CONTACT

ERICSSON PUBLICATION FOR EMPLOYEES WORLDWIDE No. 6 1993

Radio wiz in new role

After four years in the U.S., Åke Lundquist is coming home to Sweden to head the new corporate function Business Development at LME.

Page 7

Åke Lundquist.

New flags flutter in East

East Europe is going through overwhelming change just now. The new states in the East are also new markets for Ericsson.

Page 12

Power competence

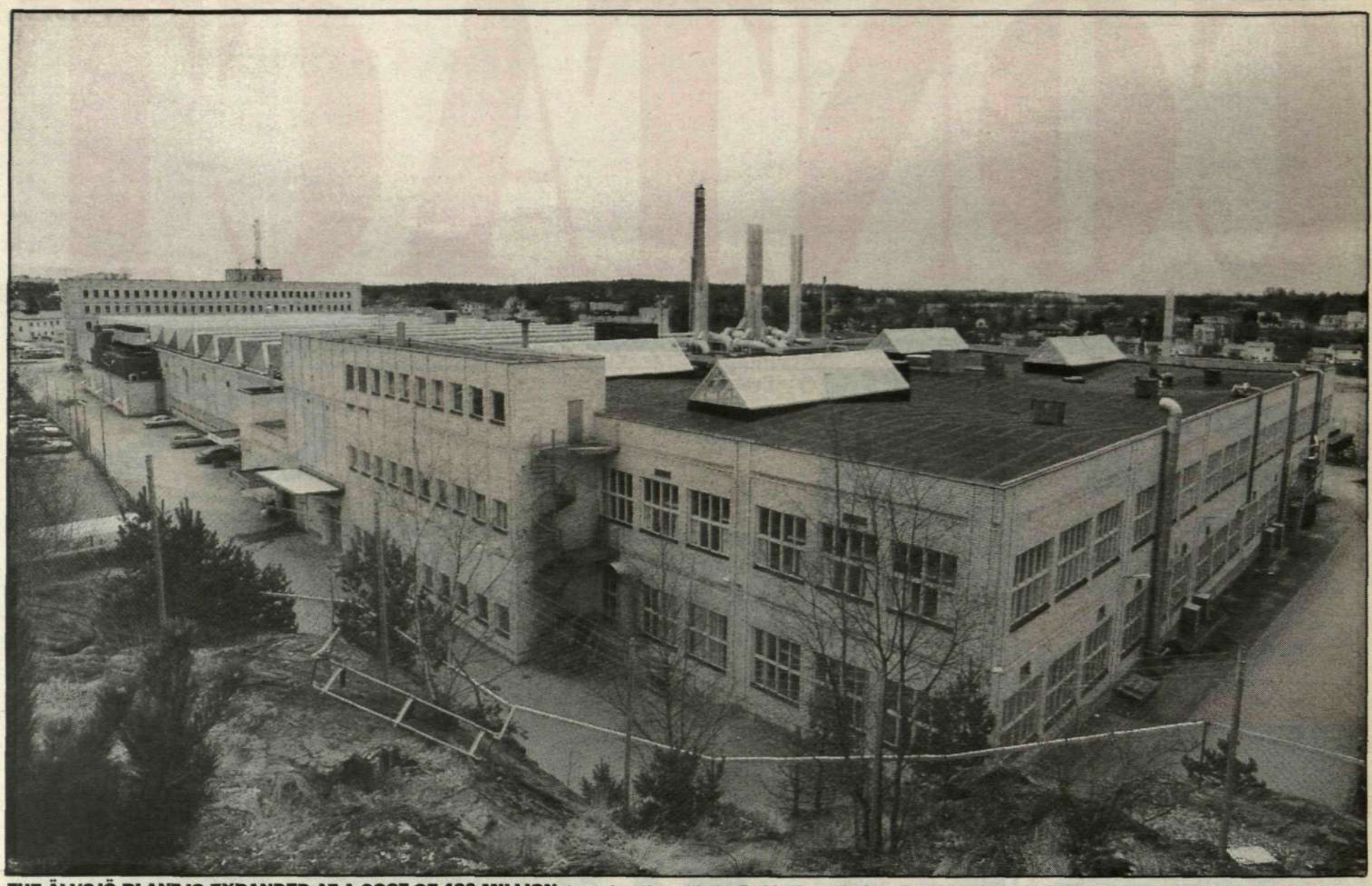
Ericsson Components is not just good at electronic components but is also way ahead when it comes to power and cooling for tele equipment.

Pages 14-15

A reborn Chile goes for telecom

Pages 8-9

First-half results: 1,3 billion – page 2



THE ÄLVSJÖ PLANT IS EXPANDED AT A COST OF 480 MILLION. In conjunction with the first-half results, Lars Ramquist also said that Ericsson has decided on big investments in Sweden. The latest input is an investment in the Älvsjö plant , where production was halted earlier this year. Now it will get 750 office rooms for activities that were earlier scattered around offices in Stockholm. Ericsson will also employ an additional 1,000 persons in Sweden during the year, the bulk of them in Stockholm. Since an equal number got jobs already this year, the number of those employed in Sweden this year has grown by 2,000. "It is a result of the improved industrial climate in the country," explained Lars Ramqvist.

"We reckon with doubling profits"

Ericsson's results for the first half of 1993 lived up to all expectations. Profits climbed to 1.286 billion kronor, an increase of 1.2 billion compared with the same period last year.

The positive trend for Ericsson looks like continuing. A tangible sign of this is the order bookings , which have now increased for the seventh quarter in a row. Increases in 1992 also figure prominently in invoicing, which also rose heavily.

"We certainly have a powerful effect from the Swedish currency devaluation, but just over more than half of the order bookings and invoicing are real increases," noted Lars Ramqvist, when he presented the half-year report to the press.

Now order bookings have risen for the seventh straight quarter.

Continued TRIM work is a prerequirement

Ericsson's order stocks is therefore the largest ever – 46 billion kronor. This means that the company's production resources are being used to full capacity.

Work in the factories is already being now secured far into next year. Since the turn of mid-year last year order stocks have increased by a full 33 percent.

Invoicing grows

Invoicing also grew heavily, partly as a result of the currency exchange for the Swedish krona. But above all it is the increase in order bookings last year that have left its mark.

There is always a few months' lapse between ordering and invoicing in the tele branch, so Ericsson has now a period of further invoicing increases ahead of it.

"Putting aside currency fluctuations, there remains more than half

"It is a matter of real gains"

of the 35 percent of the invoicing increase that we are now reporting," explained Lars Ramqvist.

"For all of 1993 I predict that results will amount to at least a doubling of the 1992 result, which was some 1.3 billion kronor."

Lars Ramqvist began his presentation of the mid-year earnings report by reminding the audience of the lingering recessionary situation.

New technology sells

"Recession has cut deeply into funds for investment among many of our large customers. It has also created problems for many to arrange financing for big business deals."

"But despite the recession things are going well for Ericsson. It is our newly developed products that are selling. Investments in research and development stand out even more than before as a clever strategy move."

"Not least is this true on the radio side, where Buiness Area Radio Communications is now the largest in Ericsson with an invoicing increase of a full 75 percent during the first quarter," Ramqvist explains."

TRIM continued

Lars Ramqvist underscored the importance of our continued TRIM work.

"It is extremely important for us to keep costs under continued control, especially now that the recession is upon us, while at the same time we are continuing development investments at a high level."

"I exhort everyone to actively participate in the TRIM work. John Siberg and his TRIM group need all your support."

"Swedish industry climate is good"

Currency benefits

"The drop in value of the Swedish krona has not affected results more than marginally, yet. During the second half this year it will impact results, and then additionally as a positive factor."

"Ericsson's financial administration has made it through the currency

CONTACT

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"Our next pocket phone will be the world's smallest," Lars Ramqvist promised. The new model will be on sale in Britain in September and will be available later this year in versions for NMT and GSM.

turbulence quite well and for the first time in a long while the company can now report a positive finance net, as a result not least of declining Swedish interest rates."

The same day as the first-half results were published, Ericsson also came out and announced new major investments in Sweden. Lars Ramqvist felt that the investments and new jobs that Ericsson is now bringing to Sweden must be seen as a result of industrial political developments.

Good for investments

"The climate for Swedish industry has improved a lot. That's why we are investing for almost two billion in our home country. Some 1,000 persons have been newly employed so far this year and an additional 1,000 will be hired by Ericsson before the end of the year. You can add to this a further 600 youth training jobs that Ericsson have created."

"It feels good that with all of this we can show where good industry politics lead to," Lars Ramqvist pointed out. "It is important that there be no letup but that this and future governments will continue its positive collaboration with industry."

Another hot political issue in Sweden just now is the JAS project. Lars Ramqvist reacted to debaters that questioned the use of this military high technology for Sweden.

JAS has helped us

"On the radio side today we have 15,000 employees and sales well over 20 billion kronor. This is to a great extent a spin-off effect of our work with electronics development for JAS and earlier aircraft projects.

"Things opening up for terminals"

"The technical land victories on the military side have been very important for Ericsson's civilian production."

"Our Business Area Defense Systems plays a central role today as a competence center in radio communications, high-speed electronics and other strategic areas."

"I would like to stress that it is a heavy responsibility that politicians take on when they deny Sweden the right to stay in these technological developments," Lars Ramqvist said.

Terminals success

The strong growth for Ericsson's radio activities has further strengthened the group's position as a world leader in mobile telephony systems.

"In the space of ten years we have acquired more than 40 percent of the worl's market for analog systems, and on the digital side we have leapt ahead of our competitors even more."

"What is now even more satisfying is that things are opening up also as far as terminal are concerned – mobile telephones."

"Traditionally, Ericsson has not been among the leaders when it comes to sales of mobile telephones, but this year our sales have increased by at least 100 percent, and in digital mobile telephones Ericsson has now had a real grip on the market."

Lars Ramqvist explained and brought forward Ericsson's latest model, which was recently approved for the English ETACS standard.

"With this little set we have responded to operators' demands to come up with a pocket phone that really fits into your pocket."

"It is the world's smallest mobile telephone right now, and with this once again we show that Ericsson is a world leader when it comes to technology."

Text: Lars-Göran Hedin
Photos: Magnus Torle

The report:

Interim Report
Six months ended June 30, 1993

"Ericsson's order bookings for the first six months of 1993 increased 27 percent to SEK 34,036 m. (SEK 26,770 m. in the corresponding period in 1992). Consolidated net sales rose 35 percent to SEK 27,394 m. (20,311).

Consolidated pre-tax income for the period improved SEK 1,227 m. to SEK 1,286 m. (59), including SEK -37 m. (42) in net capital gains/losses after deduction for minority interest.

Income per share after actual taxes and full conversion was SEK 3.69 (loss per share: 1.34). After actual taxes and estimated deferred taxes, and after full conversion, income per share was SEK 2.70 (1.04).

Approximately half of the increase in order bookings and invoicing was attributable to the depreciation in value of the Swedish krona, while the depreciation effect on income was only marginal. The decline in the currency rate will not have a significant impact on earnings until the latter part of 1993, when the effect of the hedging applied prior to the de facto devaluation of the krona is realized.

All of the Ericsson business areas reported improvements in income. Cost levels were reduced as a result of the TRIM program.

In terms of revenues, Radio Communications is now Ericsson's largest business area, reporting strong volume increases in the mobile telephony sector. The largest market is Italy, accounting for 12 percent of consolidated net sales, followed by the U.S., Sweden, Great Britain and China.

Ericsson had a total of 67,806 employees (66,082) on June 30, 1993. The increase is primarily due to the sharp growth in the Radio Communications Business Area.

OUTLOOK

Income for the entire year 1993 is expected to at least double compared with 1992.

BUSINESS AREAS

As of January 1, 1993, Ericsson's operations are organized within five business areas, compared with the previous six. The cable operations within Cable and Network are now part of the Component Business Area and the network operations were transferred to Business Communications, which has changed name to Business Networks. Figures for the preceding year have been adjusted to reflect this organizational change.

The **Public Telecommunications** Business Area reported increased net sales, particularly in Mexico, Great Britain, China and Malaysia. The increase in order bookings is mainly attributable to China, Thailand and Spain, markets in which volumes are again rising. Demand remains strong for the AXE system, which to date has been ordered by 104 countries.

The **Radio Communications** Business Area reported very sharp increases in both order bookings and net sales. The mobile telephony sector is experiencing major growth, with orders received for both completely new networks and the expansion of existing systems. Deliveries of mobile telephones have never been as high as the level achieved during the first six months of 1993.

The **Business Networks** Business Area reports increases in both net sales and order bookings, due to continuing strong demand for MD110 subscriber exchanges.

The **Components** Business Area reports slight increases in order bookings and net sales, resulting from the substantial demand for power equipment in Far Eastern markets, among other factors.

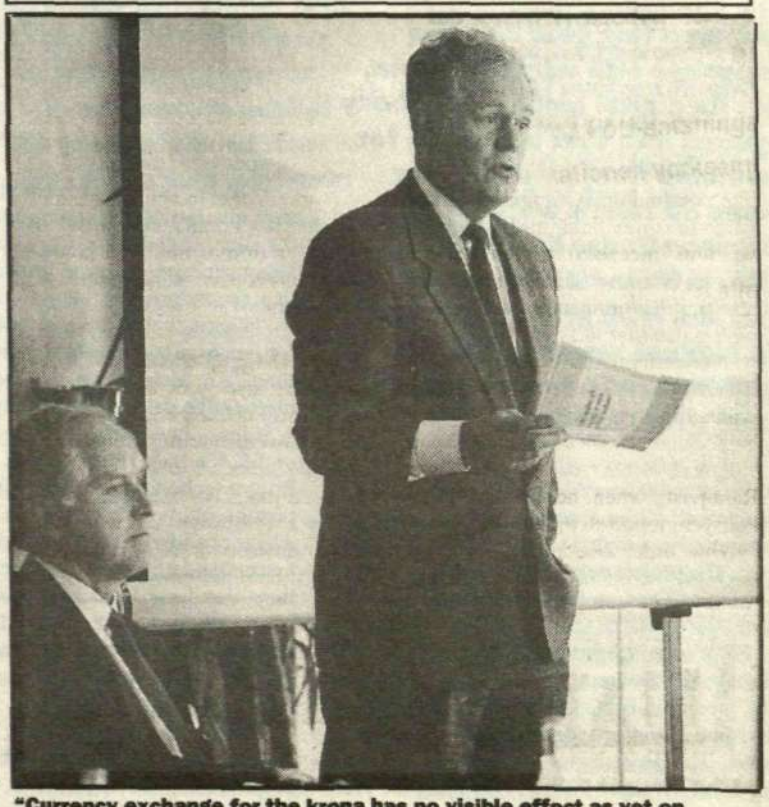
The higher sales reported by the **Defence Systems** Business Area are due primarily to large advance deliveries. Order bookings were strong, but did not reach the level achieved in 1992, which derived from the large JAS aircraft equipment order.

FINANCING

Working capital remained at a high level as a result of the sharp growth in operating volumes. In combination with the weakening of the Swedish krona, this resulted in a negative cash flow. Compared with year-end 1992, the equity ratio declined to 32.6 percent (34.3), but an improvement is anticipated to year's end.

CAPITAL EXPENDITURES

Ericsson's investments in property, plant and equipment amounted to SEK 1,573 m. (1,162), of which expenditures in Sweden totaled SEK 838 m. (545).



"Currency exchange for the krona has no visible effect as yet on Ericsson's results," said CW Ros, at the press conference.

Code clear for Japan

The first hundred speech coders left the ETX factory in Visby in August for forwarding to the Japanese mobile telephone market. Some twenty persons at Ericsson Radar Electronics, ERE, in Mölndal have been working since October last year on developing the Japanese speech coder, which has now been approved and is ready for delivery.

The speech code project, Speech Codec, at the department for mobile telephony systems at ERE in Mölndal is one of many projects in CMS 30, Cellular Mobile System.

Stefan Torkelsson, responsible for seeing the speech coder project through, has together with his colleagues worked for more than half a year on developing a prototype and simulator tests of the Japanese speech coder.

"We have done a number of simulations in, among others, Vax computers and succeeded in compressing speech so well that the customer is now pleased with the result of our efforts. The week after midsummer we began serial production and in August about 100 speech coders was ready for delivery.

