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ERICSSON  PUBLICATION FOR EMPLOYEES WORLDWIDE

No.4 • MAY 1996

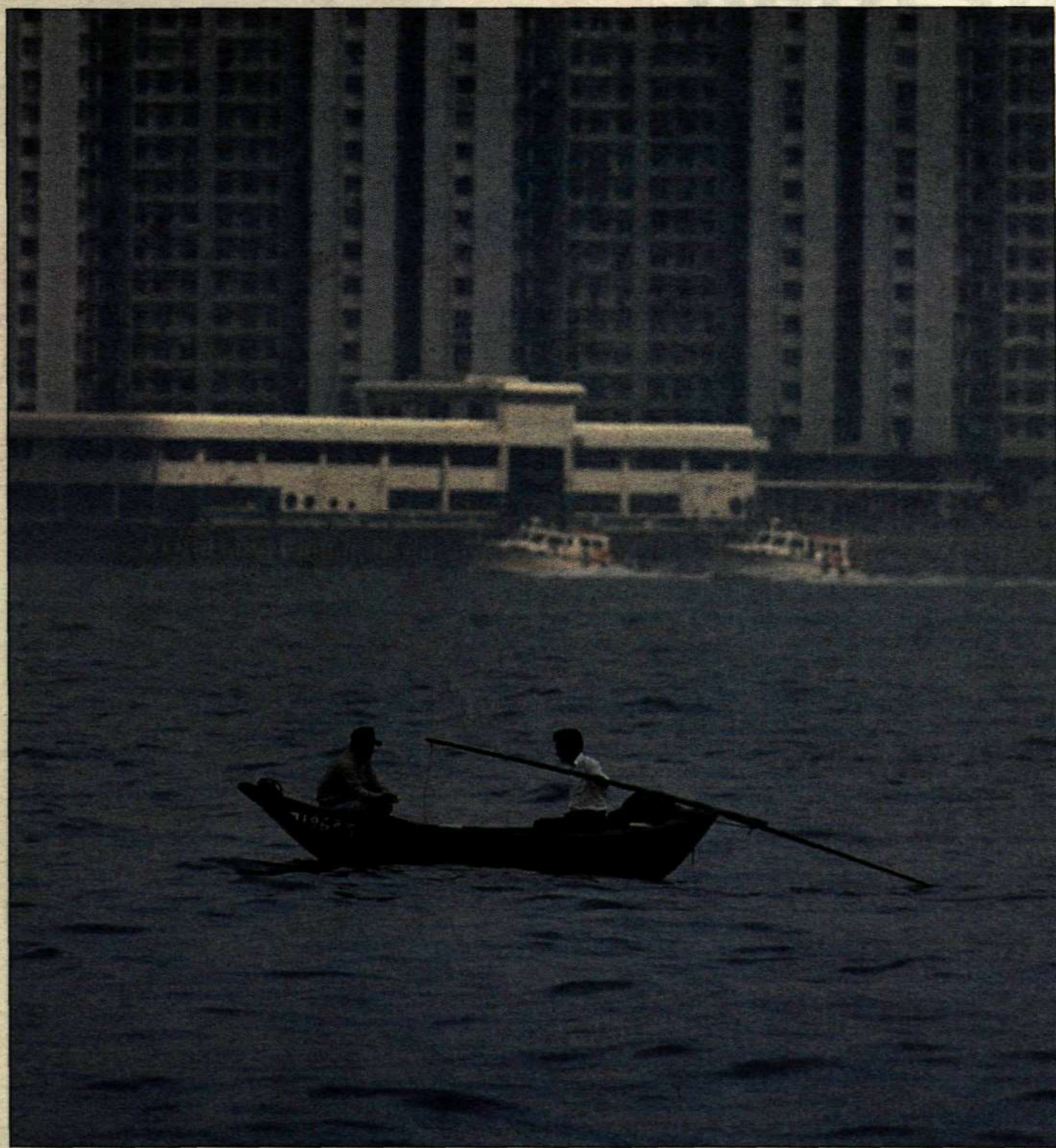


Foto: LARS ÅSTRÖM

Asia is heading for the new century

During 1995, Asia accounted for one-fifth of Ericsson's total sales, if Turkey and the Middle East are excluded. In the future, this part of the world will become even more important. As a result of fantastic economic progress in the area, the Asia-Pacific market is expected to account for more than one third of Ericsson's sales at the turn of the century.

