the possibility to use their networks in a more effective manner than today. ATM will be one way for operators to sink costs."

A very interesting area in future is also the possibility of participating in remote training sessions. For example, from your workplace through a personal PC you can participate in lectures at university and institutions.

It is also possible to put questions to the lecturer and participate in discussions directly from the spot where you happen to be.

Computer companies drive

It is the computer branch that has most quickly taken to ATM and broadband technology.

"It is specialist companies in data communications that drive ATM developments," says Bertil Myhr, editor in chief of the publication Nätverk & Kommunikation. Computer companies are impatient and do not feel they have time to wait until international standardization is ready. Today, it is about 75 percent completed.

"The traditional work method in the tele committees that are dealing with standardization is slow and obsolete. They do not respond at all to market demands for quick decisions."

Faster standards

But now things are happening in the area of standardization. One bit of news is ATM Forum, an association of 180 users and manufacturers, among them Ericsson.

"The Forum has stepped up the pace of standardization and all ATM developments in Sweden," says Claes-Göran Vestin, responsible for business development of ATM and broadband at Ericsson Telecom. "In many other standardizing bodies they talk until they are united; here you vote at a session."

Pressure on standardization

"ATM Forum is a small revolution and it has also put pressure on other standardization bodies. You work as you learn and, for example, send electronic mail instead of paper."

On the international level Hans Jürgen Breuer from Ericsson has become new chairman of NAS, the body that standardizes ATM and broadband on the European level. One of Hans Jürgen's merits is that he was involved in deciding the size of

ATM"

Facts on ATM

ASYNCHRONOUS TRANSFER MODE

is a technology for broadband transfer – transfer of tele signals with high capacity.

Besides high capacity in signal transfer, ATM also allows a high measure of flexibility, in among other ways that the capacity at a hooked-up connection can be adapted to actual needs.

With this new ATM transfer technology you have new possibilities for use and can offer new tele services.

With ATM technology all information, when it is a matter of impulses from data, voice or image, can be divided up in digital "packets" which are given a standardized appearance. Then each packet is given an address that steers the packet through the network.

By digitalizing and standardizing all information it can be mixed and as such the network's capacity can be increased enormously.

Special switches are now being developed for that.

ATM cells, the bearer of information through the broadband network.

Support in White House

When it comes to technology, Sweden has come as far as the market leader, U.S.A. Ericsson is especially far ahead in software development. As far as spread to users is concerned, the U.S., on the other hand is well ahead.

Since ATM and broadband are investments in society's infrastructure, it is important too to involve the politicians.

"The level of political ambition and the will to invest in technology is increasing in Sweden right now," says Bertil Myhr of Nätverk & Kommunikation. "But in the U.S. they have come even further. There Vice President Al Gore is one of the campaigners for the "digital super highway."

No big orders yet

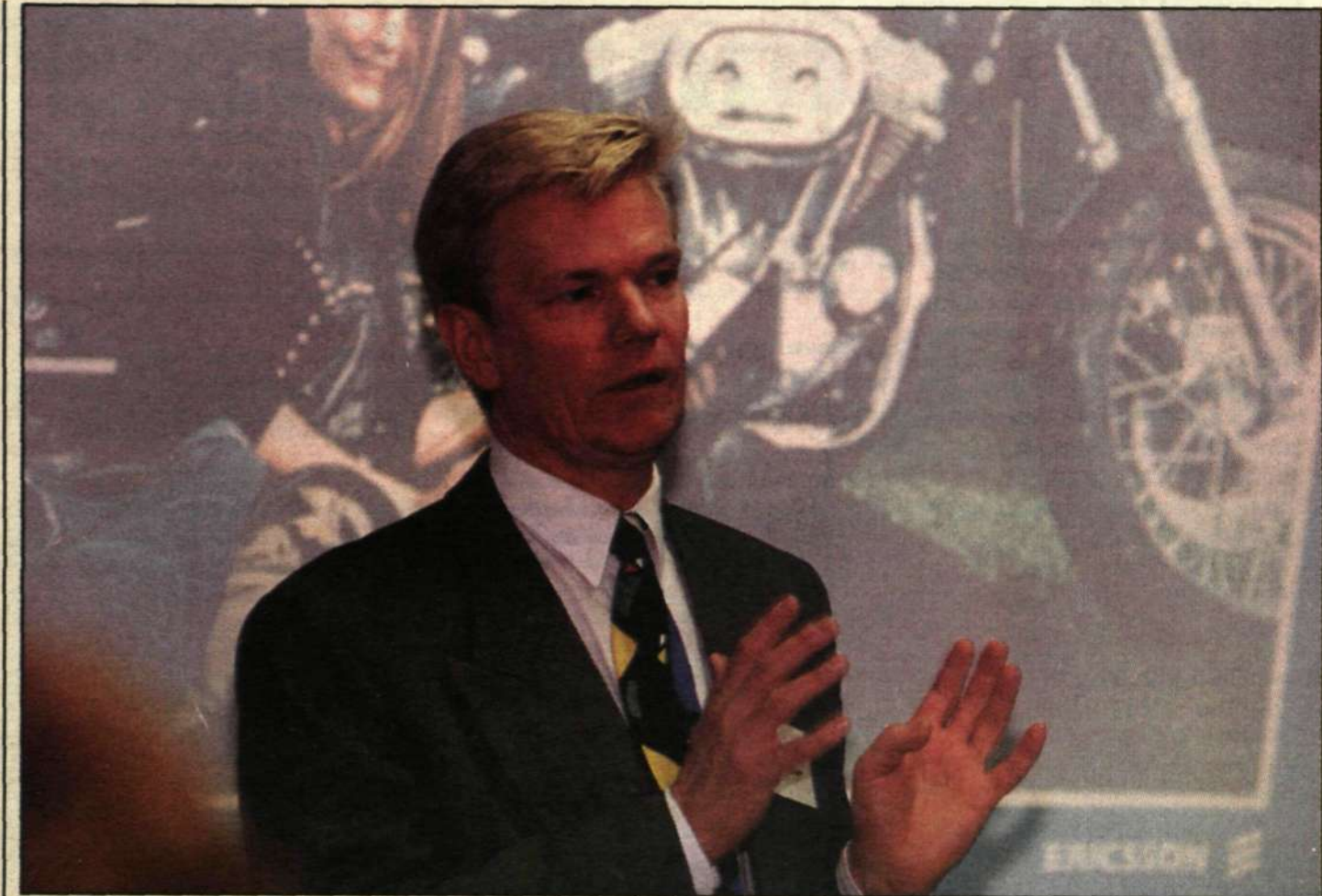
How soon can ATM and broadband achieve wider dispersal in Sweden?