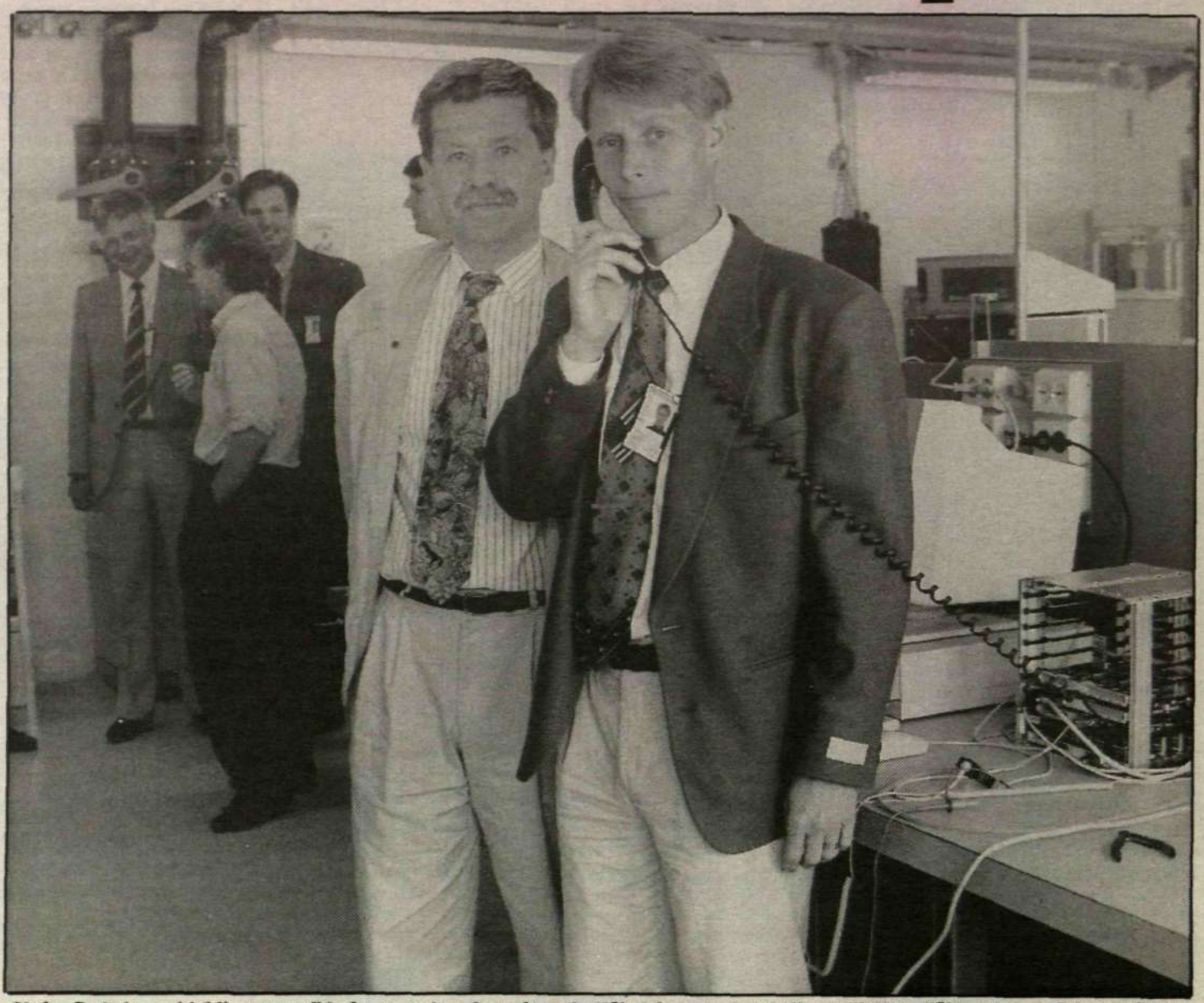
Cramped on the air

The current speech coder is a further development of the speech coder that was introduced earlier for the American mobile market. The difference is that the Japanese version can compress more information than the American, which in turn allows room for even more calls on the air and bandwidths can be saved.

This is even more important in a densely populated country like Japan, where the mobile market is growing rapidly. For all these calling Japanese to get a place on the air bandwidths are made even smaller.

This is handled somewhat today by using the digital mobile telephony system, where a huge quantity of speech can be coded so that bandwidths can be reduced considerably.

"However, the disadvantage with too much coding is that sound is not always so good. It is a problem that we are aware of and are trying to resolve."



Stefan Torkelsson (right), responsible for speech code projects in Mölndal, controls together with Mats Köhlmark from Ericsson Radio System that the Japanese speech coder lives up to its promises.

The speech code project in Mölndal is done on assignment for Ericsson Radio Systems in Kista and amounts for ERE's part to a contract for about 13 million kronor.

The project is spread out among several Ericsson companies. Algorithms for the speech code system is done by Erisoft in Luleå, while construction of hardware is done by LMF in Finland.

Production is carried out at ETX factory in Visby and ERE is responsible for verifying and systemizing of the project.

"Collaboration has gone remarkably well so far and by being able to utilize technological competence within the company we have also been able to hold down development costs. Hence, staff commitment has been very solid, which means that we can meet our deadlines.

"All of this bodes well for continued work in the future," says a satisfied Stefan Torkelsson.

Cathrine Andersson

MDE project meets new goals

In March this year NTT, the Japanese tele administration, put its digital mobile telephony system into test operation for so-called friendly users. For some 80 fellow workers at Ericsson Radar Electronics, ERE, in Mölndal, this meant that the MDE project reached its biggest target so far. The customer, NTT, is also very pleased with the result.

MDE stands for Modulator Demodulator Equipment and is a control and communications unit for a digital signal in radio base stations. The project began in 1990 at the "old" G division at Ericsson Radio Systems, ERA, but went over the same year to ERE in Mölndal.

"ERA was engaged in GSM work and had a shortage of resources while we had overcapacity," recalls Erik Löwenadler, department head in the division for microwave communication. The department has some 90 employees, of which about 70 are involved in the project for Japan.

Is there a difference working on a civil project compared to a military one?

"Without doubt," Erik responds. "There are cultural differences between ERA and ERE but we were quickly into the project thanks to a lot of openness from Kista."

Working fast for the customer to be able to earn money with his system is a new viewpoint for ERE. Collaboration has also meant valuable experience in letting time determine rather than the technicians themselves.

"Functions that the customer has not asked for, we have not developed because of lack of time, but instead we have concentrated on meeting the deadline," Erik explains.

Indeed, the MDE project is only a small part of ERA's huge involvement with Japan but from a technological viewpoint it is very important. With NTT, which is a driving force when it comes to standard work, there is excellent collaboration. Through technological meetings that have been held, different technical specifications have emerged. In the MDE project there is a further development now in that ERE is sharing in work on a mini base station and a model for 1,500 MHz.

Torbjörn Hedberg is project leader for MDE. Among other things he has worked in the JAS project."Our work with Kista, the Gävle factory and Nippon Ericsson functions fine," he says. "Even if at times it can become a little unwieldy."

Erik Löwenadler, left, and Torbjörn Hedberg, together with Erik Jerkersson in the systems lab.

Some 37 base stations are in place and in operation in Tokyo and an additional 110 will be delivered this year. Expansion will continue after that throughout the nineties in the rest of Japan.

Torbjörn wants to praise all his fellow workers for their fantastic input.

"On systems integration with NTT in January-February we found some 30 construction faults, but with the start of operation at NTT in March all but one minor error was corrected, and now that too has been taken care of. Of the 70 employees in the MDE project more than 50 have moved on to a new project, also for Japan. For CMS 30 they are working with speech coders and transceivers.

The MDE project has been the start of rewarding collaboration between ERA and ERE. It is also a good example of the breadth there is in the Ericsson group when work transcends beyond the business area borders.

Gunilla Tamm

Philippines places order

Ericsson has received a new major contract from the Philippines. For 600 million SEK the company will be responsible for continued expansion of a local tele network in central Manila.

The contract was signed with the Philippines' largest tele operator, Philippine Long Distance Telephone Company (PLDT).

It includes project work, supply, installation and testing of cable network in 22 exchange areas in Manila and on the island of Luzon.

Construction of cable ducts and canalization of cable are also included in the contract.

Two companies

Cable will be supplied by Ericsson Cables AB in Hudiksvall and network material will come from Ericsson Business Networks AB in Stockholm.

Installation work is expected to be completed by June 1955.

Ericsson has been in the Philippines since 1987 and today it has 70 employees in two companies in Manila. Previously PLDT engaged Ericsson for various network construction projects, and for planning and projecting of local tele networks. Ericsson Cables has also supplied fiber optic cable.

Earlier this year Ericsson received an order worth 190 million kronor for expansion of the local tele network in the business district Makati in Manila. In 1991 Ericsson installed in the Philippine countryside a fiber optic cable system that linked three countries – Philippines, Brunei and Malaysia.

120 million

Ericsson has also received an order for mobile telephone equipment for the Philippines for a value of 120 million kronor. The buyer is Smart Information Technologies, which will begin a new mobile network in the country in November.

Philnet Ericsson previously carried out several network construction projects in Manila.

New contract with Kuwait

Ericsson continues to participate in the expansion of telecommunications in Kuwait. Two contracts were signed in summer, one for supply of AXE and one for expansion of the mobile telephone system.

The Communications Ministry in Kuwait has signed a contract with Ericsson for supply and installation of AXE for 130 million kronor. The agreement strengthens Ericsson's position as chief supplier of public tele systems to Kuwait. The first AXE system was delivered in 1967.

Up until 1994, when the current project will have been completed, a total of 450,000 lines will be in operation in Kuwait.

70,000 subscribers

The analogue mobile telephone network in Kuwait is operated by Mobile Telephone Systems Co. (MTSC). At the end of July Ericsson received a new order from MTSC, worth 158 million kronor.

The order covers expansion of MTSC's mobile telephone network from 50,000 to 70,000 subscribers. A new exchange and a number of radio base stations will be installed, to meet the growth of new subscribers.

Ericsson's first mobile telephone contract with MTSC was signed in July 1989. It involved supply and installation of a network for 20,000 subscribers. The work began during the outbreak of the Iraqi invasion, when large parts of equipment were lost.

When the war ended negotiations began on building up the network anew. Ericsson got an assignment to get the system working quickly again according to original plans.

Celebrating 5 million AXE lines

Now Ericsson has supplied its 5-millionth AXE line to BT in Britain. The customer's approval of the installation was celebrated with a small ceremony in London.

CEO Lars Ramqvist had the pleasure of handing over a small glass sculpture to Michael Hepher, Group Managing Director in BT, as a remembrance of the occasion.

"We are very proud over having played an important role in BT's extensive program for modernization of the British tele network," Lars Ramqvist said.

"I believe that since Ericsson delivered its first system in 1986, the relationship between the two organizations has widened into the close collaboration that we have today. BT is our largest and most demanding customer, and one that always seeks the highest quality."

"The completion of the five-millionth line is a remarkable success, since the first was installed in Sevenoaks a short time ago, in 1986," said Michael Hepher. "A few months ago I had the pleasure of attending a ceremony for the signing of a three-year agreement for AXE-10 equipment and I look forward to continuing our work with Ericsson in the future."

Ericsson came into the modernization program for local exchanges in March 1985. The following year the first AXE exchange was delivered. Over the years that have passed Ericsson has established itself solidly in Britain, with local research and development, production, product management and customer training. Quite recently Ericsson won a prestigious order for transport network equipment with SDH technology from BT.

Ericsson Ltd., ETL, the group's Major Local Company in Britain, has close to 2,000 employees. The company works with the entire Ericsson product portfolio for fixed, mobile and business networks. All of ETL was certified in 1991 according to quality standard ISO9000.

Hungary signs AXE deal

In December 1990 Ericsson signed a five-year systems choice agreement with the Hungarian Telecommunication Company, HTC.

Within the framework of that agreement a contract has now been signed for AXE deliveries worth 200 million kronor during the year.

The current contract covers installation of AXE exchanges in Budapest as well as in other parts of the country.

With the new contract quality and services in this network will be considerably improved, especially for business customers in the Budapest area.

AXE was introduced in Hungary in 1989. Today Ericsson is the absolute leading supplier of public telecommunications equipment in the country.

Morocco is modernizing its tele network. Among other things, the tele administration bought AXE exchanges for 165 million kronor.

Morocco orders AXE exchanges

Ericsson will supply AXE exchanges to Morocco for 165 million kronor. Deliveries are a part of the overall modernization of the tele network.

The Moroccan tele administration, National Post and Telecommunications Administration, ONPT, is undergoing right now a thorough modernization and expansion of the Moroccan tele network.

In the network, since the mid 1980s, there are a number of AXE exchanges. With the current order Ericsson and AXE cement their position on the Moroccan market.

The contract covers supply and installation of AXE10 exchanges in the cities of Casablance, Rabat, Marakech and Agadir.

At the end of next year, when the project will be completed, there will be a total of 270,000 AXE lines in operation in the country.

Bulgaria buys NMT

The first mobile telephone network in Bulgaria will be an NMT450i system from Ericsson. The system will be in operation by the end of this year already.

The buyer of the system is the Bulgarian operator Radio Telecommunication Company, RTC.

RTC will build a mobile telephone network, which in its first phase will cover all of the Bulgarian capital of Sofia. It will then be rapidly expanded to include among other cities, Plovdiv, Varna and Burgas.

The buyer RTC is a joint company between Cable & Wireless, the Bulgarian tele administration (PTT) and several Bulgarian investors. Cable & Wireless is engaged in operation of 20 tele networks around the world.

From Ericsson's side the project is a collaboration among companies in Sweden, Finland, Britain and Austria.

What happens after the JAS crash?

The JAS crash in Stockholm was dramatic and got a lot of publicity. That this event would affect the project is obvious. In what way and to what extent we still do not know.

Waiting for more information, Ericsson Radar Electronics is continuing activities for the JAS project according to present plans with the exception that all flight tests are suspended until further notice.

Personnel directly involved in the project will get their directives as ususal through product leadership for the different part-projects that Ericsson is responsible for.

At the moment, it is impossible to predict precisely the effects on costs for an eventual withdrawal of the project. We can neither take on the resposibility for relationships or economic consequences of eventual changes imposed.

Ericsson's role

The products Ericsson Radar develops and manufactures in the IG JAS consortium are radar, presentations systems and computer systems, which however do not include computers for the guidance system.

Försvarets Materielverk (FMV), the Swedish defense procurement agency, has been assigned by the government and parliament to place orders with the industry group JAS (IG JAS) for development and production of the aircraft system JAS 39 Gripen.

Within what we call the JAS project, but outside the so-called JAS agreement between IG JAS and FMV, FMV also negotiated a lot of other matériel, such as weapons of various types. This has triggered a public debate about costs for JAS.

The total cost for the project that the government and parliament approved is much larger than the contract between FMV and IG JAS.

In June the first JAS 39 Gripen was delivered to the Air Force with a lot of ceremony in Linköping. About two months later the plane crashed spectacularly in Stockholm.

2 blocks of shares

IG JAS is a limited company owned by parties which at the start of the project in 1982 were the dominant domestic suppliers for Swedish aircraft systems, that is to say Saab Scania, Volvo Flygmotor, FFV, Telefonaktiebolaget LM Ericsson and Ericsson Radar Electronics. Each held a 20 percent share.

That Ericsson has two blocks of shares stems from the fact that defense activities in 1982 were handled by two legal units in the group, then SRA Communications AB and MI Division in the parent company. Defense activities were merged in 1988 into one company, Ericsson Radar Electronics, where all JAS activity in Ericsson is now conducted.

The agreement between IG JAS and the owning companies is in principle designed so that supply responsibility that IG JAS has toward the customer FMV is further passed on to the part-owner companies based on the supply share that one has in the project and naturally to those that have technological responsibility for the respective units.

Ericsson's supply share in the project is about 16 percent. Saab Scania has the largest supply share, while Volvo Flygmotor's share is about as large as Ericsson's. FFV has the least supply share.

A radio man returns home

He was there and he laid the base for the success of mobile telephony. For four years he was responsible for collaboration with General Electric. We are referring to Åke Lundquist, who is leaving the U.S. for home in Sweden and the corporate function business development.

From there he will diffuse his radio experiences to all the company's business areas.

"I shall continue to work with radio but on the corporate level," says Åke.

Business Area Radio Communications, BR, is a young business area that has grown very rapidly. Until now the group's knowledge about radio communications has been concentrated in BR. Developments make it so that radio is coming into more and more of Ericsson's products and systems. That's why it is important for BR and the entire company to collaborate across all borders, both in business areas and in countries.

New designation

LME/UD is Åke Lundquist's new job designation. What does it stand for?

"Actually, it was the only letters available," Åke jokes. "U" perhaps can stand for development in radio communications," he adds, referring to the Swedish "utveckling" for development.

"U" can also refer to U.S.A. For precisely radio development and business contacts with the U.S. and Canada are two of Åke's work areas.

"I will also be helping with business in China and Japan. These are countries where it can often be an advantage to be as senior as I am."

Åke will also be very much engaged in the development of radio communications. He will be in BR's steering committee, in the leadership of BR's Core Unit Radio Systems and Technology and is also a member of the board in Ericsson's and GE's joint-venture company, Ericsson Mobile Communications Inc., EGE. This position would involve a lot of travel to the U.S.

Difficult market

After four years as president of EGE in the U.S., Åke knows what it means to do business in North America. It is a market where customers set high demands and where close collaboration is important. It is a major advantage to have worked on both sides of the Atlantic.

EGE was established four years ago and Åke moved over to New Jersey, U.S., then where he helped build up the new operation from the start.

"We have followed the plan we drew up for collaboration," he says. "It has been four work-filled years, a lot of it tied to the bad times in North America. Through collaboration we have learnt, among other things, to be more cost-conscious." As an example he cites the company's TRIM work. At GE they had corresponding work.

Also in other areas GE had knowledge that Ericsson could benefit from. For example, on the manufacturing side, where GE's white-goods production is a world leader.

Here there is a lot to learn about mass production, something that is current for above all Ericsson's manufacture of mobile telephones.

New York and Dallas

"In order to excel on the North American market, collaboration with GE was necessary," Åke emphasizes.

"GE is a politically strong company, with power in American society. Without this collaboration the huge mobile operator McCaw would not have dared to choose Ericsson as supplier, when Motorola equipment in the systems in New York and Dallas was being changed. It took place in New York three years ago and in Dallas at the beginning of the summer.

"Collaboration with GE has been very successful and now it is time to begin planning to make the Ericsson name known in North America."

Successes

First the analog system and now the digital – Åke Lundquist has a large share in Ericsson's success with mobile telephony. Could he himself foresee such tremendous success?

"No, nobody could have seen this coming. It is exceptional that an activity like mobile telephony could develop so fast and so positive."