PAGES 3, 16-19



Born 150 years ago

Lars Magnus Ericsson, the founder of Ericsson, was born 150 years ago. He was a self-made man who went from a job as a miner when he was 11 years old to become the Director of a company with 1,000 employees at the turn of the century.

PAGE 12

Successful ATM demo

The premier ATM-based broadband transmission of images and sound in a national network and over long geographical distances was recently completed by Ericsson.

PAGE 9

Summit in Kuala Lumpur

In the shade of the world's tallest buildings, the future strategy for Public Telecommunications was recently discussed in Kuala Lumpur, Malaysia.

PAGE 18

commentary

Ericsson is definitely a knowledge-intensive company. Unless it has the necessary knowledge and know-how, Ericsson will be unable to compete in the tough telecom market. This means that the qualifications and skills of our personnel are our most important asset, Britt Reigo, head of Corporate Function Human Resources and Organization, stresses. She believes that, today, Ericsson is more specifically focused on safeguarding and developing the competence of its staff than at any time in the past.



Concentrating on competence

1996 is a very special, red-letter year for Ericsson as regards the development of competence, in which the company is investing heavily. A joint, group-wide model for the development of skills and know-how has been drawn for all Ericsson operations, and an implementation program has been prepared.

This new competence model is based on experience from various parts of Ericsson. We have utilized the best features of previous practice to create a model which everyone will now be able to share. It is extremely important that we should all speak the same language when we discuss competence development. In a world-wide corporate enterprise like Ericsson, common concepts and approaches are essential in this context.

We can describe the new competence model as a triangle. Each side of the triangle represents a specific type of competence, encompassing a core of personal attributes. Each type of competence can be broken down into various subcomponents which, in combination, make up the whole.

Professional competence is one side of the triangle. This includes the know-how required to handle a specific assignment.

Human competence – another side of the triangle – is an aspect which has not previously been so heavily emphasized when describing an individual's overall competence. This is a matter of social skills and of how the individual works together with others, at a personal level or in a group. The ability to communicate is an important characteristic in this context.

Business competence is an overall, generic concept used to describe the characteristics depicted at the base of the triangle. Language skills, knowledge about Ericsson and customer orientation are part of this sphere of competence.

These three areas of competence form a framework around a core of individual characteristics which are not actively covered by the company's competence development program but which nonetheless play a major role in recruitment and promotion. Intellectual ability and self-esteem are examples of characteristics of this type.

One new feature of the competence model which we have now established is a clearer focus on human skills and business competence. We cannot develop Ericsson by simply concentrating on the development of our professional characteristics. We must also develop as human be-

ings. A good boss must also have highly-developed social skills, for example, and must be fully aware of the business prerequisites for Ericsson's operations.

Another new feature is the systematic approach which we are now using to steer Ericsson's competence development into critical and strategically important areas. We have established a process for achieving this.

The process starts with analysis of the requirements which we think Ericsson will be facing in the future. This includes customer and market needs, technological development, new telecom services and competition trends. This analysis results in the establishment of a number of future strategic or critical competences.

In parallel with this analysis of the future, there is also an analysis of the present situation. What competence profiles do we already have at Ericsson? What does Compass tell us about how the company works? What have we learnt from our TQM studies, and so on? Management planning and personal development interviews are other sources of information which can be used in this context. In this case, analysis produces a survey of the existing skills and competence in our operations.