"We do not believe that we would get any big orders before the second half of 1995," says Stig Fägerborn. "This is because companies already have solutions that work sufficiently well. If they have invested in a functioning technology, for example, local networks, it is difficult to break it up for one network."

How does collaboration between Ericsson's units function regarding ATM and broadband?

"Excellent," says Stig Fägerborn. "We have a common list of demands and to a large extent a common evolution. It is important that we are united internally already at this stage – and we have done so."

Jan Klind



A PICTURE OF MICROELECTRONICS. Christer Jungstrand shows an example of an ad, a young woman lawyer on a motorcycle, user of today's advanced technology, portable computer from TI with faxing possibilities and an Ericsson mobile phone. The faxing possibilities give her independence with time and space – a symbol of the customer of the future. Photo: Anders Anjou

The art of marketing microelectronics

"Perhaps it is not so obvious that microelectronics is included as a part of Ericsson's marketing profile, but I believe more and more in its possibility and its necessity." So said Christer Jungstrand, head of the group's core unit for microelectronic systems technology, in a communicators seminar at Electrum in Kista.

Microelectronics means different things to different people, and for some nothing at all. A prerequisite for a world leading communications company like Ericsson to succeed in supplying competitive telecom systems in the future is to be aware of the possibilities that rapid developments in microelectronics have to offer.

Special guests

A communicator seminar on the significance of microelectronics attracted some 60 Ericsson communicators at Electrum in Kista. Special guests were Texas Instruments managers for marketing communications, Stan Victor (worldwide) and Guy M. Wolff (Europe), who impressed with their presentation of the company's very well developed global computer-based communications network, which not least visualized microelectronics.

"In 1993 Ericsson invested 11 billion kronor in research and development, which is 17 percent of invoicing. For this reason we must be very conscious about what we do with research money," Christer Jungstrand pointed out.

To design a system in a smarter way than your competitors and making the best designs with the help of microelectronics is

what counts. Today Ericsson already has access to the most advanced technology through collaboration with Texas Instruments and high competence for development of advanced microcircuits and components.

Strategic asset

The newly formed core unit for microelectronic systems technology is a strategic asset for total business activities in Ericsson. It is responsible for the group's competence and development of microelectronics.

"One of the aspects of microelectronics is to increase productivity to lower costs. The time aspect "time to market" calls for very effective aids and advanced technology. Without microelectronics Ericsson would be left out," said Bert Jepsen, president of Ericsson Components.

Today Ericsson is building a plant for very advanced technology in Kista, to be ready in 1995, to have the possibility for quick prototypes for systems development.

Knowledge is important

The message the seminar brought forth was unequivocal. Microelectronics determines our future.

How do we communicate its significance?

"We have problems as communicators if we do not know our company and our products," said Nils Ingvar Lundin, information director at Ericsson.

"A few years ago we were not accustomed to needing communication. Today we



The communications seminar at Electrum in Kista attracted some 60 communicators. Nearest is Eva Hök, who took the initiative to arrange the seminar, Stan Victor and Guy M. Wolff, managers for marketing communications at Texas Instruments, in Dallas and Nice, respectively.

must make a new start with a uniform and companywide communication plan.

"Until recently I thought it was difficult to describe complex products and systems. But I discovered that ads and pictures can express very well what microelectronic products are," said Christer Jungstrand.

Shifting market

But it is difficult to know what we are going to sell in a year or two. The market is shifting all the time. Of Ericsson's products today, two-thirds were developed in the last two years.

"All the better, developments in microelectronics are reliable. We know very well what's going to happen. We know the possibilities and developments of the immediate years," said Christer Jungstrand.

A telephone switch on a chip, a computer or mobile phone on a ring – these are possibilities of the future. But where developments would lead later, nobody knows.

Inger Björklind Bengtsson

VACANCIES AT ERICSSON

This is a selection of vacancies within the Ericsson corporation. They are published in the electronic News system, which is being updated once a week. For further information about advertising here, contact Birgitta Michels at Ericsson Events, HF/LME/A. Phone +46 871924 18. The next issue will be published at the end of April.

MARKET

Ericsson Radio Systems AB, Russia/Kista

MANAGER, MARKETING RUSSIA/C.I.S

The location is Ericsson's new office in Moscow. The marketing responsibility covers AMPS/D-AMPS systems in C.I.S including Russia. The marketing prospects are very good and several undertakings are already signed within less than a year of marketing.