"The base was laid by Sweden's Televerket which was so visionary that already in 1967 an analysis was made into the NMT system. This later became the driving force for the Nordic tele administrations' decision to invest in the NMT 450 as a common standard."

Åke Lundquist was also visionary when he together with Sven-Olov Öhrvik back in 1967 decided that SRA should begin to work with development of digital signaling. This went on simultaneously as work was done with the analog NMT system.

Key decision

"We have had a lot of luck with our efforts in mobile telephony and many key problems have had excellent solutions. Naturally, the AXE switch plays an important role but the rest is technology", Åke jests.

When it comes to key decisions, one of the most important was Åke's proposal that switches and base stations should be linked and offered to customers as a systems package.

It was not all that easy for him to get top management in Ericsson to accept that, but eventually they did. And well that they did.

Gunilla Tamm

After four years as president of Ericsson Mobile Communications Inc. in the U.S., Åke Lundquist is coming home to Sweden and the corporate function Business Development. Photo: Karl-Evert Eklund

"Success is a joint achievement"

"In every collaboration there are things that function well and others that could be better. That also applies to Ericsson as supplier of our mobile telephone system. That we chose Ericsson for the huge expansion of our network is, however, a fact that speaks for itself."

The words come from Bill Keever, a member of the technical management at Mannesmann Mobilfunk, the company that is operator of the very successful D2 network in Germany.

D2 Private, as Mannesmann Mobilfunk calls its network, was also a success from the start last summer. The number of subscribers has grown faster than expected. Therefore, Mannesmann has extended the contracts with Ericsson.

"Ever since the extension of the contract was signed we have had joint information meetings in the different regions for colleagues from both our side and Ericsson Mobilfunk," says Bill Keever.

"This makes everyone feel he is part of the job and we have a common base from which to work. We now have better guidelines for our collaboration than we had in the first contract."

Common success

Bill Keever sees as positive the fact that Ericsson is now forming a so-called MLC, Major Local Compnay, in Germany. He has previously sought faster decisions from Ericsson's side as well as more support from ERA in Sweden. He praises Ericsson Mobilfunk's work but feels that sometimes the company does not get sufficient response from the home organization.

"We promise our subscribers the best possible service and in order to keep that promise we must get the support we need from our suppliers. Problems that crop up in the system must be corrected as quickly as possible," he emphasizes.

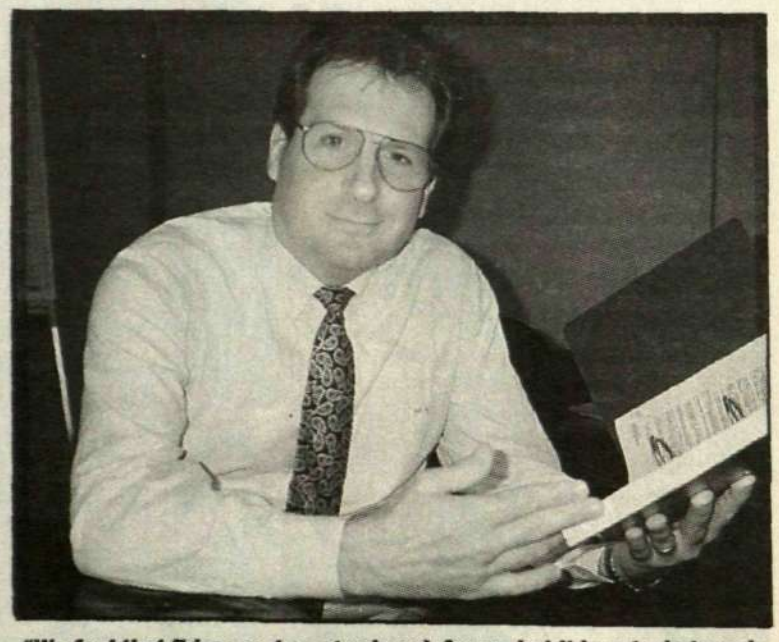
Good work

"Even if there are some things with which we are not quite happy with concerning our supplier, we still feel that Ericsson does good work," says Bill Keever.

"That we chose Ericsson for our huge expansion is proof of this. Together we stand for the successes here in Germany."

"But," he adds, "we work in a market that is rapidly changing. We cannot sit back and rest on our laurels. It is not what we do today that counts, but rather what we can do tomorrow. That goes for both Mannesmann Mobilfunk and Ericsson."

Gunilla Tamm



"We feel that Ericsson does good work for us, but it is not what we do today that counts, rather what we can do to morrow" says Bill Keever.

Chile basks in its economic boom

Chile is seen today as a shining example of economic success. After the transition from dictatorship to democracy in 1989, Chile is very often described as a forerunner for the entire South American continent. More and more Swedish companies are now seeking a market in Chile and they are getting help from the Swedish krona's advantageous exchange rate. Ericsson, though, has been there for a long time now.

At the end of the world, in Punta de Arenas in Tierra del Fuego, Entel has built a huge link exchange for tele transfer to Antarctica.

There is every reason to begin by briefly pointing out a few things about the remarkable economic development in Chile.

Last year Chile's GNP rose a full 10.4 percent. It was the ninth year in a row of strong economic growth. The economic reforms were instituted by the dictator General Pinochet and have since been maintained by the democratically elected President Patricio Aylwin.

Creditworthy

Inflation has been pushed back to almost 12 percent a year – which has been achieved on a continent where people have learned to live with inflation rates that have been known to exceed a thousand percent a year. Unemployment is 4.5 percent and real wages have increased by 12 percent. Investments, production, construction, savings, external trade, stock market volumes, inflow of foreign capital and currency reserves have reached record leels.

As the No. 1 economy in Latin America, Chile has been given top creditworthiness by the credit rating agency Standard & Poors.

As a result of the dynamic economic development Chile now has immense need for new tele services. There are ever higher demands for improved communications.

"Chile right now is a very active country," says Nelson Figueroa Leyton, responsible for finance and economy for Compania Ericsson in Santiago de Chile. "For many years we were forced to live a backward existence but now developments are close to explosive."

High demands

Chile's geographical structure is unique. The country has a coastline 4,300 kilometers long. The width of the country is on average just 180 kilometers. Chile's western outpost is Easter Island, 4,000 km from the mainland.

"Naturally, this places high demands for a functioning tele network," Nelson says. "With Ericsson's developed and refined technology we have every possibility to be one of the major players on the Chilean market."

Chile was the country to embark on the largest privatization wave in Soth America, but telecommunications are still state regulated. However, the state is trying in every way to avoid a monopoly and has therefore divided up the market among various players on the scene. Moreover in 1993 it is the intention to lift all regulations and throw the tele branch in Chile to an open market.

The closest battle for the market is between CTC (Compania de Telefonos de Chile) where Spain's Telefonica has the largest shareholding (42.8 percent) and Entel (Empresa Nacional de Telecommunications). Entel has no dominant ownership. Various pension funds represent the largest block, with 26.5 percent.

150,000 lines

Ericsson's largest customer in Chile is CTC. During 1992 Ericsson installed 38,000 lines in the Santiago and Valparaiso area, where a full 55 percent of the population live.

In the current year Ericsson will install an additonal 150,000 lines for CTC, which corresponds to 12 percent of the market. The largest competitors are Alcatel and NEC.

"If we look ahead, we reckon we will be installing 50,000 new lines a year, in the first instance between now and 1997. This means a further 200,000 lines, giving us a market share of 20 percent.

Ericsson has already installed an international exchange with 4,000 trunk lines (in 1986) and a transit exchange with 3,000 trunk lines (in 1989). As regards transport network equipment for Entel, Ericsson is the largest supplier.

"We are naturally very pleased with developments, We estimate our chances for further development as being very good. For example, when it comes to Power Equipment there is a good chance that we could be the main supplier for all new switches that will be installed.

But to succeed 100 percent we need new quarters, so we are moving from the cramped offices in dontown Santiago to an upper floor in a newly built shining skyscraper in glass and concrete, not to mention a more spacious and pleasant surrounding – Santaigo de Chile is one of the world's most air-polluting cities. As neighbors Compania Ericsson will have the British Embassy.

"We had no choice," says Nelson. "The old shack was being torn down to make way for a new road, and it came just in time. Now we will have quarters that suit us and our employees significantly better."

Investing in training

Training has been a major part of Compania Ericsson's activities in Chile.

"With our commitments we also undertake responsibility for training.

"By training technicians to handle our equipment and our systems, we are building a platform for the future.

"We reckon that many of those we train will eventually rise to decision-making positions. Confidence in Ericsson will certainly pay off then."

In an elegant residential area Compania Ericsson has set up quarters that now serve as a training center.

Today there are resources for simultaneously training 50 engineers on AXE, PDH transmission systems and Network planning.

"We are on the way to creating a solid corps of technical ambassadors for the future," a very proud Nelson Figueroa Leyton concludes.

Text: Lars Magnus Jansson
Photos: Lars Åström

An important part of Ericsson's activities in Chile is training of customer personnel in Ericsson technology.

Some of the key figures in Chile: From left, Daniel Guttiérez, Åke Kilander and Nelson Figueroa Leyton.

New ultramodern office buildings are sprouting up in Santiago de Chile. Ericsson has moved to new offices here on an upper floor, with the British Embassy as its next-door neighbor.

Philippine efforts

In the Philipines, president Fidel Ramos has been trying to bring in foreign investments to improve the nation's telecommunications networks. The president has been very embarrased by an earlier decision by Cable & Wireless to back-out of investing in an upgrade project for the network on island Luzon. Ramos' latest move is to demand that firms wich want to invest in the Philippines must bolster rural services.

Cable & Wireless had refused to invest in Luzon, unless it won the right to install an internaltional teleport. Ramos gained a lot of confidence when the japanese government granted his country 105 million dollars to finance a number of projects, including an emergency communications system.

Move against monopoly

In Italy, moves are taken to end SIP's mobile phone monopoly. Experts note, however, that it could take years before a winning consortium could reach the market. Bidding will start this summer on the concession, and the government wants a competitor operating by year-end.

Three groups are bidding for the rights. They are headed by Olivetti, Fiat and ENI, the state energy company. Olivetti has brought in Bell Atlantic of the US as a partner.

SIP now asks for compensation to give up its monopoly, wich would otherwise run until year 2003. There is also a possibilitiy that SIP will retaliate against a competitor with high interconnect fees for linking cellular calls to the fixed network.

The Italian government is also planning to sell STET, the holding company which owns SIP. But firts, the different units within STET – cable, domestic phone and international calling – will be combined into one.

Mannesmann network growing fast

Mannesmann Mobilfunk, one of Ericsson's most important customers on the mobile scene, expects its GSM-network, D2, to have more than 350,000 subscribers by the end of the year. The sales of the company's mobile phone network has more than doubled to 330 million marks in the first half of 1993, compared with 137 million in the second half of last year.

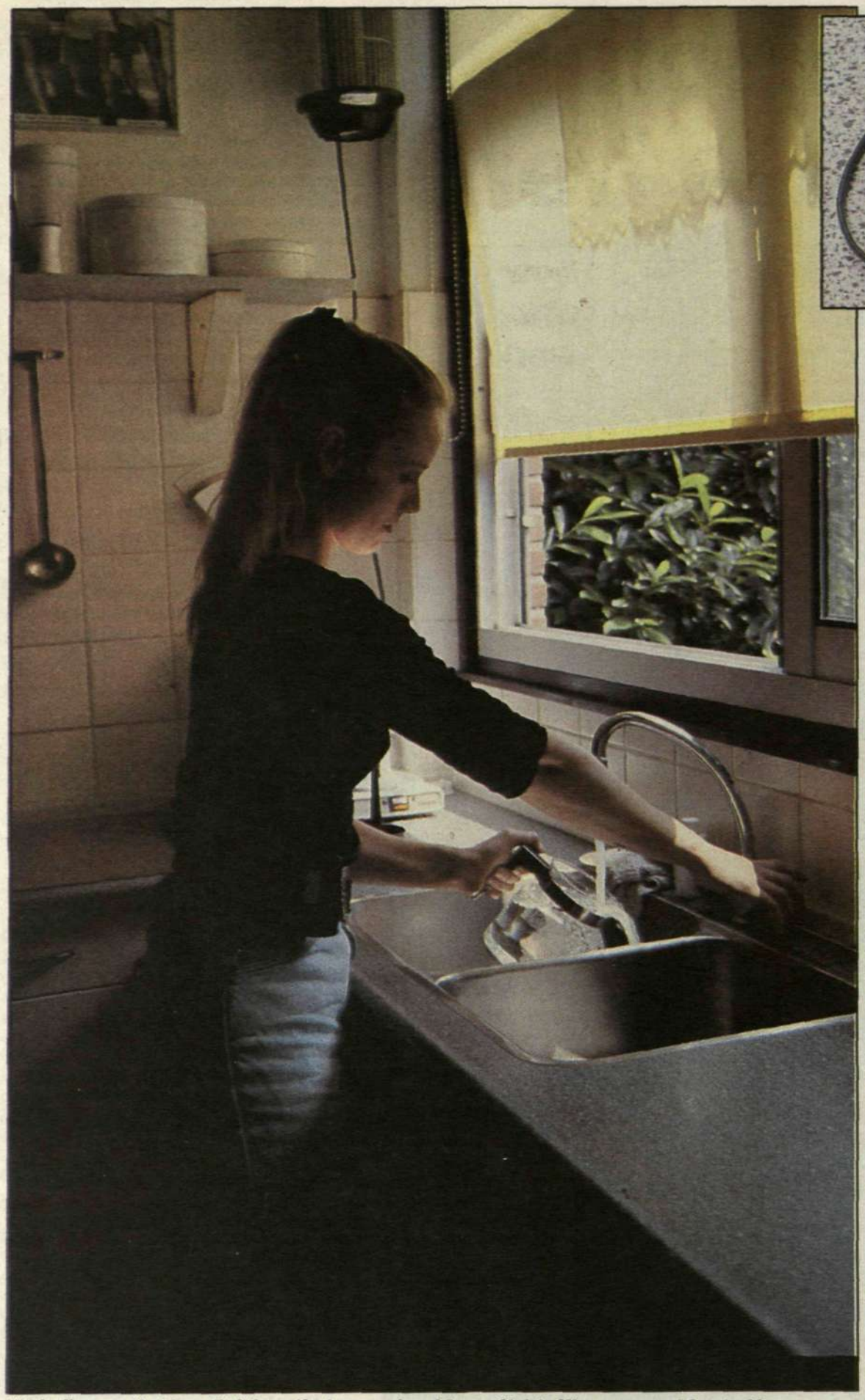
Werner Dieter, chairman of the management board, said at the annual shareholders meeting that D2 start-up costs now are falling. The system will cover 80 percent of Germany by year-end. Mobilfunk is expected to make profit in the second half of 1994.

Morocco invests in telecom

Last year, Morocco invested the equivalent of 209 million dollars to expand its telecommunications network. Further investments of 375 million dollars are planned for this year. The investments follows the introduction of digital telephone and switching systems in a major modernisation programme.

Contracts for equipment and installations has been awarded to Bell Canada in the southern part of the country, and to Alcatel of France and Ericsson in the north. Bell Canada will install 100,000 news lines in the south this year, the same as last year. The state owned operator ONPT had 838,000 lines last year, serving 654,000 phone subscribers.

The projects in Morocco are financed with help from the World Bank, through a 100 million dollar loan. A similar loan is now being negotiated with the European Community, through the European Investment Bank.



"Diricall means that I can find the patient more relaxed," says Christa Mies, a nurse at Gruytveld.

Diricall has the market's best solution for localizing the bearer.

Diricall – one way of being reassured

The security system Diricall, developed and manufactured by Ericsson Radio Systems BV in Holland, is a long-sought product for people working alone and in heavy industry. At Gruytveld, an institute for the mentally handicapped in southeast Holland, personnel finds increased assurance with Diricall.

"We wanted a solution with as little effect as possible on the patient's daily life and with the greatest possible assurance for staff. We got what we wanted with Diricall," says Gradus de Kleijn, head of nursing care at Gruytveld.

Gruytveld, in southeast Holland, extends over a large area with parks and buildings. The institute serves as a home for more than 300 handicapped adults. Many of the patients are seriously handicapped and can very often create danger both for themselves and for others. After a couple of incidents in which nursing staff was attacked they decided at Gruytveld to install a security system to improve the working situation for employees.

"To an equally large extent it also meant improving security for patients since they too were affected. It reached a point where activities had to be restricted and where staff could not approach certain patients," explains Gradus de Kleijn.

The choice fell on Ericsson's Diricall, developed and manufactured by Ericsson Radio Systems BV in Holland.

Localizing the alarm

What makes Diricall unique is the localizing signal that is activated when the user presses the alarm button. The alarm goes to an ordinary PC terminal which registers the alarm. In a couple of seconds the alarm and the position are relayed to a Diricall terminal with other staff in the proximity. With their displays they can see directly where the alarm originated and move quickly into place. Today, personnel at Gruytveld have far greater reassurance than before.

"It also reflects in their attitude to patients. A reassured staff has a more relaxed relationship with patients, which in turn make them more at ease," explains Gradus de Kleijn.

Works everywhere

One of the 450 employees at Gruytveld is Christa Mies, who, as in other departments, works in pairs with another nurse. Together the two are responsible for looking after 12 patients in a wing of the institute with a common assembly room, kitchen and the patient's own room.

In Christa's department there are many seriously handicapped.

"The best thing about Diricall is that I can trust that it works everywhere, is simple to use and is easy to carry with you," says Christa.

Gruytveld was the first customer to install Diricall, at the end of 1991.