The next stage, of course, will be to compare future requirements with the present situation, indicating what is lacking. This is expressed in terms of a "competence gap" which needs to be eliminated. This may be achieved in various ways – job rotation, personnel training, recruitment, organizational development, partnership, cooperation, the acquisition of other companies, etc.

During the year, analyses of this type will be carried out in all

the Major Local Companies and in our business sectors. Subsequently, the process will be part of corporate strategic planning, thus giving us an annual review on which competence development in Ericsson can be based.

These new tools, which will be shared throughout Ericsson – the competence model and the annual analysis process – will make us better equipped than ever before to ensure that Ericsson continues to be successful.

We must set our sights on ambitious targets. Ericsson must be able to adapt its competence in the face of constantly-shifting demand more successfully than any of its competitors.

We have already shown our success in managing change, and I am convinced that we will also be able to retain this competitive advantage in the future.

Ericsson must be able to adapt its competence to the shifting market demands

coming up

Exhibitions in which Ericsson is participating 1996

Ericsson is taking part in a great many exhibitions in the course of the year. This is an up-to-date summary:

- Korea: ExpoComm Wireless, May 9-12, LME/I Lars Bernring
- Russia: Expocom/Sviaz, Moscow, May 13-17, LME/I Christer Fall
- Philippines: Telecomex Asia, Manila, May 22-25, LME/I Christer Fall
- Singapore: Communicasia, June 4-7, LME/I Lars Bernring
- Brazil: Americas Telecom, Rio de Janeiro, June 10-15, LME/I Arne Johnson
- United States: SuperComm, Dallas, June 24-27, EUS J C Strickland
- South Africa: Comm. Africa, Midrand, July 9-13, LME/I Lars Bernring
- Indonesia: Intertelec 96, Djakarta, August 28-31, LME/I Christer Fall
- Bulgaria: Plovdiv-fair, September 23-28, LME/I Christer Fall
- United States: PCS 96, San Francisco, September 19-21, EUS
- Switzerland: Orbit, October 8-12, EAS
- Vietnam: Vietnam Telecom, Ho Chi Minh City, October 22-25, LME/I Christer Fall
- United States: Wireless World, Orlando FL, October 30-November 1, EUS
- China: Expo Comm China, Beijing, November 5-9, LME/I Lars Bernring ETC Rachel Xu
- India: Communications India, December 8-11, LME/I Christer Fall

We aim to make this list as complete as possible. If you have any questions or additional information about exhibitions in which Ericsson is participating, please contact Elsie Henriksson at Ericsson Events, memoid: LME.LMEELSIE, fax +46-8-7444282

Ericsson Events is part of the Ericsson Communications support unit, which is responsible for planning and implementing exhibitions and other events all over the world.

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+48 8 719 00 69, memo: LMEBING. Layout: Paues Media i Stockholm AB, phone +8 46 665 80 72

Printed at Adargo Press AB, Gothenburg, 1996. Advertising: Information and booking: Display AB phone +46 90 17 79 50

commentary

Many of the countries with the strongest economic growth in the world are located in Asia. It is a region that is also becoming increasingly important in the telecommunications field. Asian countries may account for a third of Ericsson's sales by the end of the century if the Company focuses on Asia in the right way. Efficient use of regional development and production resources and a strong focus on the development of local expertise are required, according to Bo Landin. With Hong Kong as a base, he has been management's representative in that part of the world for the past year.

We have to focus more on Asia!

“ In the beginning of the 1990s the Corporate Markets function conducted a study of Asia. At that time, Ericsson had between five and six percent of its sales in Asian countries, a figure that was projected to rise to 25 percent by the end of the century.

During the years since the study was made, economic growth and the growth of telecommunications have both exceeded the assumptions we made at that time. Accordingly we are talking about 30 percent as a realistic objective for our focus on Asia. The strategy announced recently by the Public Telecommunications Business Area is one example of the importance with which we regard this part of the world. Anders Igel also speaks of 30 percent of sales in Asia by the turn of the century as a target for his Business Area.