Main tasks: Build-up of customer contacts and develop a marketing function, technical and commercial presentations, preparation of tenders, negotiate and finalise agreements, prepare budgets and forecasts, prepare and carry out marketing strategies.

Contact: Bo Carlsson 08-7570513, Apply to KI/ERA/A/HC Jansson.

Ericsson Mobile Communications AB, Kista

MANAGER LAND MOBILE RADIO MARKET OPERATIONS IN PEOPLES REPUBLIC OF CHINA

The position is based in China. The unit will be responsible for orders, sales contract execution, after sales support and repair of Land Mobile Radioproducts in China. The customers are private/public enterprises and organisations mainly within the following market segments: Emergency services, police, utilities, large industries, airports. The products we offer are highly competitive and are market leaders when it comes to functionality and capacity. Sales is done both via direct sales and independent distributors.

You need experience from marketing and sales in Far East, preferably from operations in China.

Contact: Staffan Svensson, 08-7570761, Memo ECSSNS or Craig Szczutkowski, EGE, Lynchburg, +1 804 5287382, EGECFS.

Ericsson Business Networks, Business Communications Division

SALES ENGINEER - MARKETING & SALES NETWORK OPERATORS

To work in a dynamic, international environment, where your own initiative and creativity, paired with high demands on professionalism and personal responsibility will be highly valued assets. You will be responsible for provisioning of services such as pre-sales, assisting with bid preparation, System/Network engineering, order processing & monitoring, project documentation, invoicing in an end-to-end sales process, interacting with our sales. Sales Engineers will

in this position have direct influence in a projects profitability.

Essential personal characteristics: Open and driving personality, analytic character, problem solver with good sense for realism, fluent in spoken and written English.

Contact: Bengt Åkerström, 08-6824314 or Jan Lagerborg, personnel, 08-6824576. Application to BO/EBC/K/H Jan Lagerborg.

Ericsson Radio Systems AB, Moscow

BR-MANAGER RUSSIA

Shortly a new office will be opened in Moscow and the business will reach out over several Units (BR, BZ, BX). We are looking for a manager who will be responsible for coordinating BA Radio's activities in Russia and other states within CIS. You will be responsible for coordinating marketing, sales, project management etc for especially RMOG, RMOA and RLMR. Reference systems for NMT 450, AMPS and GSM have already been sold. You will be working alongside about ten associates. You will be stationed in Moscow and report to the President of the Ericsson Company in Moscow.

Experience in the Russian market and knowledge in the Russian market is of course an advantage but not a requirement.

Contact: Mats Amamo, 08-7573366, Håkan Jonasson, 08-7572842 or Ulf Borison, 08-7571580.

Ericsson Ltd, Cellular Systems & Special Network Division, Guildford, England

SENIOR MARKETING ENGINEERING

The opportunity is for an aspiring individual who would like to become a key member of a high performing marketing team dealing with one of Ericsson's most demanding and advanced cellular operators. The right person will be in a team driving the marketing process towards the Vodafone Group. This involves the marketing of any possibility for Ericsson's "product portfolio" (of which CME20 is the most important element). Therefore, CME20 experience is essential. The work is primarily focused on the opportunities in the UK, but also coordination/control of the Vodafone worldwide activities.

Contact: Fredrik Naslung, +44 483 465301 or Phil Hooper, Personnel, +44 483 465351.

PRODUCT MANAGEMENT

Ericsson Radio Systems AB, Kista

CUSTOMER PROJECT MANAGERS FOR MOBILE TELEPHONE SYSTEMS, CENTRAL AND EASTERN EUROPE

ERA has delivered several mobile telephone systems to customers in central and eastern Europe, incl. Russia and are expecting more. We need project managers based in Kista, Stockholm to handle these customer projects. You will be responsible for initiating and follow up all activities for executing the contract according to the scope of work, time schedule and budget. We are focusing on shortened leadtimes, customer satisfaction and improved profitability. The project managers are also involved in sales and marketing activities. The work includes extensive travelling and contacts with customers and suppliers of services and equipment.

Experience within above areas are required. Knowledge of eastern Europe/Russia and the Russian language is advantageous.

Contact: Sven Jungmar, +46-8-7573281, memo ERASJU or Marie Zachrisson, personnel, +46-8-7572459, ERAMZN. Send application with CV to KI/ERA/LP/PNC asap.

Ericsson Radio Systems AB, Market Opns North America, Kista

LOCAL PRODUCT MANAGEMENT AND PCS NETWORK DESIGN

We will start a new market operation unit in Kista, Sweden, for PCS in North America. One part will take care of local product management and PCS network design, which will be very interesting and a lot of work depending on the fact that this is a new exiting system (CMS 40). Ericsson Foresee great possibilities for the future and will now build up operations in Kista and Dallas. We are looking for persons with experience in product management or system design for mainly the cellular or AXE systems. For PCS network design we are looking for persons with experience in planning of cellular systems.

The work requires good ability in communication and good knowledge in English. It is associated with a lot of travelling to USA and we are also interested in persons willing to work in the US both from now and later on.

Contact: Håkan Enquist, 08-7572240, Memo ERAHEJ, Gogo Landén, personnel, 08-7572242, Mats Dahlin, EXU 214 907 7820, or Mikael Stroemquist, EXU 919 990 7392.