The system is relatively large with some 30 terminals and a number of transmitters for localizing codes installed in each department. It is easy to expand or to move, as needed. If necessary, you can easily integrate Diricall with other systems, for example burglar or emergency alarms.

Helena Andersson

At the Gruytveld Institute there are about 300 mentally handicapped adults. Here, Ericsson's security system Diricall has improved the milieu for both patients and staff.

"Can grow into something big"

So far Diricall has been sold to some 60 customers in the largest markets – France and Holland. Diricall has also been introduced in Sweden, Finland, Germany, Belgium and England.

For Ericsson Radio Systems BV, ERH, in Holland Diricall's security system has put them in an entirely new market area.

"With Diricall's unique system for localizing with the help of radio signaling, we have the best system the market can offer today," says ERH's product manager for Diricall, Nico van Zijl.

The competitors' alternative, with among other things cable laying, has become both more costly and less flexible compared with Diricall.

Nico van Zijl, product manager for Diricall at Ericsson Radio Systems BV, Holland.

Diricall is first and foremost a security system developed for solo workers in the petrochemical industry, guards, prison and hospital personnel.

"We were a bit doubtful as to how Diricall could be attractive in the area of health care and mental patients, but this is precisely where demand has been great," says Nico van Zijl.

The finesse with Diricall is the transmitter for localizing codes, which send a radio code to portable terminals. The terminal picks up this radio code when the bearer passes by a transmitter. This way the terminal is always aware of where the bearer of the terminal is located.

The possibility of integrating Diricall with other systems, for example burglar or emergency alarms, also makes the system attractive for security companies and industry.

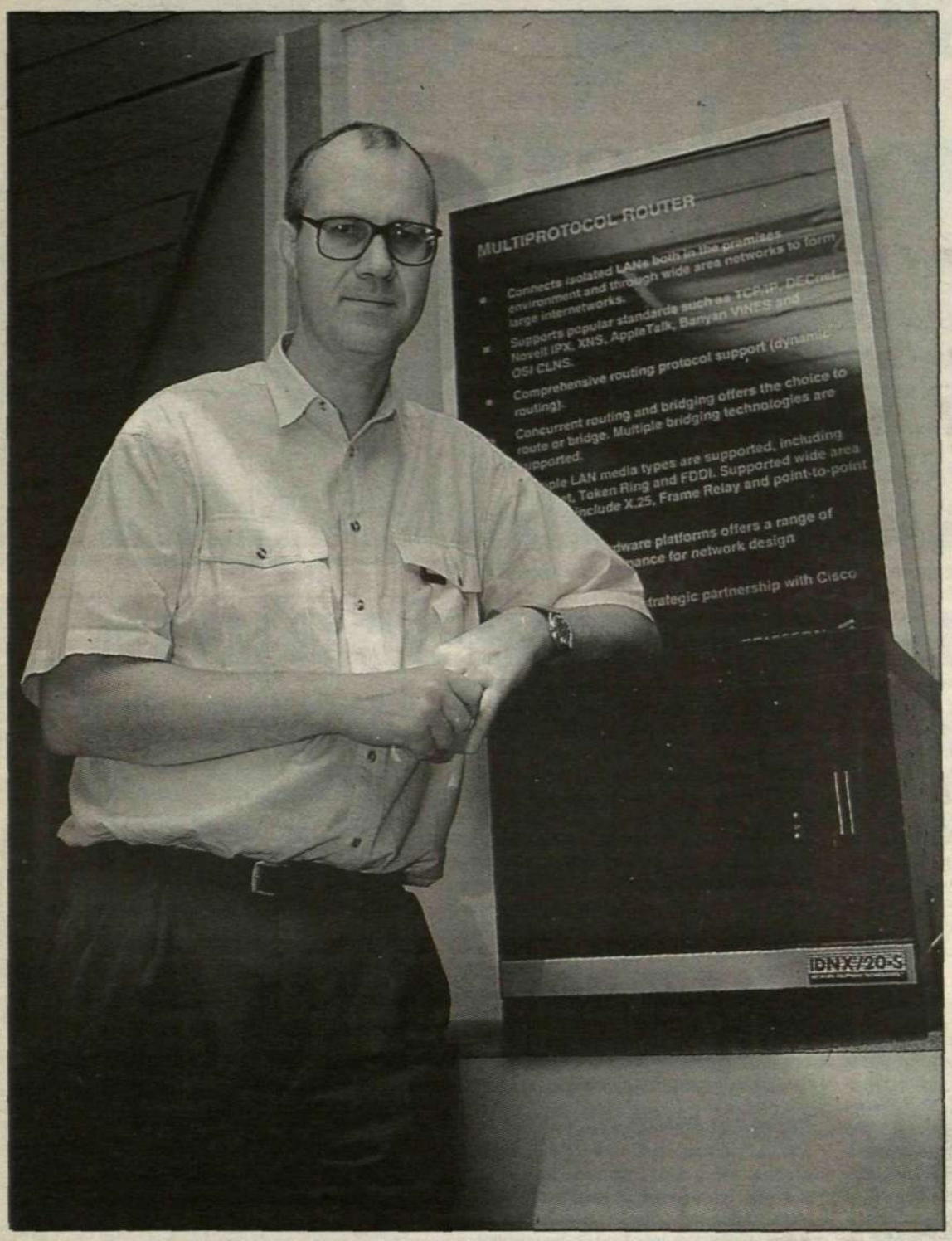
Global sales

Retailers of ERH's products around the world are also hopeful about the new product. At ERH they are working on building up a global distribution network for Diricall.

"Since Ericsson is relatively new on the market for security systems its market share is still quite small. But we are fully convinced that Diricall has potential to grow into something big," says Nico van Zijl.

HA

New-generation data switch is here



Rolf Johansson, product manager for data network products in Ericsson, is looking at a new billion-kronor market.
Phot: Thord Andersson

The Data division (N) in Ericsson Business Networks AB and American Network Equipment Technologies Inc. (N.E.T.) have signed a collaboration agreement on development of a new generation of data switch exchanges for business communications. It will be based on the ever important ATM technology.

The new technology makes it possible to quickly and efficiently transfer even images and sound between computer systems in a company, says Rolf Johansson, product manager for data network products in Ericsson. All the major players in both the data and telecommunications branches predict that ATM will become the overriding communications principle in the future.

"ATM satisfies the growing need for high-speed communications in large private data networks," says Göran Wågström, head of the data network division in Ericsson Business Networks AB.

ATM is an interesting alternative for new tele operators. Collaboration with N.E.T. makes Ericsson the first company that can offer its customers a total ATM solution that can handle both traditional data packaging procurement and at the same time provide the possibility for image and sound transfer.

According to the collaboration agreement Ericsson and N.E.T. will jointly finance development of a whole new type of data switching exchange for companies. This means that we together with N.E.T. will be able to offer a broad solution for company needs in data communications, based among other things on N.E.T.'s so-called Adaptive ATM technology, (ATMX family), with development of future data network products. Both Ericsson and N.E.T. reckon that this is the first in a series of future joint development projects.

Unique knowledge

"Ericsson has a unique opportunity through its combined knowledge in both voice and data communications. Image and sound can now be accomplished in a similar way," says Rolf Johansson. "Since many players are choosing the new ATM technology, later on it will facilitate collaboration between different suppliers of data systems. We have huge potential for developing unique switching systems for the new technology."

"Expansion of the ATMX family with a new type of data switching exchanges for business with geographically extensive activities is a cornerstone in N.E.T.'s recently presented strategy to give users access to ATM technology for all communications in the business," says Dan Warmenhoven, president of N.E.T. The collaboration agreement will give N.E.T. greater opportunities for marketing ATMX products also in Europe, Latin America and Asia, he adds.

World encompassing

N.E.T is a leading worldwide supplier of communications products and services for business and organizations with large information flows. N.E.T.'s head office is in Redwood City in California. The company has 1,000 employees and has supplied network solutions to more than 50 countries. Products for local and long-distance communications from N.E.T. offer cost-effective, reliable communications and link up computer users around the world.

The present current development agreement is built on an already existing collaboration agreement between Ericsson and N.E.T. This was made in 1989 and involved systems integration and product distribution. Since then, Ericsson has marketed N.E.T.'s advanced IDNX and ADNX multiplexors as part of the company's Business Network concept.

Future worth billions

It is difficult to predict today how the market will react to these new products, but Rolf Johansson is very optimistic. He says:

"This new product family addresses a market that in Europe alone is reckoned to be worth billions by the year 2000. We see an entirely new market springing up.

Thord Andersson.

How ATM works

ATM is an abbreviation of Asynchronous Transfer Mode and is explained in this year's activity report as the following:

"ATM is a technology for broadband transfer – transfer of high-capacity tele signals.

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

Clean design and simple function characterize the new EC 4.

New fiber welding

It couldn't be easier using the new fiber welding EC 4 (try pronouncing it as Easy 4). It is actually very easy to use this just about automatic fiber welding, which can weld up to four fibers simultaneously.

In the context of the Ericsson group fiber welding is a small product, but nevertheless seen strategically an important one. In this niche market Ericsson ranks among the world leaders. During the past decade developments have been very favorable for us in this area. Today Ericsson supplies fiber welding for markets around the world.

The ever more dominant fiber technology is such that there is a growing need for fiber welding that easily, precisely and effectively can splice cable. The new weld, which is now being launched by the Fiber Optics Division (O) in EBC, already looks from the start like being a success.

EC 4 is an extraordinarily compact, nicely designed and ergonomically well-shaped product, which during the fall will go into serial manufacture at the Fiber Optics laboratory in Sundyberg. However, it is not serial manufacture in the ordinary sense. Each new welding is a precision instrument is built for hand.

Worth the price

Despite this, through rational handling we have succeeded in making EC 4 at a price-worthy alternative, especially with installers in mind, who work with repairs and new installation of optic fibers in local networks, data networks or cable-TV networks. To use EC 4 you do not need any previous knowledge, thanks to its user-friendly qualities.

With EC 4 you can weld fiber in all types of fiber networks. It is always better to weld fiber than to splice with contacts. Naturally, the condition for this is that you could do cost-effectively. Here, the answer is EC 4.

A characteristic of EC 4 is among other things a 3.2 inch monitor with high resolution for convenient fiber consideration. And a very easy to use maneuver panel and the possibility between choosing ten fixed programs for the welding of several variants of single-mode and multimode fibers as well as 4-fibers ribbon. Moreover there is the possibility to further define 10 welding programs on your own.

Automatic welding

Welding with EC 4 you place the fibers in a holder, which is then put in place in the machine. Fine-tuning is done with the help of wheels and at all times via the monitor observing what happens with the fiber. The program begins with a light touch on the button and then the welding is done automatically.

A range of accessories have also been developed that includes fiber holders for single fiber and 4-fiber ribbons, oven, battery cassette, battery recharger and splicing sleeves.

In conjunction with the launching of EC 4 Ericsson also introduced a newly patented so-called strip cape. This new combination tool facilitates dismantling and caping of fiber, and is designed as a small, handy unit.

TA

East – new flags, new states and new markets

Over the past three years, the East European states have become an ever larger part of Ericsson's operations, and this share is expected to grow heavily in the next few years. Since the major upheavals in East Europe and the former Soviet Union a few years ago, these newly opened markets for telecommunications is virgin territory with enormous potential. It is for Ericsson's negotiators to be aware that they are talking to the right people and to put up a brave face when they are invited for fermented horse's milk and other local delicacies.

New flags, new markets. Since 1989 Eastern Europe and the former Soviet Union have acquired about 30 new flags.

The desire in the East to restructure and acquire a new modernized telecommunications network is overwhelming.

The average telephone density in Central-Eastern Europe is about 15 lines per 100 inhabitants, compared with about 70 in Sweden, so there is a lot to be done. The markets of those that are best established for Ericsson is currently Hungary and Croatia. In the summer Ericsson Telecom, ETX, received an order from the Bulgarian telecom administration and thanks to that it is also now setting up operations in Bulgaria.

Ericsson has companies in Hungary. In January this year a representative office was opened in Zagreb in Croatia and now in August Roland Engman from Market Operations Europe will be going to Bulgaria to set up an office there.

Apart from this ETX so far has only done occasional business in the Eastern states, including Russia. But almost all of the old and new

"The day the Russian people get a clear structure allowing loans from the West it will have a ketchup effect and this means being in the right place with the right products."

states are being pursued. The majority of them have had a difficult time freeing themselves from their past.

"The day the Russian people get a clear structure that allows loans from the West it will have a ketchup effect and this means being in the right place with the right products," says Gunnar Forsgren, marketing responsible for Russia and most of the other CIS countries as well as former Yugoslavia.

Ericsson known in Russia

Ericsson is a known name in Russia. The company was already established there back in 1897. Ericsson's first factory abroad was in St. Petersburg. It was nationalized after the revolution in 1917 and was given the name Krasnaya Zarya, which means Red Dawn. Later Ericsson signed a licensing agreement with the factory, which still exists to this day. ETX's activities in the Soviet Union from then until the country's split-up were handled by Nikola Tesla, Ericsson's Yugoslav licensee since the fifties. But now that markets have opened up in the East, Ericsson has formed a consortium of several Ericsson companies in various countries, EOCC, East Operations Cooperation Committee, to work them. In Russia no big deal has been struck as yet, but the potential is immense.

"We are starting to discern the dawning of big deals at the billion levels in Russia, which will be financed with the help of foreign operators," says Gunnar Forsgren. "The shift from the Soviet era to a market economy is moving fast, faster than many expected. Moreover, the Russians are more pleasant to deal with. They prefer to establish a personal relationship before they conduct any business.

"However, this means putting on a brave face when you are invited for local delicaies like fermented horse's milk."

Still different

What is still different in Russia and other parts of the former Soviet Union in relation to the West is that there are no clear decision channels and that financing business is still always problematic. Often it is still the remnants of the old Soviet organizations that are on the opposite side of the negotiating table. ETX negotiators must still reinvent the wheel in every deal and must themselves find the route to a decision as well as resolving financing issues. A great portion of business in the East is still conducted on a barter-trade basis. Barter means that Ericsson must accept responsibility for generating export from the actual country to a another country for a certain percent of the value of the business.

"Even in Hungary there are still aspects of barter trade, but that will disappear soon," says Carl Brooling, marketing responsible for Hungary, Ukraine and Romania, among others.

Faster development in Hungary

Hungary is the only country among the Eastern States where ETX has a company. In two years this company has grown from three employees to 300. Of ETX's total invoicing in Central East Europe, Hungary accounts for the bulk. Ericsson represents 50 percent of Sweden's total exports to Hungary. The reason for it going so well in Hungary is that developments move much faster there than in the other Eastern states. In its turn that stems from the fact that the Hungarians were never pressed that far under the yoke. Since the revolution in 1956 some sort of market economy was allowed, as well as a certain measure of autonomy.

"Hungary is like any Western country," says Carl Brooling. "Today when you move around Budapest it is hard to believe that it was once part of the East Bloc."

Ericsson has been doing business in Hungary ever since 1911, among other ways through its own company in the twenties. During the Communist period business was done through a licensing agreement with a local company.

Nevertheless, ETX won an order in 1989 for a digital switch, the first in the East, from the old Communist regime. After the democratic elections in 1990 the Hungarian telecom administration, Hungarian Telecommunications Company, put out two open bidding contests on the international market. Ericsson "won" both.

"Last year ETX invoiced for 320 million kronor in Hungary. This year invoicing is expected to reach 400 million. Hungarians today are far more market oriented and easier to deal with than before. However, in one way Hungarians still continue to think along the same lines as before, namely when it comes to the value of an investment.

"They look almost only at how large the price is and less at how much it is worth for an exchange, for example, to be put in operation a month earlier," says Carl Brooling. "Time was not so important in the old East Europe, and there is still some of that left."

Clear for Croatia

The next largest market for ETX in the East is Croatia, with a contract for 180 million kronor that was signed in the autumn. It is the only business being done now in the former Yugoslavia. Croatia is involved in the current war but ETX personnel has not seen much of that.

"Zagreb is like any European city except there are UN soldiers on the streets," says Gunnar Forsgren. "If there is any risk in being there we would not send personnel. Still, families can be concerned of course. My own wife is concerned every time I set out for Zagreb.

For others in the East

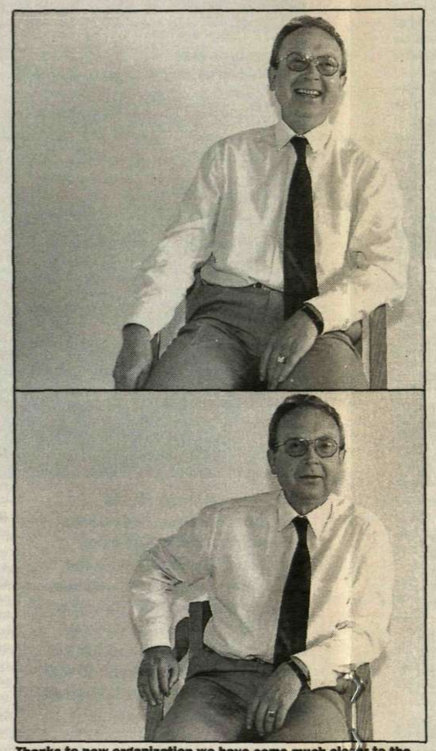
Ericsson follows UD (Swedish Foreign Office) rules and UN directives when doing business in war-torn regions. This means that it is okay to work with Croatia, but Ericsson does no business with Serbia and Montenegro. There is no hindrance to doing business in Bosnia-Hercegovina, Macedonia or Slovenia, and contacts exist with all three today. Among other countries in the East, for example Ukraine, Romania, Czech Republic, Slovakia, Poland and the Baltic states, activities so far are still minor but the potential is immense in these countries too.