TEKNIK

Ericsson Telecom AB, Basic Systems, Tellus

SENIOR ENGINEER AXE DESIGN PROJECT SUPPORT (Tools)

Here is an opportunity to work with a friendly, dedicated group of computer specialists to provide tools support for AXE development. The work is interesting, varied and you will work with a broad range of people, based locally and at Ericsson design centres world-wide. ETX/TX/DD is an independent unit which is responsible for the integration of tools products, their delivery and support. You will be responsible for tools co-ordination for major AXE development projects which use APStools, APS3 and other products. You will also provide product support, following the delivery of products to Ericsson subsidiaries and associated companies.

This role is a senior role, working closely with the manager AXE Design Project Support. However, applications from less experienced engineers, who can demonstrate potential to rapidly grow into this role, will be seriously considered.

SENIOR ENGINEER - TOOLS INDUSTRIALISATION AND VERIFICATION

Here is an opportunity to work with a friendly, dedicated group of computer specialists to deliver tools used for AXE 10 development. The work is interesting, varied and you will work with a broad range of people, based locally and at Ericsson design centres world-wide.

ETX/TX/DD is an independent unit which is responsible for the integration of tools products, their delivery and support.

You will lead a team involved in the industrialisation of Design Support products including

APStools, APS3 and associated products. You will also provide product support, following the delivery of products to Ericsson subsidiaries and associated companies. This role is a senior role, working closely with the manager AXE 10 Post Sales Support. However, applications from less experienced engineers, who can demonstrate potential to rapidly grow into this role, will be seriously considered.

Knowledge of products used for AXE 10 product development, experience with Application System production and verification, preferably in a leading role, familiarity with the AXE 10 development process and PROPs, ability to work in a team environment, leadership qualities in a technical role, ability to work with multiple tasks and to take a leading role in project work, knowledge of the Ericsson organisation relating to AXE 10 product development (major local companies and major development projects).

Contact: Anders Gerebäck, 08-7198807, ETX-AGC, Trevor Williams, 08-7191180, ETXTJW or Lennart Stengård, 08-7194538, ETXLES.

Ericsson Mobile Communications AB, Kista

TECHNICAL SALES SUPPORT LAND MOBILE RADIO, RUSSIA

Responsibilities: to be local customer contact in Moscow for our Land mobile radio division, support sale out of Sweden of EDACS in former Soviet Union, mainly Russia, as a technical specialist, be point of contact for existing and future customers concerning technical and system related issues and be responsible for installation, commissioning and operation of EDACS demo system.

You have a MSc in engineering or eqv. with special knowledge in radio, tele- and/or datacommunications. It is essential that you have experiences in system analysis of telecommunication systems. You also need experience in customer relations and you should be fluent in both Russian and English.

Contact: Bo Stenqvist, 08-7570135, Memo ECSBOSQ and Eva Jansson, 08-7571459, ECSEVAJ.

Ericsson Data UK Ltd, Burgess Hill, West Sussex

UNIX SYSTEMS ENGINEER - PROJECT MANAGER

Local employment contracts only. Unix Systems Engineer requires five years experience of Unix systems and a thorough knowledge of networks and protocols. The project manager requires experience of LAN, WAN and Voice & Data communication and experience of substantial IT projects.

Contact: Aidan Gormley, Memo EDL.EDLANGY or Kirstie Free, ETL.ETLKEFE.

Ericsson Radio Systems AB, Kista

AMPS/D-AMPS SYSTEM SUP- PORT ENGINEER FOR MOSCOW

Due to the continuing successful sales of AMPS cellular systems to the Russian republics, it has been decided to open a field support centre (FSC) in Moscow. This FSC will support systems in all of these markets, and will be an integrated part of the AMPS/D-AMPS Global Support Organisation (GSO).

Today the GSO consists of an AS-handling organisation at LMC, three TACs, and a number of FSCs in North and Latin America, Asia and Oceania. We wish to recruit a System Support Engineer for the Moscow FSC.

The successful candidate has a minimum of 3 years knowledge of AXE, support experience, good written and oral skills in English, is customer oriented, works in a processor-oriented/structured manner, is self-reliant and can work alone in the field, ideally has some cellular knowledge from any of Ericsson's cellular systems, is available from mid-94. Obviously, ability to speak Russian is an advantage but not strictly necessary.

Please apply with a short resume of your background and experience to Larry Lumsden, Manager, System Support Services, +46 8 7570475, Memo ERALAU or Åke Freiholtz, Customer Project Manager, +46 8 7573756, ERAAFZ.

Ericsson Radar Electronics AB, Mölndal

ASIC DESIGN ENGINEER

Within the department for Advanced Digital Design we are an ASIC design team who need to expand with two more experienced designers. We are currently working with three major projects, i. e. JAS, PS890 and BAMSE. Most of our customers are located within the Ericsson Corporation, but there are also potential external customers within the military and commercial area. We are mainly focused on Gate Array designs but we intend to expand our full custom capability.

We assume that you have a M.Sc. degree in Electro/Computer science engineering, have completed a couple of ASIC designs and are familiar with VHDL language and synthesis.

You must be open minded, prepared to give your customers full service in terms of design support and also be an adviser.

Contact: Erik Dagemark, 031-671718, MEMO EREEDK or Claes Warholm, 031-671700, ERECWM. Apply to Maria Ottosson Ljungberg, 031-671532, EREMOG.

Ericsson Telecom AB, CU Basic Systems, Årsta

ASSESSOR FOR THE SW DEVELOPMENT PROCESS

During 1994 the maturity evaluation of all Ericsson Design Centers is started. The evaluation will be done using the Capability Maturity Model from the Software Engineering Institute.

The Software Design Center within Core Unit Basic Systems consists of four departments with some 140 software designers. An exciting task is waiting for you who want a full time job of process improvements where the assessments is an important part.