The desire to build up a functioning tele network is huge.

"Because of the current war it may have been very difficult, however, for some of our customers to contact and reach us. We are impressed with their strong will to look ahead and already now plan and work toward restructuring the telecommunications network in the affected areas," Gunnar Forsgren concludes.

The East is a very exciting market.

Måns Widman



Thanks to new organization we have come much closer to the customer and can capture their desires in a fast and smooth way," says Staffan Brandt, project leader for the CIN project in Croatia. Photo: Per B. Adolphsson

Project success in new Croatia

On the Croatian national day, Saturday May 29, two transit exchanges were inaugurated in Croatia's capital, Zagreb.

By November 1994 Ericsson will continue to supply equipment, which will form the mainstay of Croatia's future tele network.

The entire event on May 29, which was of major significance in the new state, was broadcast on Croatian TV. Among those attending were the Croatian President, Dr. Tudjman, Communications Minister Mudrinic, a large part of the Croatian government, the archibishop, ranking military and police officers as well as Håkan Jansson, president of Ericsson Telecom.

The two AXE exchanges were set in successful operation – nine weeks ahead of schedule.

"This is a real national project and is a way of bringing Croatia closer to Western Europe," says Roland Björlin, responsible for the department implementation in Market Operations Europe.

The project is called CIN, Croatia International Network, and was begun in September last year. The total contract value is over 180 million kronor and covers principally five transit exchanges, of which four are international and one is national. They will form the mainstay of Croatia's future tele network. CIN also includes the Opax system and TMOS as well as training.

Ericsson's licensee in Croatia, Nikola Tesla, is participating in the project as subcontractor. CIN will be fully completed by November 1994 at the latest.

"The project makes Croatia the second largest market for ETX in East Europe after Hungary," says Patrik Rönne-Petersen, marketing responsible for Croatia.

New modernized network

The prinicipal contacts between ETX and Croatia before the CIN project were through Nikola Tesla. In the former Yugoslavia everything was handled from Belgrade. With independence the new Croatian tele administration, Hrvatska Posta i Telekommunikacije, HPT, could go out on the market and begin to build a modernized network from scratch. It chose Ericsson to secure its ambition. Together with Nikola Tesla the first phase of the project has now been completed.

"The project has been extremely successful for Ericsson," says Patrik Rönne-Petersen. "We succeeded in maintaining very good quality while at the same time almost halving the normal lead time. We are proud about that."

New unit in ETX

With last year's reorganization of ETX a new unit division was created in Market Operations Europe. An entirely new department for implementation was formed. The new organization had its baptism of fire with the CIN project, which proved that the move was in the right direction.

The marketing unit was able to concentrate on the market and the customer. The implementation unit, in its turn, served as project leader and was engaged in other expertise. The unit that basically was not market divided could draw on experiences from other markets. Those responsible for marketing and implementation have had close collaboration where a major advantage was that the areas of responsibility were clearly defined.

"It went remarkably well," says Staffan Brandt. "We have come considerably closer to the customer in this way and we could rapidly grasp the customer's desire and be flexible when the situation so demanded."

With help from Ericsson, Croatia's international tele network is slowly but surely being built up. "Hello! Can you hear me? Croatia's communications minister Mudrinic calls up Televerket's general director, Tony Hagström, at his summer cottage in Sweden at the inauguration of two transit exchanges in Zagreb on May 29 this year.

"We are gald that this project phase was accomplished in spite of time pressure," says Roland Björlin.

Near customer despite war

War in the former Yugoslavia has so far not affected ETX's work. In October an exchange will be set up in Osijek, an area that was previously hit by heavy fighting.

"If the situation is still considered critical in October, we have a fallback plan to deal with the situation," says Staffan Brandt.

Croatia, like other states in Eatern Europe, has an old and obsolete network and a newly established and ambitious tele administration, which puts high demand on ETX.

"We must always be aware that we are dealing with an entirely new administration," says Roland Björlin, noting that the project also includes a training program for parts of HPT's management.

"Despite its being newly formed, HPT has through tremendous efforts, for example, succeeded in completing locations for the new exchanges in very short time," adds Patrik Rönne-Petersen.

The location where the exchanges are now was built in 1952 and has not been used since except as a warehouse. In order to utilize this the interior was blown out and then rebuilt.

"The customer did a great job," says Patrik Rönne-Petersen. "They threw in all their resources, several hunderd men, working day and night. They even succeeded in paving the road to the location the day before the inauguration."

This bodes well for future collaboration.

Did you know ...

- That the number of independent states in East Europe and the former Soviet Union has grown from 9 to about 30 in just over four years from 1989 to 1993?
- That more than 300 million inhabitants live in an area of more than 19 million square kilometers. This compares with Sweden's 450,000 sq. km. with 8.6 million inhabitants and the U.S., which has an area of 9 million sq. km. and about 250 million inhabitants?
- That the present Russia has an area of 17 million sq. km. and in area is the world's largest country, with some 11 time zones?
- That more than 100 languages are spoken in Russia, not counting the different dialects?

Nothing is impossible – at least not Croatian

Working with a new state like Croatia is difficult in many ways. New constitution, new culture, new work methods and economic norms, new complicated language etc.

In order to facilitate work with the new state, Patrik Rönne-Petersen decided to learn Croatian, which proved not to be all that easy. There were not exactly lots of Croatian-speaking teachers around. If you are working with Croatia then you have to speak Croatian. And it is important that you learn it from a Croat.

"We can definitely tell whether you were taught by a Croat," Patrik was informed on one of his visits.

Patrik turned to Ericsson Language Services for help.

There nothing is impossible. They did not have a Croatian-speaking teacher but they succeeded in finding the right teacher outside.

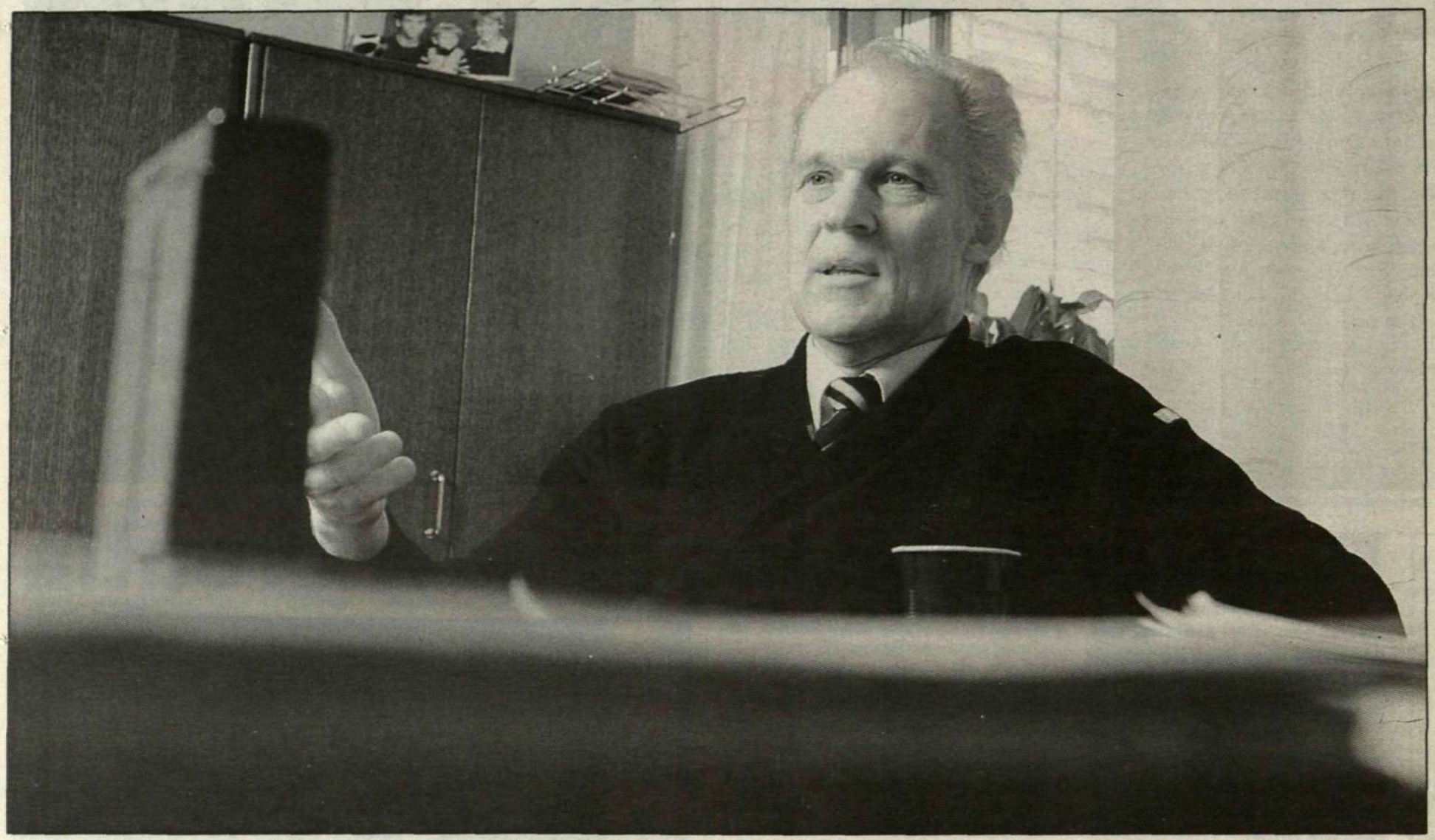
Now Patrik and some of his colleagues who were equally inspired take lessons once a week in the interesting but very complicated language.

AXE for Bulgaria

In July this year Ericsson received an order to supply digital switching equipment for the national telecommunication network in Bulgaria. Ericsson S.A. in Spain is is one of two suppliers chosen for the task. The value of the contract is about 135 million SEK.

The Bulgarian tele administration plans digitalization of its international tele network with the project "Digital Overlay Network," which will be implemented in 1993-1995. Ericsson will supply transit and local/transit exchanges with accompanying equipment. A network and supervision system based on Ericsson's TMOS system is also included in the contract. Thanks to this order ETX will be opening an office in Sofia in autumn.

Already back in 1878 Lars Magnus Ericsson was making batteries as a source of energy for telephone operations. In the 1930s Ericsson began to manufacture rectifiers for conversion of mains voltage to suitable voltages for telephony use. A power activity began to blossom. Ericsson's power activities therafter were on the way to being taken over by ASEA at different periods. But Knut Kåell, who designed the 500 selector, was the first to say no. Åke Ljungblom came up with definite proposals in 1969 and was given responsibility for setting up an independent power division within the group in 1970. The reason for this can be found in electronic developments that created a need for even more specially adapted power supply for telephony.



The most important source of learning has been inherited from Power division's "great men" Anders Örevik and Tadeus Wolpert, says Per Samsioe. These two are the fathers of Ericsson's pace-setting power solutions.

He gives power to us all

"When traffic increases in tomorrow's tele networks, the total energy need will also grow. So says Per Samsioe who heads a newly formed Competence center for power and systems solutions issues in the Energy Systems business Unit of Ericsson Components in Kungens Kurva. The aim is better total solutions for the group's power and energy systems.

Per Samsioe, who today drives the Competence center with eight other experts in system solutions, has himself been active in the power division since 1978. Unusual for him, he does not have the traditional engineer's training. Instead, Per has advanced university studies in physics, mathematics, electronics, nuclear physics and 12 years in FOA, a Swedish defence research body, behind him.

"We formed a competence center because we saw that it was important to have a central point for the collective experience in the group's energy issues," says Per Samsioe.

New concept

"Problem-solving when it comes to power for telecommunications is very much like that for all types of networks and equipment.

We who are now working with these issues all have long experience with power and cooling and we can help avoid reinventing the wheel."

There has never been a competence center for power and energy in the group. Specialized knowledge exists for batteries, grounding, electromagnetic disturbances, current distribution, electric safety, cooling and systems supervision. Competition monitoring, analysis, advice and support in general systems technical issues are the tasks that the center's energy experts will deal with.

Consultants

The experts will work as consultants with those responsible for product and technology in the company's business and core units. They will also advise and support Ericsson's Major Local Companies. When the competence center together with tele technicians develop applicable energy systems solutions the product groups in Energy systems will have the possibility of developing ingoing products.

Energy needs increase

"Tomorrow's tele networks will consist of a number of small access products, in reality small electronic drawers, that will be dispersed over a wide area. A few large telephone exchanges will serve as connecting links and signaling between them will be done with optic fiber or radio," says Per Samsioe.

"When traffic in the network increases with the arrival of new services such as computers and television total energy needs will also increase, perhaps as much as tenfold. The increased energy quantity will cause excessive loading on the alternating voltage's network and demand for energy products will be greater.

"Access products will be shifting with effect needs from a few watts to several hundred watts. Current will be placed on a few amperes instead of several thousand amperes. The size of exchanges and current forces may be only one-tenth of what it is today.

Batteries a weak link

The weak link in the future's telecom system is the battery. To achieve the future's best solutions you need a lot of tests and experience with different battery types. To cover this important part the Competence center has taken on an expert in this area.

"Reserve power batteries in systems of the future will be subject to a considerably more demanding milieu than today's batteries. Lead batteries must be developed. Otherwise reliability on the network can be very low," says Per.

"If we succeed in improving the working level of energy utilization we can also reduce our operating costs. The demand for reliability increases at the same time that shrinking electronics demand considerably smaller batteries than today's.

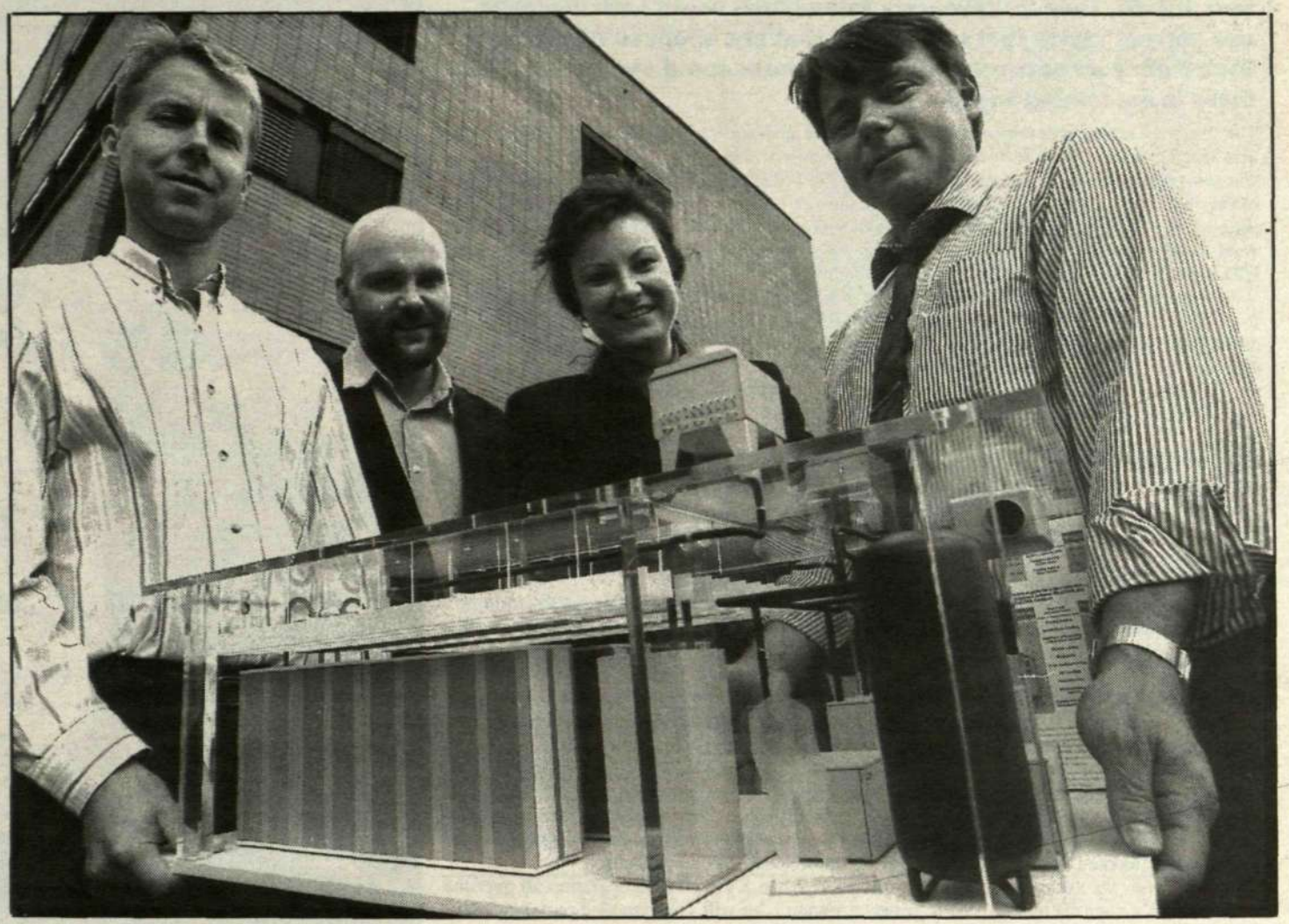
The small electronic drawers also demand new solutions for cooling systems, and automatic supervision systems will be indispensable. In business unit Energy Systems there are already today solutions in power, energy, cooling and supervision systems that in many instances are already on the track of tomorrow.

Text: Inger Bengtsson
Photo: Anders Anjou

In the next issue of Contact: TQM and the Ericsson company culture

And now hot lines get efficient cooling

Ericsson is introducing a new generation of cooling systems for tele equipment – Telecool. The name Telecool is a systems one, but it is also the name for a base version in the new cooling family. Telecool can be used where continuous cooling during a network shutdown is called for.



For Håkan Zirath, Johan Frändfors, Marika Niklasson and Berth Erlandsson, Telecool is the obvious solution for cooling telephone exchanges. They usually use a pedagogic presentation model to also convince customers about it. Photo: Magnus Torle

Modern tele equipment is being always designed to be smaller, more compact, more flexible and – above all – more effective. Modern semiconductor technology has permitted an even greater degree of miniaturization and at the same time ever more complex integrated circuits.

When equipment becomes smaller, effect-density also increases. Hence the increased demand for efficient cooling. With high temperatures other factors can work negatively on equipment and shorten lifetime on ingoing components.

This makes tough demands on reliability in today's high-technology telecommunications systems. These are demands that affect not only telephone switches but also reliabilty on transmission, power supply and cooling systems. Should one of these systems be knocked out, sooner or later total operating stoppage will occur, with huge economic losses as a result.

Use nature's laws

Telecool Compact is a compressed version. The entire system, apart from cooling apparatus outside, is mounted in one compact unit. The unit can be very easily installed in the same space as the equipment it is designed to cool. The solution is called Switch Room Cooling.

The cooling principle in Telecool is built on nature's law that hot air rises and cool air drops. This is known as natural convection. It is a principle that was first used in the cooling system Ericool, predecessor of Telecool.

Air in the telephony room is drawn into the switch's magazine through the front on the switch racks. The air cools the electronics in the magazine while it passes through the racks.

The warm air streams out of the top of the rack and goes up through the air-cooled roof, which also serves as an inner ceiling.

Above the air-cooled roof the warm air comes into contact with the cooling element. This is located over the midpoint of the row of racks.

When the air is cooled its density increases. The air then sinks through the cooling element and down into the midpoint where it is again sucked in through the front of the switch racks.

The circuit run is completed.

Longer life

A cooling element's capacity for cooling warm air depends on air flow and temperature differences between the air and the cooling element.

Products with high warmth output have a warmer air current, which rises faster. This automatically calls for higher cooling effect.

With natural convection, Telecool provides even air temperature and intercepts "hot spots," warmth concentrations in the equipment.

This means that the life of a telephone switch increases when electronics gets continuous and even cooling.

The technique on which Telecool is built also includes a low air turnover speed. This means a draft-free milieu with even temperature. Moreover, you avoid the risk of dust swirling up and getting into the sitch racks.

In addition, it also helps in avoiding local warmth concentrations, with damaged components and a change of circuit boards as a result.

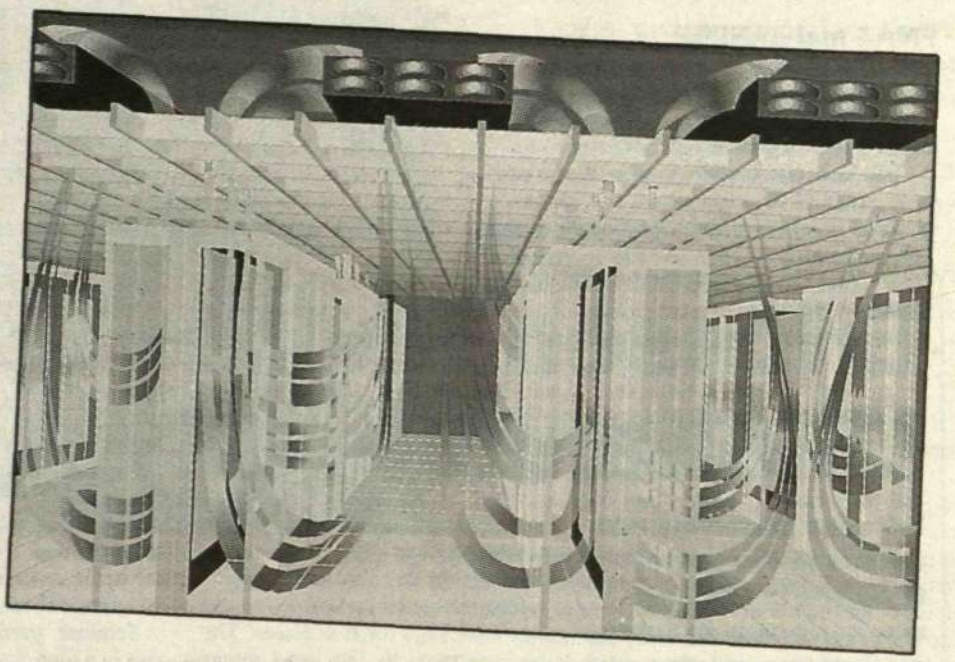
Telecool is equally noiseless in operation, which is a further advantage for those who work in the telephony room.

Air-cooled roof

The air-cooled roof consists of a cooling element, an inner ceiling and lighting. The patented ceiling consists of rectangular profiles of light metal, arranged four and four to achieve a series of "chimneys." These chimneys direct the upward-moving warm air towards the ceiling and the downward-moving cool air from the cooling element and thereby increases the effect of natural convection.

The lighting system is based on flexible current bars, to which the electric fittings are attached. The inner ceiling itself also has an esthetic function, since it hides cables and tubes in the roof. In the control room, office space and other premises the inner ceiling can be equipped with sound-absorbing devices.

Text: Johan Frändfors



Telecool cools with natural elements. Warmth in the AXE racks goes through the ceiling, where it is cooled and then slowly sinks back into the room.

Many advantages

■ Modular construction
Since the system is built up of modules, you can install only as much cooling capacity as you may need for the moment. As the need increases, several modules can be added.

■ Low energy consumtion
Since the system is based on natura convection, no energy-guzzling fans are needed. This means a total energy consumption that is about 40 percent lower than for the ordinary air-blown system. When the outside temperature is sufficiently low the cooling, moreover, can be done simply with the help of external air, which further reduces energy costs.

■ Reliable
Telecool's design means minimal maintenance costs. All ingoing units are chosen for giving high reliability, a demand from tele administrations.

■ Operation, supervision
A computerized supervision system controls operation. The system consists of a central computer which receives and analyses information from local computers in the units that are part of the Telecool system. Communication between the units is done via interference-free optical cables.

With an optional LCD display you can read the text of the communication. On the display you can see the category of alarm and where it is located, room temperature, relative air humidity, outside temperature etc.

In Telecool Compact, operations of the microcomputer system that relays data both graphically and digitally are supervised. The telecool system can be connected to an overall supervision system.

KVAST sweeps away fault in transport network

With help of a new and unique quality and alarm supervision system, KVAST, Telia AB (formerly Televerket) could both discover and correct faults that come up or that are about to come up in their transport network before customers could even notice that there is something wrong.

The system, which was developed by the business unit Transport Network Systems in ETX, was inaugurated at Telia's operations center in Malmö with a lot of pomp and circumstance on June 15. The inauguration was preceded by several days' round the clock work from both ETX's and Telia's employees.

"It was just wonderful to see everything function as it should," says both Anita Hegelin, responsible for marketing TMOS at Ericsson Telecom Sweden, and Anders Kjellerstrand, project leader at business unit Transport Network Systems.

Faster measures

On Telia's side they are very happy with the system and they are weighing the future carefully.

"We believe strongly in KVAST," says Gösta Rolf at Telia. "We got the possibility of quality supervising our transport network on the 140Mb level, which means we can take measures against faults and disturbances much faster than before. With this we now have powerfully high quality in the network.

"Moreover, we can submit regular quality reports to data customers who want them according to our agreements."

With the help of KVAST information is gathered up from free-standing measuring equipment in the transport network. The information is then stored, worked and presented in a clear form. Moreover, the system collaborates with Telia's alarm system NOAC, which together will give Telia both solid and reliable information about quality in the transport network.

FMAS and ZAN202

KVAST is a unique product, specially developed after demands from Telia.

The individual products – Ericsson's FMAS and ZAN202 – however, are not unique.

"The base of the entire system is two products from ETX: supervision and guidance system FMAS as well as the operation and maintenance system ZAN202," says Anders Kjellerstrand.

Further development of these products have since been done in large areas of Sweden. To a large extent ZAN's software has been developed by Erisoft in Luleå, ZAN's hardware and verification of business area Transport Network Systems in Kungens Kurva as well as FMAS, which was further developed by ETX in Mölndal.

Lots of complaints

Work on specifying demands on KVAST, however, was going on for several years in Telia before ETX was involved in creating the application itself.

"At the end of the 80s we had a lot of complaints from customers that the transport network did not always function as it should," Gösta Rolf recounts.

"We began to discuss how we could improve supervision as well as raise transmission quality in the network."

At the turn of 1989/90 the then Televerket had specifications ready and after the expiration of an offer period as well as negotiations it was time for ETX to get the order.

In the fall KVAST will be installed in all of Telia's regional operation centers. The overall installation of free-standing measuring equipment has already begun and is expected to be completed within two years.

"When KVAST is in operation all over the country we will have reached our goal," says Anita Hagelin. "But for us it is only a partial goal. Therefater work begins on marketing and selling the system to other operators on the market."

Anette Johansson

Footnote: KVAST is Telia's name for the new system. There is no name for the new application in Ericsson but it is seen as two individual products – FMAS and ZAN202 – combined in one application.

Now all problems will be swept away. Project leader Gösta Rolf at Telia is very pleased with the new quality and alarm supervision system KVAST.

Ericsson invites to Lillehammer Olympics

Ericsson is inviting customers to the winter Olympics in Lillehammer in Norway in February and is arranging at the same time a customer seminar around the theme "Mobility." Some one hundred customers from around the world is expected to attend.

"There is keen interest interest among Ericsson companies and units around the world to use the Lillehammer winter Olympics as a departure point for customer contacts," says Information Manager Paul Falck at Ericsson AS in Norway.

Together with other large Norwegian export companies, Ericsson will participate in a vistor program where one can offer customers a three to four-day stay in Norway.

The interested companies would buy a package for five places. The package includes five hotel rooms in a first-class hotel in Oslo and ten tickets to various events in Lillehammer.

Included in the package price is an all-day visit in Lillehammer. Participants will not only get a chance to attend the games but also have lunch and time to stroll around the Olympic city on their own.

Seminar

The Ericsson seminar on "Mobility" will take place on Thursday 24th February at the Royal Christiania hotel in Oslo, where Ericsson's guests will be staying in Norway.

A work group has been formed for the seminar, with Torbjörn Andersson at Ericsson Telecom in Stockholm as coordinator. The theme of the seminar will be "mobility and personal communications."

Seminar participants will take part in a four-day package , with arrival in Oslo on February 23rd, the seminar on the 24th, visit to Lillehammer on 25 and/or 26th. Return journey on the 27th. Participants are expected from France, Holland, Denmark, Sweden, Norway and other countries. There are still a few vacant places for the seminar.

Police radio

Ericsson has supplied an EDACS communication system to the Norwegian police for use during the Lillehammer Olympics. Therefore the company is thinking of inviting other likely customers to show them the system in use and to allow them to share in the Norwegian police experiences.

Ericsson gives priority to SAS

Ericsson has signed a collaboration agreement with SAS on air travel. The agreement means that Ericsson will give SAS priority in the event that there is no hindrance to effective travel.

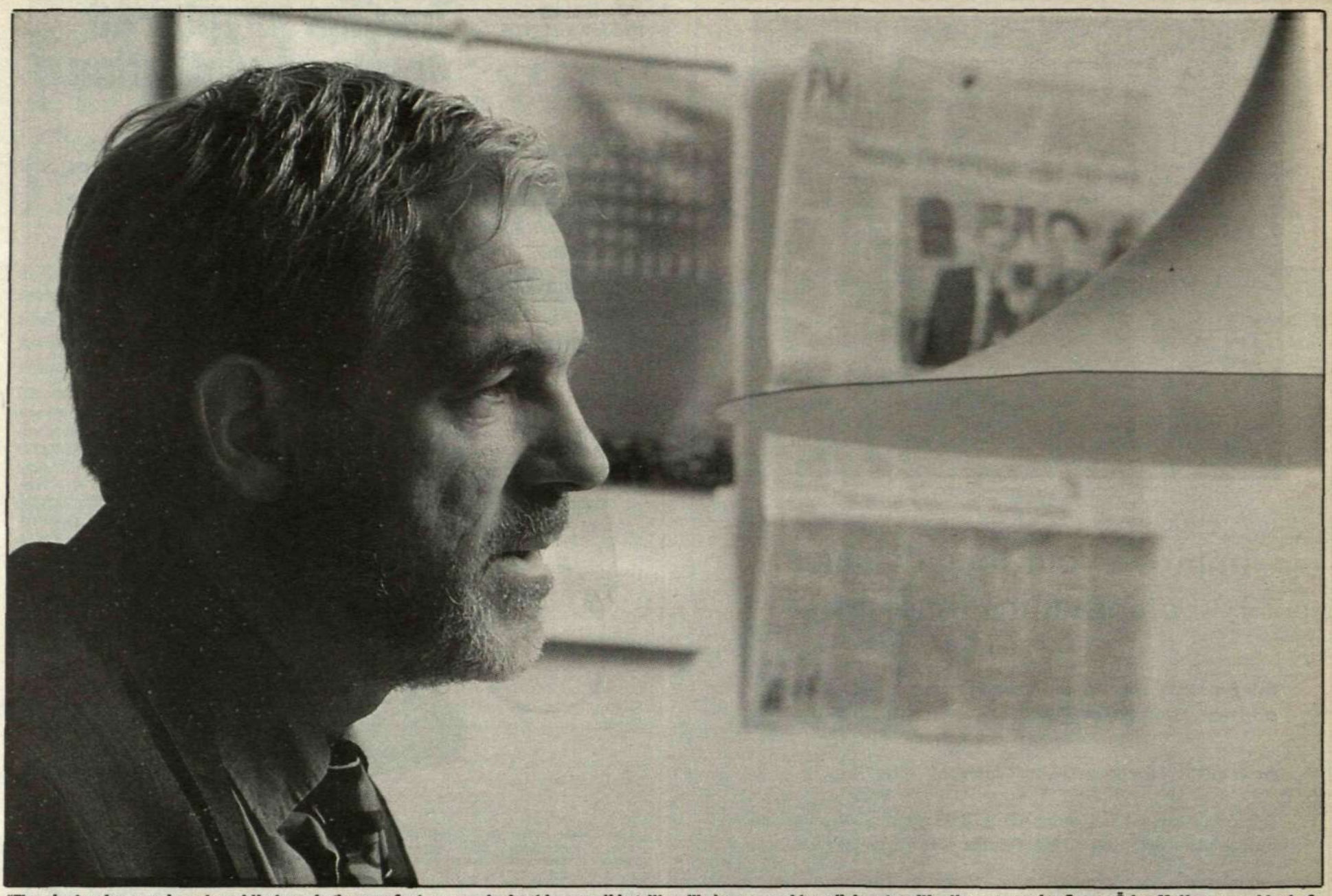
Every time an Ericsson employee flies with SAS on business, the company gets a bonus from SAS. This reduces the company's travel costs considerably. Travelers who fly often can further help to reduce Ericsson's costs by signing up with EuroBonus.

Ericsson's travel rules stipulate that discounts that the company can use will be the property of the company. Registration, however, does not mean just additional discounts for Ericsson but also advantages in part for the traveler himself.

"It can be a matter of service advantages, such as automatic class upgrading for those who travel often or for other types of special offers that SAS gives to EuroBonus members," explains Lennart Stadigh, travel manager at Ericsson.

At the same time Lennart would like to exhort all travelers to plan their travels and book them in good time. By booking and paying for the ticket at least four days in advance you can also get a discount. SAS' so called Euroticket reduces travel costs by 30 percent.

"One advantage with Euroticket is that the return journey can be changed without loss of the discount," says Lennart. SAS's EuroBonus is also valid for two months on two airlines that collaborate with SAS: British Midland and Swissair.



"The electronics area is so broad that no single manufacturer can be best in everything. We will always need to collaborate with other companies," says Örjan Mattson, president of Ellemtel and board member of Ericsson Components.
Photo: Karl-Evert Eklund

Orjan Mattson, president of Ellemtel:

"Ericsson must be sharper than all others"

One condition for Ericsson to be able in the future to supply strongly competitive telecommunications systems is for it to succeed in seizing the opportunities that rapid development in microelectronics offers.

The company's demands therefore are very highly placed.

The aim is that Ericsson before the year 2000 will be world leader as far as using microelectronics in its products to the best possible advantage.

In clear language this means that we must design systems in a smarter way than our competitors.

Can we achieve this goal? Yes, Ellemtel president Örjan Mattson thinks so.

"Thanks to collaboration with Texas Instruments and the advanced technology we have had access to from this, Ericsson today already has ample competence for development of advanced microcircuits and components.

A solid grasp

"We are known for designing good systems, we have huge market spread and hence a solid grasp of market demands. Against this background, and with the ambitious efforts now being made in Business Area Components, we have every reason to succeed," he says.

Örjan Mattson is not only president of the development company Ellemtel, jointly owned by Televerket and Ericsson; he is also a board member in Ericsson Components and a member of Ericsson Micro Electronic Council. But in this matter he is speaking above all in his capacity as a major customer of Ericsson Components and user of their competence and circuits and components that the company develops and manufactures.

Secure competence

MEST – Micro Electronic Systems Technology – is a newly formed core unit in Business Area Components. By core unit we mean a unit whose activities provide a strategic asset for the total business area operations.