You should have several years of experience of software engineering processes, as designer or project manager, and a genuine interest in process improvements. Your English will have to be excellent and too succeed in this job you must have a high degree of credibility and integrity. There will be three days of CMM-training in June and an week of assessment training in October. You will participate in audits at different Ericsson units, in Sweden and abroad, in order to be a certified assessor.

Your main task, however, is to actively manage improvements within the software design center at Core Unit Basic Systems.

Contact: Lars-Åke Aspelin, 85090730, Memo ETXLAAS, Roland Fors, 85094461, ETXLAFO eller Maria Lerner, personnel, 85094245.

Don't forget JobNews in the Memo system under Ericsson News!

Exide, something to have when the power goes

A collaboration agreement has been struck between Ericsson Energy Systems Division and the American company Exide Electronics. The agreement applies to systems for interruption-free power supply in the control room at telephone exchanges.

"After evaluating products from various suppliers we concluded that just Exide's products best suits as a complement to our own," says Torsten Melin, responsible for products at Energy Systems in Kungens Kurva.

Must function

One demand in a today's ever computer-based world is naturally that power supply functions, which people in power supply interpret as interruption-free power supply or Uninterrupted Power Supply, UPS.

Transients in the power network, overloading of a network or a hit by lightning can affect operations and in the worst case cause a total breakdown, with very costly results. That's why it is of extreme importance to have reliable power equipment, which also keeps operations alive when "the current goes."

Globe-girdling

The choice of Exide was preceded by tests of a number of suppliers. A number of criteria fit well with Ericsson's demands, among them Exide's globe-girdling service organization, which allows Ericsson customers to get in contact with the nearest Exide office.

Exide's products are linked to the normal alternating current network and is therefore a complement to Ericsson's inverter program, which is connected to direct current networks in the telephone exchange.

The uninterrupted power system Exide manufactures allows secure operation of,

Jan Ahlqvist, marketing manager for Exide Electronics, and Torsten Melin, responsible for products, confer over an Exide product for interruption-free power supply.



for example, workstations and laser printers, which are used to supervise and direct operations in an exchange. The system is linked to an ordinary wall outlet and can be used for 115 or 230 volts, depending on where in the world it is being used.

All Ericsson companies

The agreement between Ericsson Energy

Systems and Exide Electronics is such so that all Ericsson companies can turn to Exide to get access to the system and with the same marketing advantages.

Complements

"Through our collaboration we have given Exide telecom knowledge. It complements its product program so that it gets better adaptation for telecom applications. This way Exide has products for both the private and the telecom market," says Torsten Melin.

"Their global marketing presence and service network fits in well with Ericsson's policy of working closer to the customer."

**Johan Frändfors
Inger Björklind Bengtsson**

Facts about Exide

Exide Electronics was founded in 1888. The company has about 15 percent of the world market for UPS systems. The parent company is in the U.S., with sales offices in France, Germany and England. The number of employees is 1,200. Distributors with service and installation personnel are located all over the world. The company invests eight million dollars annually in research and development.

This issue of Contact was shipped from Sweden on March 23. It is distributed via Air Mail, and should reach all readers within a week from this date. If you have received your copy later, please let us know. Send a fax to Pia Rehnberg, Corporate Relations. Fax nr +46 8 7191976. Memo LMEPRG.

World-renowned art adorn walls at head office

Did you know that Ericsson's walls at head office (HF) and in Kungens Kurva, Stockholm, housed world-renowned wood mosaics, so-called intarsia art? Ewald Dahlskog is a Swedish artist who would have been 100 years old this year. In 1939 he was commissioned by Ericsson to adorn the walls in the then boardroom at the head office in Telefonplan.



Ewald Dahlskog was a total artist. Besides intarsia works he left paintings, glass sculptures and ceramics. Above, a postcard of him from the '30s.



Above and below: Details of intarsia art by Ewald Dahlskog. He is represented both at the head office and in Kungens Kurva.



At the end of the '30s Ericsson's newly built factory at Telefonplan in Stockholm was ready. New constructions at that time were sensational in their funkist style, with light airy offices.

"Everything here is bright and fresh. Sunlight beams in through ample windows. The entire factory really creates a sharp contrast with the concept that everything since the 1800s was deeply-rooted among so many Swedes, namely that a factory must be somewhat dark, dirty, unpleasant and a risk to health."

That was what was written about LM Ericsson in Midsommarkransen in a newspaper article from 1941.

Beautiful wood

When the directors' room was to be furnished, Ericsson commissioned the Swedish artist Ewald Dahlskog to draw intarsia art works, that is to say mosaics, consisting of different rare woods. The walls of the boardroom were incredibly beautiful. The art work consisted of carved and joined bits of about 140 different types of wood. Everything, from Swedish precious wood such as elm, ash and masur birch to foreign and more exotic woods like sycamore, jacaranda, palisander and amboina.

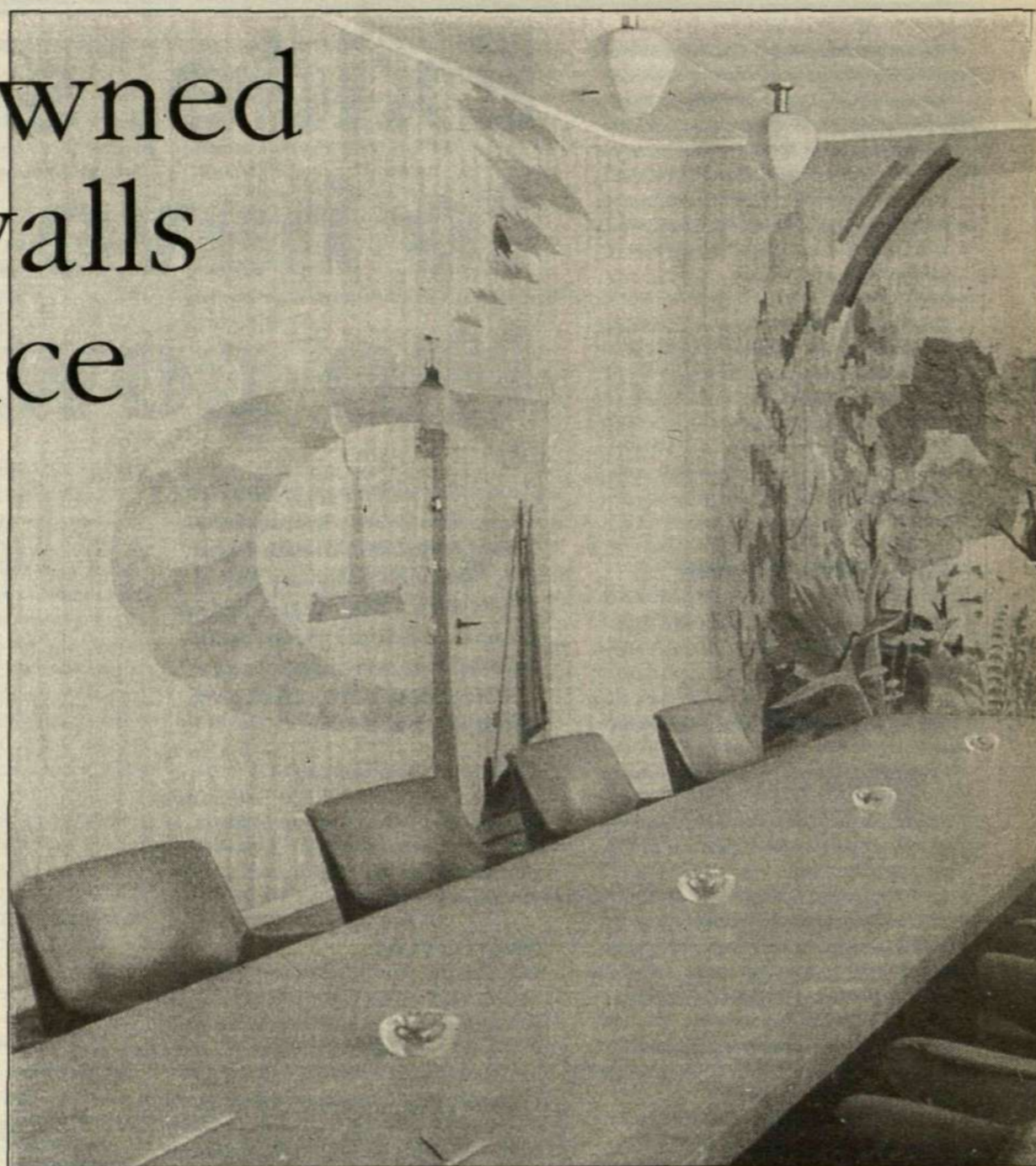
Unusual boardroom

This is from a 1941 brochure that describes Ericsson's new building:

"The traditional boardroom in a Swedish company usually looks like a veneration room in some 1600's castle - with walls paneled or draped with yellow leather or hung with more or less expensive and scary oil portraits of deceased directors and board chairmen."

They then went on to describe that this was not really the case in the newly built Ericsson complex. Instead, here the architect strove for a boardroom with "fantasy-full, purpose-gear architecture symphony," to which Dahlskog contributed by designing four magnificent intarsia walls.

All four compositions, which have been retained to date, recall allegorical images regarding the history of signaling and deal



A HISTORIC ROOM. This is how it looked in the boardroom in the '40s. This is now Ericsson Telecom's president, Håkan Jansson's, boardroom and is known today as the "Zola Room" where instead of

with optical or acoustical information services. The Viking world, Polynesian primitiveness and Greek myths dominate each of its own in the large compositions. On one of the walls is depicted an antique and a modern lighthouse, which is meant to symbolize the meeting between old and modern technology.

Walls moved

When the new directors' floor was built on the 11th floor during the mid-'50s, Dahlskog's walls were moved to this floor. Today, top management occupies this floor.

However, all the intarsia walls did not have a home with the move, so a wall panel was placed in an auditorium.

In the mid-'70s Ericsson expanded in Kungens Kurva and one felt that the entrance lobby there would be a significantly better place for this section. That's how this wall comes to be in Kungens Kurva today. Unfortunately, today the walls are faded, but, in general, they are well kept and beautiful to behold.

Josephine Edwall

Intarsia - mosaic in wood

Intarsia is a mosaic in different types of wood and is a noted art form that stems from the Orient. Carved pieces of different types of wood and in varying shapes are assembled together into a pattern. Intarsia work is most commonly found in furniture.

In Sweden Erik XIV had some chambers in his castles decorated with various beautiful woods in the 1500s.

Protect Dahlskog's

"Ericsson is and always has been a modern company that thinks in new terms. This applies not only to technology but also in certain instances to design and decorating," says art dealer Janek Björklund in Stockholm, who has a special interest for Ewald Dahlskog's art.