The fundamental thinking behind the concept of MEST is to secure competence and development needed for the company to achieve the means of attaining its said goal.

MEST, headed by Christer Jungsand, also has responsibility for activities and operation in the factory for prototype manufacture of so-called VLSI circuits that is now being built in Kista.

Sophisticated plant

The factory – a sophisticated plant with very advanced technology is right now beig constructed in Kista. It is expected to come on stream in 1995. It will provide the means for faster delivery for systems development.

"We are known for designing good systems, so we have every reason to succeed."

For Ericsson to become world leader in the use of microelectronics in the smartest possible way does not necessarily mean that all circuits will be "made in Kista."

"Ericsson can never be self-sufficient in circuits, and this is not its aim either," says Örjan Mattson.

"Moreover, the electronics field is so broad that no single manufacturer can be best in everything. We will always need collaboration with other companies. The condition for us being able to do so in a good and sensible way is, however, that we have solid knowledge and a high level of competence."

Close contact

Örjan Mattson is optimistic regarding Ericsson's chances of achieving its world's-best goal. But, he underscores, an absolute must is a close cooperation between colleagues at MEST and systems developers in different parts of the company.

"As in all other activities it is a matter of doing the right thing," he points out. "Such advanced and excellent circuits will never be worth anything if they do not satisfy systems' demands."

At the same time a resource such as MEST can never be a common asset for the entire company if the systems-developing business areas ignore the competence that exists.

"Therefore I stress the importance of close contact, among other ways through personnel rotation and open and straightforward dialogue between circuit designers and system builders."

Kåbe Lidén

German project gains lead time

Considerably fewer installation trips to sites and independent job assignments. This is one part of the practical results of the huge pilot project "BTS order flow." This is part of the change work Det Andra Steget (The Second Stage) and is being driven by Ericsson Mobilfunk, RFD, in Düsseldorf and the nine regional offices in Germany.

The project is being done in very close collaboration with business units RMOG Mobile Telephone Systems GSM, NMT, TACS at Ericsson Radio Systems.

Jörg Kluwe and Gerhard Nienhaber at RFD's regional office in Dortmund feel the pilot project produced better work routines.

"The thinking behind the pilot project is high profitability for RFD and to develop work methods that can be applied to other parts of RMOG's activities." So says Sven Borgström, project leader and responsible for RFD's regional offices.

The pilot project began last autumn and will, as a project, be completed now in summer. It is one part of Second Stage, whose goal is to improve customer service and effectiveness in all activities within RMOG. This applies to every aspect, from product development to after-sales.

Natural choice

"The reason for choosing "BTS overflow" is that work concerning base stations, that is orders, installations and invoicing, is a huge task for RFD," says Sven. He also adds that there are real gains to be had here.

Hans Uhlemann, president of RFD, is very happy with the reults of the pilot project. A strong point of the project is that it commits everyone in the entire process fron factory to installation.

"We were forced to look at and in certain instances simplify routines and achieve better internal efficiency. Among other things this has led to reduced storage and less overtime for employees in logistics and material planning."

Dortmund first

An important part of the pilot project was to change routines for ordering of material. Previously, all orders were handled by the Gävle factory via the office in Düsseldorf. This has now changed so that each region orders directly from the Gävle factory.

The regional office in Dortmund has been the pilot region and now they are working entirely within the new system.

"We are very pleased and we are saving a lot of time," says Gerhard Nienhaber, manager for the regional office. Here they have 13 employees and they serve a 200 sq. km. area around Dortmund, Kassel and Bielefelt.

Previously, it took up to 24 weeks to get material, install at the site, get customer approval and finally invoice. Now the same procedure is accomplished in 8 weeks. Installers no longer need to go out to the site as many times as before.

Responsibilty is delegated so that each installer is responsible for all work at a site from start to finish. At the regional office there is no need for such large warehousing as before.

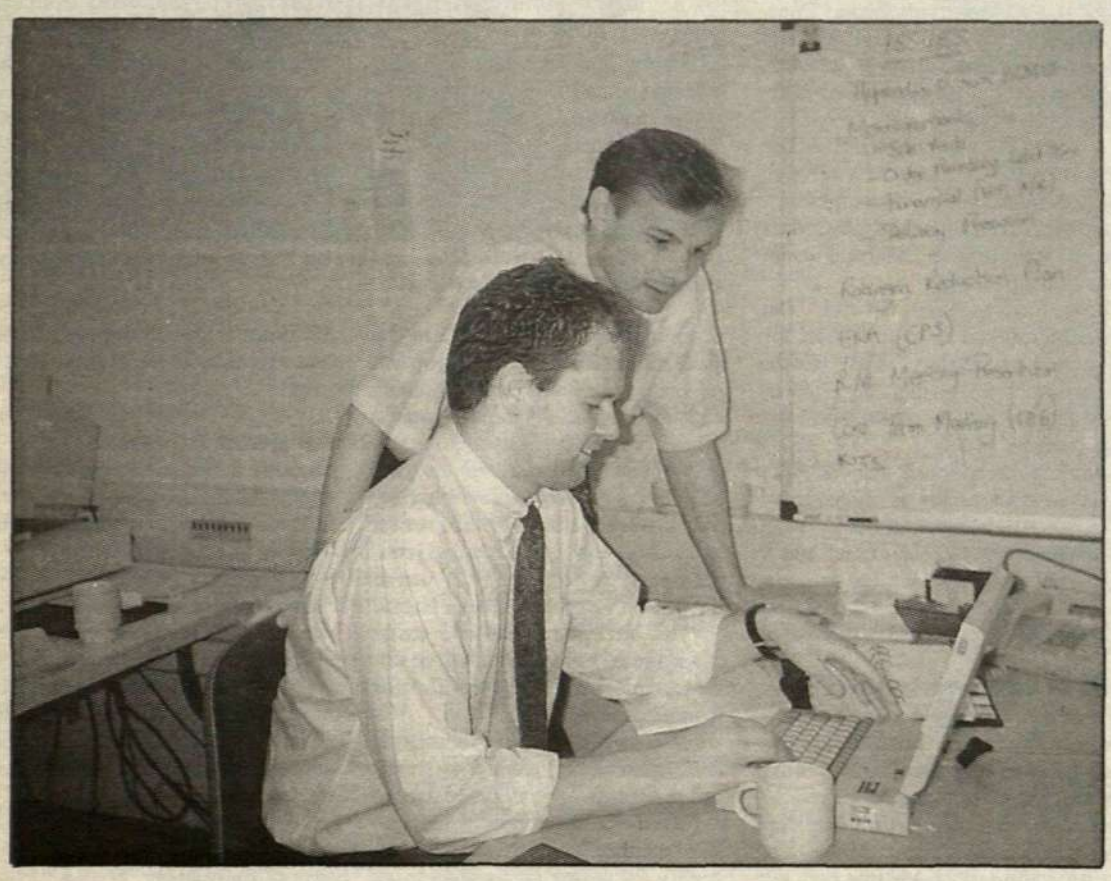
More independent

Jörg Kluwe, installation manager in Dortmund, feels the work has become more independent and more qualified. The only small disadvantage could be that there is a bit more paperwork. Contacts with the Gävle factory are functioning smoothly and most of it is done via memo or fax.

In its capacity as pilot region Dortmund has had many visits from other regional offices in RFD. One task right now is to set itself up as "teacher" and share its experiences.

Gunilla Tamm

Sven Borgström is responsible for RFD's regional office and is project leader for the pilot project "BTS order flow" at Ericsson Mobilfunk.



"Helping to overcome resistance to change is one of our missions," say Simon Everitt, standing, and Magnus Månsson.

Gathering experience

Magnus Månsson from ERA, Simon Everitt from Ericsson Ltd., ETL, in England, and Stefan Reuter from RFD are "improvement leaders" in the RFD project. This means that they work full-time with everything concerning the pilot project. This can run from arranging training for regional personnel or resolving problems that crop up.

The idea is that these "improvement leaders" will acquire experience and knowledge so that they could later lead improvement projects.

"We have not learned any solutions but rather how you isolate various problems and how you move forward methodically," says Magnus.

Attitudes

Simon agrees and adds that it is very much a question of attitude. In every assignment there is always room for improvement.

"Every change is often met with resistance. Our job is to help overcome this resistance," Magnus points out.

It is precisely experiences with improvements that Simon, Stefan and Magnus will eventually bring from RDF in Germany to other markets in RMOG.

Charlotte Adlén with a multimedia terminal. Note the little camera on the screen's upper corner and the microphone at the edge of the keyboard.

All about MD 110-BPN

The system is built on an MD 110, which consists of a number of building blocks, so-called LIMs (Line Interface Modules). BIMs (Broadband Interface Modules) form a transparent fiber optic transmission network on level 1 – in the OSI (Open Systems Interconnection) model – that binds together all the different equipment/terminals. The network has high-speed capacity, 100 Mbit/s.

The equipment/-terminals may be telephones, computer terminals, servers or video equipment.

The result is a very flexible product where it is easy to change according to needs and where you can collect resources in servers. With a number of servers administration becomes cheaper and you can have better control – about as in the old large computer network – but with the flexibility that LAN affords.

Ericsson ready for multimedia

Ericsson Business Networks has a product ready for the multimedia branch when it takes off. This thanks to intelligent integration of two products that were previously sold separately.

"By integrating BIM and MD 110 you can combine voice and data as well as obtaining the possibility to develop multimedia services with, for example, video," says product manager Mikael Halén.

MD 110 needs no further presentation, but BIM is new. The abbreviation stands for Broadband Interface Module. The product – under the name of ZAT2000 – was previously launched as a simple and smooth solution for local data communications via fiber optics with very high transfer speed.

Rational

"With BIM as an added product to our business switches we get a rational local infrastructure for the customer's total communication needs."

"By introducing multimedia services besides you get more effective communications, which reduces costs with high quality in collaboration projects and by saving travel costs," says Mikael Halén.

The product began launching in March under the name MD 110-BPN (Broadband Premises Network) and was one of the main attractions at the CeBIT fair in Hannover. The product won the magazine Data Communications' "Hot Product of the Year" award and the first order went to the car manufacturer Audi.

Tool for travel agencies

By integrating voice, data and video you can, for example, have the possibility for setting up video conferences.

Charlotte Adlén, who works with product management, recounts:

"Everything can be done via PC, where a part of the screen shows the people talking with each other and another part at the same time shows diagrams, images or text that are being discussed."

What Charlotte describes is one of the main variants of multimedia, called network multimedia. Another variant is to have stored information, for example on CD-ROM disks, reachable on a so-called server in the network.

The latter variant could be used by travel agencies. Instead of showing destinations in brochures with still pictures, you can for the interested customer call up from the server a video film that projects on the computer screen.

"What we have introduced is a communications infrastructure with the capacity for multimedia applications, which we believe will be a customer demand in the future," says Charlotte.

"At the same time we may point out there is still no network or equipment for this to take off. But it is important to have a technology with high quality that is cheap enough to bring about multimedia when the time is ripe," says Mikael Halén.

Strong position

With the new product in MD 110 Ericsson is a step ahead of its competitors in this area.

"Yes, we have a strong position with BIM," says Mikael, "in that it can give small delays without variation, which are fundamental properties for network multimedia. Competing products are based on LAN technology, which in itself increases speed but without control over variation in the delay.

"We have the control in that our infrastructure is based on a network with isochronous transmission," adds the third member in the product management team, Niklas Forsén. He explains further:

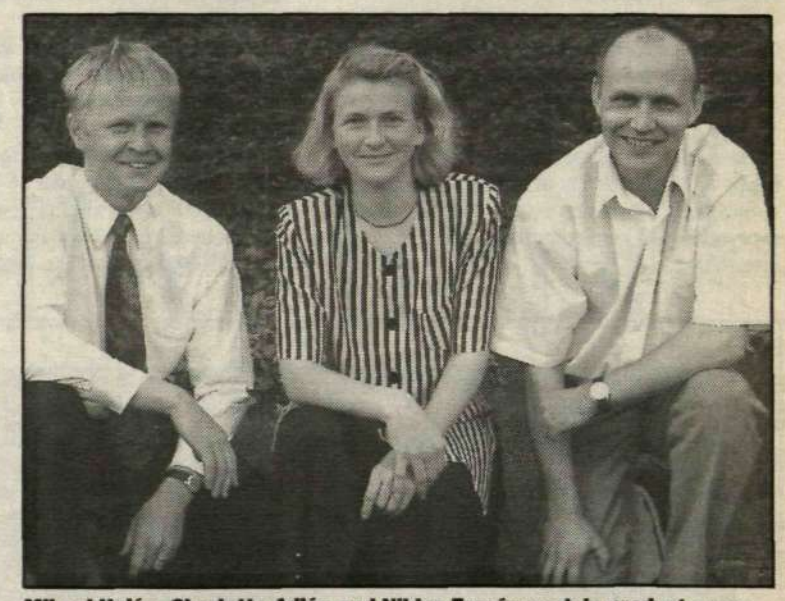
"An isochronous network can handle real-time communication, for example telephony and video, thanks to the fact that the isochronous transfer gives a little and constant delay.

In a LAN network (Local Area Network) the delay is affected by traffic in the network. If two persons are speaking with each other and a third begins to send a large data file the delay increases and image and sound quality is affected negatively.

All in the same outlet

Through intelligent transmission technology and a transparent network (which does not convert what is sent but only releases, for example, data) Ericsson has a huge leap on its competitors.

An additional plus is that both telephone and computer like video equipment can be connected to the same outlet. Because of this you can also simply shift different equipment and applications in the company's offices or in a university area.



Mikael Halén, Charlotte Adlén and Niklas Forsén work in product management for Premises Networks.

"We can give the customer what he needs at the lowest possible cost. MD 110 BPN offers low initial cost and a tailor-made solution that reduces operating costs over the life of the system," explains Mikael Halén:

"The system can also be easily changed and expanded. It can be tailor-made down to the individual or workplace level."

A "golden egg" in this context is that BPN can be installed as an added product to all previously delivered MD110s, regardless of the version (release). This provides the possibility for selling the product to all the previously sold six million MD 110 lines – and to the growth that amounts to about a million lines a year.

All good things...

To build a multimedia network you need three things:

1. An isochronous infrastructure. This we have in MD 110-BPN.
2. A unit for ISDN signaling. We have solid knowledge about this as supplier of business switches.
3. A network management system (that is to say a network handling and supervision system). Here we have a huge advantage through our strategic collaboration with Hewlett-Packard in NMS.

"Altogether we are very well positioned to meet the future market," says Mikael Halén.

Text and photos: Alf Öst

BAMSE order is worth 600 million for ERE

BAMSE consists of an intelligence unit with surveillance radar (ERE's GIRADDE 3D, right in the picture) and a firing unit, which ERE equips with a companion radar as well as parts of missile-guiding electronics.

The decision came at the very end

Friday May 28 Försvarets Materielverk (FMV), Swedish defense procurement, finally signed a contract with both Ericsson Radar Electronics, ERE, and Bofors for BAMSE, a new Swedish missile system. The day before, ERE had signed an agreement in principle with Bofors on a fire unit.

Right up to the end ERE conducted parallel negotiations with both parties, and it is a very pleased Lars Törnquist, program leader for anti-aircraft defense at ERE, that caught his breath after the drawn-out contract signing. For ERE's part the business is worth a total of almost 600 million kronor, which after all the waiting is now put on paper.

The contract with FMV was ready in two installments earlier. Both, at the end of February and at the end of March, were ready with all the papers for signing, but the decision dragged on. Now it is the third time around and things are better.

"During the last half-year's negotiations we succeeded in getting additional functions worth 70 million kronor, although there was no money. Of course it sounds very funny, says Lars Törnquist.

Give and take

Since October last year Lars Törnquist has been sitting in various negotiations with FMV and Bofors discussing the nature of the contract. In the end there was only one question: How could the contract be adapted to the customer's funds?

"It meant coming to an agreement where both parties would be happy," says Lars Törnquist. "Both must give and take. We were starting a close collaboration for an extended period ahead. If you felt overrun now perhaps you might think of taking revenge later on."

"The risk for that type of dig is minimal in this instance. The parties know each other a long time now and can talk openly about a problem. Then you sit down and try to resolve it. If you move too fast on something, it is easy with a little fantasy to get side-tracked."