"Already at the end of the '30s one wanted to have bright, pleasant offices and modern-thinking architects and artists were hired to make it happen. Ericsson at Telefonplan is a good example of this and I am happy to see that you have preserved Ewald Dahlskog's intarsia work from the '40s. Intarsia art is becoming more and more rare."

"Dahlskog was a world master in intarsia art. Protect the work you have of him - it is unique," says Janek Björklund.

On April 25 this year Dahlskog would have been 100 years old. Unfortunately he lived only fifty of these. However, he left to posterity all his beautiful art to be enjoyed. He was really a total artist who was clever at everything, from painting, glass, ceramics and not least intarsia work.

Many-sided

"Ewald Dahlskog was a many-sided artist who kept up with debate on the arts and who was ahead of his time," says Janek Björklund.

Dahlskog was one of our earliest industrial designers who dared to produce new art forms. During the '20s, '30s and '40s artists were more like our present-day artists. They expressed themselves in most ways and had opinions about everything. Dahlskog was no exception.

He was very forward-looking and social. Among other things he was good friends with the famous song writer and artist Evert Taube and they were often seen together.

Dahlskog was a border hopper and wanted to test various art forms. He became internationally known and was exhibited all over the world. The Victoria & Albert museum in London exhibits, among other things, ceramics by Dahlskog.



Dahlskog's intarsia art the walls are adorned with paintings from the artist Zola.

works

"They are impressed with his work and feel that he inspired many Englishmen," says Janek Björklund.

Decorated ocean liner

Dahlskog's largest intarsia commission was for the Swedish America Lines' newly built m/s Stockholm.

Some 147 square meters were given to intarsia. Dahlskog used more than 400 different types of wood, more than he had ever used before. He chose the stock himself and supervised the sawing into veneer.

The carpentry work itself was entrusted to specially selected, very clever Italian so-called découpeurs. It is they who do the carpentry work and assembly according to the intarsia artist's design.

Sought work

Dahlskog made many study trips to, among other places, France, Italy, Belgium and Norway. He



Ewald Dahlskog self-portrait, 1932.

worked at Kosta glassworks and Boberg's Faience factory.

He designed and painted beautiful canvases and intarsia art-works for, among others, Stockholm City Hall; LM Ericsson; Stockholm Concert Hall; China Theater in Stockholm; the John Morton Memorial building in Philadelphia, and others.

On September 25, 1950, Sweden lost a brilliant artist.

Josephine Edwall

Exhibited at FORM 1900

During April the exhibition Form 1900 in Stockholm has a special exhibition of works by Ewald Dahlskog.

Among other things, original drawings for Ericsson's intarsia murals will be shown.

FORM 1900 is located at Grev Turegatan 18 in Stockholm. Tel. 08-662 19 00

Six ads to strengthen Ericsson's image

The first ad in Ericsson's advertising campaign appeared in the international press during the fall of 1993. Now an additional five ads in the series are ready. They all build on the same concept and the campaign's key word, "Respect".



Ericsson strengthens its image with ads in the international press.

The telecommunications industry is undergoing huge changes and Ericsson must profile itself more strongly. Customers are changing and companies in the industry must find new ways of reaching them. New product areas also bring Ericsson new customers who are different from those the company had before. Hence the need for an international campaign to strengthen its profile.

Communication

"It's about communication between people. The rest is technology" is the main message behind Ericsson's corporate image ad campaign. It is a quote from Ericsson CEO Lars Ramqvist and also the headline in the first ad in the campaign that began last year.

Ericsson's company culture is based on three common values: professionalism, perseverance and respect. These values guide internal work as well as the company's external relations. Respect is also the key word in the ad campaign.

The message is that technology, when you come down to it, is only a means to an end. Technology development should therefore always be based on an understanding of customer needs and solve their communications problems. Moreover, Ericsson must do so better than its competitors.

In five new ads different areas of competence in Ericsson will be featured: mobile telephones, mobile data, cordless business systems, broadband communications and intelligent networks. Co-workers in the company talk about what communication and respect mean for them and for the company. Moreover, one or two more ads are planned for later this year.

Ericsson must be seen

Birgitta Engardt, responsible for the company's marketing communications, talks about the campaign and what it will look like:

"The ads will appear in the international press during all of

1994 and also during 1995. Media plans include many of the influential international trade and business publications, and to a certain extent the daily press as well.

"In addition, we have chosen to advertise in so-called in-flight magazines, that is airline companies' customer magazines. The target group is, in the first place, business people and decision-makers in the area of telecommunications. An important target group is also employees in the company."

Main message

The message in the first ad, which formed the core of the campaign, will also be used in many contexts other than profile ads.

At the CeBIT fair in Hannover, Germany, the main message was displayed prominently in Ericsson's stands. It was also presented in invitations sent out, and it was used in information material in the stands and also by those who worked in the stands and met visitors.

Far-sighted work

Profiling aims at raising outsiders' knowledge about a company's existence and its areas of activity. It will build up and strengthen a far-reaching relation between the company and the reader and give a picture of the company's character and standing. That's why the campaign will run for such a long time, up to the fall of 1995.

The group's business units work out market plans for their activities. Profile ads must support these plans. For example, ads can be seen in the press in a selected market in conjunction with a product launching. Moreover, the ad can support

more important events in the telecommunications industry. Important exhibitions such as CeBIT in Germany, Africa Telecom, CommunicAsia and Telecom 95 could be such events, as well as large symposiums and the like.

Measurable changes

In order to work professionally with ads some preparation is needed to determine target group, to formulate the message and to select media. One way in planning is to measure how many in the target group know the company before and after the ad campaign. One must also take into consideration what the target group knows about the company. Do they have a positive or negative impression?