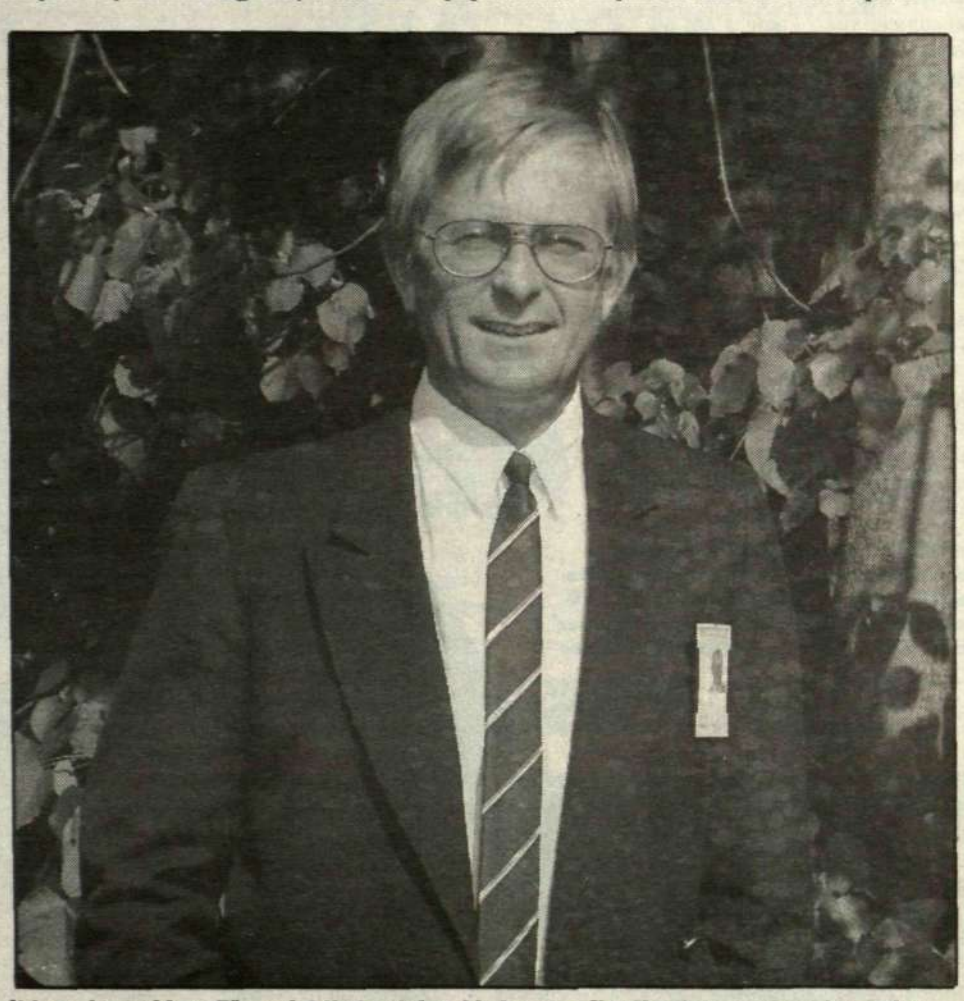
Happily the BAMSE project succeeded in making it to the end when the defense decision was made a year ago. When the government presented its crisis package in the autumn, a threat also hung over BAMSE. By spreading development costs for the prototype over a longer period they were able to move ahead. The contract price in effect was clear since February.

Own antenna

BAMSE consists of an intelligence unit with surveilance radar as well as a firing unit with companion radar and robots.

The intelligence unit is ERE's area of responsibility, while Bofors answers for the firing unit supported by ERE, which makes companion radar as well as parts of missile-guiding electronics.

In the function model of the intelligence unit, which has already been tested, Marconi was responsible for the antenna. But now ERE's own antenna department can do that.



It is a pleased Lars Törnquist that catches his breath after the drawn out contract signing on the BAMSE project, which for ERE's part is worth 600 million kronor.

"We are very happy about this," says Lars Törnquist. "This assures long-term competence in the antenna department."

Added functions

He is also glad that ERE succeeded in getting added functions for about 70 million kronor, money that eventually is not earmarked in any budget. It includes among other things a new shatter- and ABC-proof housing with better operator milieu and a new transmitter/receiver. This transmitter/receiver increases reach by 25 percent and will also be installed in ARTHUR.

"With this the product has turned out remakably well and export value is rising for bothe BAMSE and ARTHUR," notes Lars Törnquist.

Gunilla Bergman

With ESP the job is just like a clockwork

Leaving a company wind in the wave leads most certainly to ruin. But how can one know which investments are the right ones? Ericsson Strategic Plan, ESP, comes up once a year and looks five years down the road. ESP may be said to be a way, with help of the collective knowledge in the company, fundamental analysis and long tentacles out into the world, of charting and embarking on the company's course for the future. Here we look into the ESP at Business Area Public Telecomminication, BX.

"In-service performance" – Ericsson's customers must be happy with the company's products, which must function like fault-free clockwork where every cog works perfectly. Photo: Bildhuset

Ericsson is a huge international company, with activities throughout the world and with products that take in just about everything in telecommunications. The branch is influenced in major part by general trends in society and by political decisions. At the same time enormous sums are laid out on research and development to introduce new products for the tele consumer of the future.

Work with ESP is a process that involves many in the company. For Business Area Public Telecommunications this job culminated at the end of June when the collective results of the year's work was presented to the corporate leadership in Ericsson.

ESP is built on the business units' business plans and on strategic issues that are common for the business area. In order to achieve a total picture each business unit draws up plans for the coming year. These plans are collected, discussed, reviewed and finally incorporated into the overall strategic plan for activities during the coming five years.

Moreover, new strategy issues that come up when activities change are also discussed. These can also incude assessment of current operations.

A major part of the contents of ESPis confidential. What competitor would not like to know what other companies in the branch are thinking of doing over the next five years?

In ESP information is collected on what investments will be made in the different product areas, which markets will be seen as especially important in the coming years, risks and critical issues.

Important issues in this year's plan

Every company must change to be able to live on. At Ericsson Telecom there have been a lot of changes in the last few years, and they have not finished yet. This is reflected in the ESP 1993, which determines where we are heading in the next five years.

Sometimes it can be difficult to sift through all the goals, targets and important areas. They all seem equally important. But there is a common denominator for everything – Business Area Public Telecommunications' business approach, which states:

"To obtain and develop profitable business for Ericsson, based on solutions and products in telecommunications, which allows operators of public telecommunications networks to succeed in their activities."

This means that we must both acquire new and develop existing business opportunities in such a way that is profitable for the entire business area in every situation. Even if the business idea pertains to BX it is also always important to have an Ericsson viewpoint.

The formula "solutions and products" strives to make us excel in the value chain. We must be able to describe and sell total solutions while at the same time we must in the future be able to sell parts of different "packages." In order to cover that void that can arise between presenting solutions and being able to produce all that they entail we will have to use collaboration partners.

We will turn to both new and old operators and customers in public telecommunications. The departure point will be the customers' own business activity.

Satisfied customers

A basic condition for all activity is that customers be satisfied. That's why quality and what they call "in-service performance" (how our products function when they are installed) are vital. Regardless of what resources we put into development, production and marketing, our products and systems must maintain a sufficiently high quality so that our customers are satisfied.

With regard to in-service performance major improvements have been made, but there are still competitors that are better than Ericsson. So there is a lot still to be done.

Streamlining

Increased price competition makes high demands for streamlining and shorter lead times in the company. Over the past years many projects were driven precisely to improve efficiency. Project 38/19 have reduced lead times from 38 to 19 weeks. FMP2 has cut lead times in the design process and GAS has meant a reduction of the number of applications for several markets.

What is needed now is to draw on these experiences in various projects and to acquire a general improvement in the organization.

Markets

In which markets is there the largest volume growth over the next few years?

Asia and Latin America are enjoying a rare economic upturn and are investing heavily in, among other things, telecommunications. Countries in these regions, for example China, has enormous potential and is only at the beginning of its developmental cycle. For Ericsson this means being there at the start. That's why BX is also investing in marketing in this part of the world – besides its investments in Europe and the U.S.

At the same time a lot of markets are changing. Operators are influenced to an ever greater degree today by business lines and they must be able to respond rapidly to new demands that arise in the market. Ericsson as supplier is naturally affected by the change. Demands along business lines are growing just as the need to understand local conditions and to support customers in finding new business opportunities. This is only possible if you work close to the customer. Hence increased efforts will be seen in local and regional activities to quickly seize new business opportunities.

Products

A guiding light for development of product portfolio will be to recognize the demands of the largest leading customers in Europe, the U.S. and Australia. This does not imply that other customers' demands are unimportant. The leading operators in many ways are pacesetters, and by satisfying them we can fulfill most of the demands from customers in general.

This means continued heavy investment in AXE 10, the transport network area and TMOS.

In addition there will be investments in a number of new areas: broadband, personal communications, as well as business support applications (that is to say a broadening of the TMOS area with applications, for example, for invoicing of telecom services).

The products and systems that Ericsson sells must be presented in the form of total solutions – a combination of products and systems. The idea is we must be able to describe how our products in various combinations can resolve major problems for the customer.

Continuous change

The change process, which began a year and a half ago, is not finished. There is still a lot of work to be done on streamlining activities. The next phase will be in the fall and it includes among other things:

- Business Unit roles will be made even more specific and will be developed to be more market-driven.
- Investments in marketing will continue.
- Collaboration between BU and Local Companies and demarcation will be clearly drawn.
- Streamlining and restructuring of activities on the product side will continue. This means, for example, working with moving products between factories to get greater totality. Core Unit Supply will also take on more responsibility for totality.

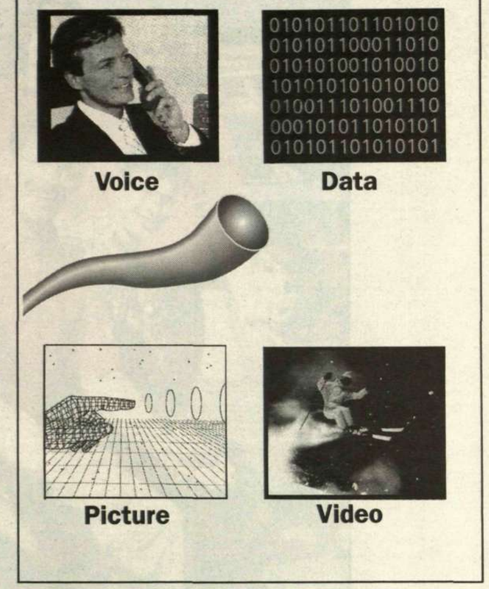
MKY model

As for competence development – also a prioritized area – a model called MKY has been developed. It will be more broadly implemented in the coming year.

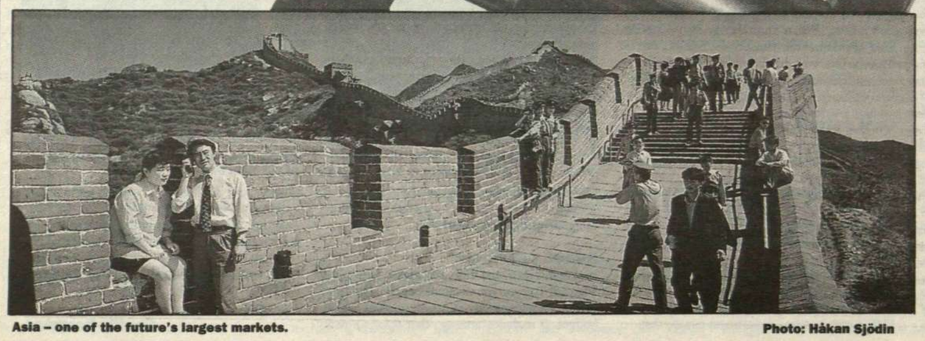
MKY stands for "Model for Competence Paths in Professional Categories." The aim is to stimulate competence development in the company. The model consists of a demand profile which allows you to measure competence levels of all employees.

The results can then permit measuring of competence levels of particular individuals throughout the company. This would also be used to determine career paths in all professional categories.

Helena Lidén



Broadband – a product of the future? Voice, computer, still image and video – are all there in one fiber.



Asia – one of the future's largest markets. Photo: Håkan Sjödin

With the facts in hand – the plan five years ago

How good is our strategy of looking into the crystal ball? To assess this we looked at ESP 1987-1988 and compared it with how things are five years later today.

Asia, above all China, has developed in a revolutionary way in recent years. In 1987-1988 ESP showed that demand in developing countries – especially Asia – was still weak but that there were signs that activity would increase by the end of the 80s. No one really thought that development would move so fast.

A traditional Ericsson markets, Spain, have had a different development. In 1987-1988 no volume reduction was foreseen here, but recession has forced Spain to cut back investments in telecommunications.

In Australia, during this period Ericsson had a market share of one hundred percent. Since then Australia decided to admit several suppliers, a development that led to Ericsson losing market share.

A positive event is developments in Britain, which at the time was seen as an interesting market. British Telecom, BT, then launched its investment in development of the tele network. Since then Ericsson has been running neck and neck and market share has increased significantly.

An even greater surprise during the period was developments in East Europe and present Russia. Everyone has known the enormous potential that exists in these countries. Thanks to revolutionary political changes, which meant that the East has come closer to the rest of Europe, interest in investing in telecomunications has grown considerably.

In 1987-1988 there were three product strategies that with results in hand were shown to be most closely perfect.

One of them was investment in the Intelligent Network, IN, which was being test installed in the U.S.

Several of the larger operators in Europe were also thinking of introducing IN. Ericsson's IN concept, known today as the AXE Service Script Concept, has proved to be remarkable in competition.

The second strategy was investment in what was called transswitching. Transport network has become very important. Thanks to Ericsson's investments in development in this area the company has been recognized as a more complete supplier of telecom equipment.

The third strategy involved the area of Network Operation Support. The thinking was to bring out a new generation of products. The result was the product family TMOS, an investment that proved to be just in time. Already five years back there were already thoughts of collaborating, or partnering, with other companies in this area, and this year Ericsson-Hewlett Packard Telecommunications began its work.

Other important issues in ESP 1987-1988 was streamlining of activities, shorter product cycles and a consolidation of product units in Sweden and abroad. This investment is seen as no less important today.

As for product portfolios, Ericsson's strategies were proved to be on the right track. Concerning developments in various markets it is not at all surprising that they were considerably harder to predict. How much different countries are prepared to invest in infrastructure, for example telecommunications, is closely linked to economic developments around the world. Not many have managed to escape the turbulent economic situation that has existed the past couple of years. That we can see today, with the facts in hand.

CONTACT

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

Insight is one of the three categories judged in barbershop singing contests. It is something that the guys in Entertain Men have. Top row from left: Pekka Kosonen, Jörgen Amnestål and Tolve Wiklund. Bottom row from left: Toni Neckar, Bengt Granlund and Christer Karlsson.

Colleagues sings out

The barbershop singers "The Entertain Men" performed on Ericsson day at the Stockholm Water Festival.

The chorus's fifty-five voices strong had no problem reaching the thousand listeners, despite unreliable microphones. The Entertain Men is not for nothing the Nordic barbershop champions.

Jörgen Amnestål, tenor and one of nine Ericsson employeesin the group, recalls:

"Leif Bölke from Ericsson, who as usual was in charge of an entertainment programme at the Water festival, contacted us and asked if we would sing. Naturally we wanted to. It was fun, fine weather and lots of people."

In the U.S. barbershop is a big area of competition and it is not unusual to have groups of 120 persons.

In Sweden there are 400 registered barbershop singers. Seven groups participated in the Nordic Barbershop championships, which took placce in Helsingborg in the spring.

It can be said that Barbershop was born when four barbers sang theme songs – bass, baritone, lead (which is the melody theme) and tenor – to entertain themselves and their customers while shaving. It began as the Barbershop Quartet. Today the groups are much bigger than that. Right now the Entertain Men are looking for voices for the Barbershop contest coming up in Pittsburgh., Pennsylvania, where the Nordic champs will be going next July. Today's group has 67 singers. The target is to reach 90 by contest time.

Women "barbershoppers" also

The Entertain Men was formed in 1979 as a breakout group from the Stockholm Barbershop Chorus, and as the name might indicate there are only males in the group.

"There are women choruses too, but we compete in two different categories. Female barbershop choruses have their own world organization. But we usually have a fall concert in October every year together with "Rönninge Show Chorus," a women's group.

Jörgen Amnestål himself began singing four years ago.

"It was an old classmate who kept on all the time about how much fun it is. So one Monday I accompanied him – and was hooked at once. It is divine to sing."

The chorus meets in a school auditorium every Monday evening and welcomes new members. For despite the championship title they are not competition-crazy before the world contest.

"We are happy if we knock out one or two groups," says Jörgen.

"Quite simply, the other groups are so much better at it. And the largest chorus taking part consists of 150 persons. That gives them a definite advantage."

Jörgen Amnestål has not posted up any notices at Ericsson.

"I try to attract singers by the word-of-mouth method," he says.

Stina Blomgren

END LINE

LARS-GÖRAN HEDIN

The future is a culture issue

During the spring Contact published a series on "The tele world of the future." In it we presented a number of visions on how tomorrow's telecommunications will look like and what relationships will impact the tele market.

In a field as competitive as the tele branch it is extremely important to be prepared well ahead for the coming changes. Companies of the future in the tele branch understand only too well the implications of this. Massive investments in technology development should assure us that our company would not lag behind when it comes to technical prominence. Customer concern which continues to drive the group's organization at all levels must be the best way of tackling change in the market.

Parallel with the necessary technological and organizational changes a success-oriented company must also take care of its "inner soul" – the corporate culture. Most of the really successful companies in the world are those that very early understood the significance of this.

Now that Ericsson on a broad front is going into TQM – Total Quality Management – the company's biggest investment must be in changing its internal culture. It is important to realize this. When we talk about TQM it is often a discussion about improvement projects and the well-known TQM-grids. There is a risk in that.

With all due respect, improvement projects and plans are important in moving activities forward. But they are really the "tip of the iceberg." What really keeps improvement work advancing in a company that succeeds with TQM is major efforts in precisely cultural changes. The best example is found in companies where all the top managers espouse TQM and really show their colleagues that TQM is their own "thing."

If leadership is the most important key in a future with TQM, "communication" is next.

We who work with communications therefore have a major task ahead of us. By observing and relaying the good examples from far and near we can help achieve a corporate culture that is aimed at eliminating all hindrances in Ericsson's way to being absolute tops in quality.

In the next issue of Contact we will be goining deeper into TQM. We will look into how another company managed to get the highest reward for quality efforts – the Malcolm Baldridge Quality Award. We will also look at how one of Ericsson's most important customers pursues its huge TQM commitment. It will be a full issue of corporate culture, within and without our own company.