Survey

A comprehensive image survey was undertaken in the fall of 1993. Both Ericsson and many competing companies were a part of the survey and were compared with each other. The survey will be repeated at the end of the campaign in order to measure changed impressions. It is important for everyone in Ericsson to know how it is perceived outside the company.

It is still far too early to measure with certainty changes in attitudes toward the company as a result of the campaign. The huge push behind the campaign will come during this year.

So far, however, a number of papers have made so called observation measurements on individual ads in the campaign. These surveys show that the ads aroused a lot of attention and that many in the target group actually read the ad and remembered the message.

Pia Rehnberg

CONTACT

Ericsson, HF/LME/A, Room 4313, S-126 25 Stockholm



"Presumably we are less pleased with ourselves than what others are, and that makes me a bit worried. Although it may be good to be self-critical, it is also important to be proud over your accomplishments, without being complacent," says Nils Grimsmo.

Photo: Mimsy Moller

Norwegian at the helm in Great Britain

Nils Grimsmo is the new head of Ericsson's operations in Britain. As president of Ericsson Ltd. he continues along the path that his predecessor, Anders Igel, cut out. The customer in focus, continuous improvements and involvement is what counts. In other words, TQM.

Before the end of 1994 we can expect tougher competition on the market. That's why we must be prepared at all times to adapt to customers' demands.

It is Nils Grimsmo who puts forward this message. On February 1, Nils took over from Anders Igel as head of Ericsson Ltd. in England and the company's top person responsible for this important market. In an interview for the English internal publication *Linx*, Nils gives his views on how the company can succeed even better in Britain.

TQM leads the way

"My recipe for success is strongly based on the principles of TQM, Total Quality Management. These principles can help us to learn quickly from our experiences and to use them to become better. This is how we win new business opportunities and continue expansion for the company."

Nils is proud over the successes that Ericsson Ltd. achieved during 1993, but he is sober about the future. He feels that employees in the company now must be prepared for change.

Last year was a very successful one in our traditional area, but it is in the new markets that the challenges will come and it is there that we must be better, says Nils.

The huge program for delivery of AXE to BT will wind down when BT's modernization program is completed. Then Ericsson must seize the new opportunities that come up.

Draws attention

The competence in production and distribution that was built up with the plant in Scunthorpe has been invaluable when it comes to satisfying BT's needs. And it has also been noticed elsewhere in Ericsson, for example in the form of orders for Denmark and the U.S.A. Other companies in the group use Scunthorpe as a counterpart in benchmarking, in an attempt to learn from the Englishmen's successes in, for example, delivery precision.

Today's customers want their supplier to take on more responsibility. This is something Ericsson in England learned not least in the past few years.

"We learned that we are not always as good as we think and that we do not always have sufficient knowledge. But this has provided us with valuable experience that we can now draw on and use to our advantage."

Others' products

"Although we strongly believe in our products, we must also take the opportunities to integrate them with products from third parties and other suppliers. This is a need that cannot be underestimated and that for

many can mean a sort of culture change," Nils warns.

Nils takes the handover of Mercury One-2-One, the new digital mobile network in the London area as a remarkable example of a turnkey project and of what developments are like on the market today.

"The computer industry learned at the end of the '80s that you cannot just force your own products on the customer. That's why we must always work together with others to satisfy our customers' needs, so that we can offer them solutions that make the customer competitive in his own market."

"Today customers take quality and performance for granted. Therefore we must be aggressive in matters of price and delivery times in order to secure future volume orders, at the same time continuing to see the importance of quality and performance as fundamental demands for business."

Functions well

Nils Grimsmo was formerly head of the largest division in Ericsson Ltd., Public Systems, with BT as customer. He came to Ericsson Ltd. from Ericsson A.S. in Norway. Now that he is taking over as head of operations in Britain he sees no reason to change organization.

"One should not change for change sake. Our organization functions well. Eventual changes should come as the market changes."

Text: Justin Quillinan and Paula Wagstaff

END
LINE

LARS-GÖRAN HEDIN



Archimedes' principle

Indeed you have heard of Archimedes? He lived back in olden Greek times and distinguished himself through a well-known bath. I believed this is how the story goes: Archimedes had a bath prepared for him. Then when he sank his classical body into it some of the water ran over. And eureka – the world's most famous principle was discovered: Volume of mass can be measured as the quantity of water displaced when the mass is lowered into a vessel.

But what does this have to do with Ericsson? Well, all this with volume and size has suddenly become a really hot issue. The spring's most important topics of discussion centers around what is smallest and lightest; a telephone from Ericsson or one from Nokia.

"Our telephone is lightest says Nokia in its advertisements and gives a weight that is measured with a battery that nobody actually wants."

"Our telephone is smaller, says Ericsson, pointing to volume."

If then all this about size has so great significance, why not arrange an objective test along the lines of Archimedes' principle?

Take a word of advice from someone who manages quite well with a 420-grammer, you who market pocket phones: Stop talking about what is smallest, talk about functionality and quality instead. Size is now down to such a level that it plays no role as to which model is above or below the 200-gram border.

You who manufacture this technological marvel, try to think even more about users. Give them a phone that is pocket friendly rather than hand friendly. A pocket phone spends more time in the pocket than in the hand. You should be able to carry it in your pocket without the garment bulging out as if one were a Chicago gangster with holsters under one's jacket.

And think about display. When message service becomes accessible in the GSM network it is important to have a large and clear display, with good lighting.

And remember to make the phones watertight, just in case.....