Enormous need

These figures are not Utopian. There is an enormous need for basic telephony in the Asian countries – China, India, Indonesia and Vietnam, for example – that have not come very far in their development in the telecommunications field. China will probably be the largest single telecommunications market within a few years.

But China does not need merely basic telephony. It is an increasingly important market for Ericsson's mobile telephone systems and it is also beginning to demand more and more advanced telecom services. So Asia can also be viewed as an example of the second aspect of the development of telecommunications in Asia. There are countries in the region whose telecommunications cultures are as well developed as those in the United States and Europe.

Japan, Malaysia and Singapore are examples of countries that are now demanding advanced technology and systems that permit new services.

Financing

Asia thus offers great opportunities for a telecom supplier like Ericsson but there are also risks that have to be taken into account. Financing problems constitute one such risk that is often stressed in connection with business in this part of the world. Financing is a problem in many cases, but one facing all suppliers, not just Ericsson. And we should also emphasize in this connection that many of the Asia countries display great maturity where financial policy is concerned.

I have in mind the countries that have had very high rates of economic growth and have at the same time kept domestic inflation under control. There are strong economic muscles in many parts of this region.

Trade barriers

Trade barriers are another political risk involved in doing business in many Asian countries. The region is characterized by high import duties that are making it necessary for Ericsson to consider local production of both hardware and software.

It may be difficult to combine this with the Company's general objective of optimizing its production resources but it should be possible to find ways to deal with the problem.

One way would be to adapt Ericsson's operations to the different trading blocs. In the case of Asia, this would mean, for example, regional optimization of our production and development resources within the boundaries of the ASEAN, the Southeast Asian trading block.

Must be more visible

More than 100 years have passed since Ericsson began to do business in Asia. Most often business has been transacted in a monopoly environment in which there was a need to be known as a leading supplier by only a handful of decision-makers in each country. Today the situation is entirely different, in Asia as well as other regions,

Ericsson today has many large customers in each country. Public opinion is an increasingly important factor in doing business. Moreover, we are now selling pocket telephones directly to end-users – and this is an important part of

business in Asia today. These factors combined are making it highly necessary to make Ericsson better known in these countries.

As in many other countries today, mobile telephones have to do most of the job of gaining recognition for Ericsson. But advertisements and promotional videos for telephones have to be supplemented with other messages – messages about Ericsson's strength as a system supplier of both mobile and fixed-wire networks. It particularly important that the company be known in financial circles in order to facilitate the financing of future projects.

The company managers in the region decided recently to invest in an Asian public relations campaign to build an image for Ericsson. This was a wise decision that can mean a great deal for the Group's future business opportunities.

Skills development

Finally, let me point out another challenge for Ericsson in Asia – and in other parts of the world, too, for that matter. It is the need to reduce the number of so-called expatriates, the experts and managers from countries outside Asia. There is a need for strong action to hasten and support the development of local skills and to recruit local managers and potential managers.

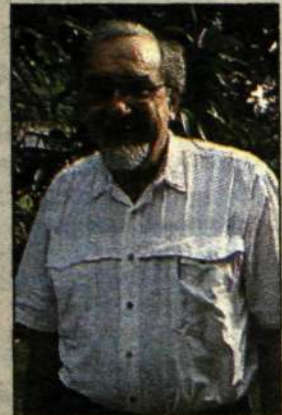
I recently visited an Ericsson Management Program where managers were being trained in China. There was only one Chinese among the managerial candidates who had been selected to take the course. There is a need for improvement in this area.

The Ericsson World Program, an activity designed to identify young persons who can be developed as managerial candidates, represents a good initiative that will certainly be of major importance in recruiting managers in the years ahead. It was gratifying to see that a number of Asians were participating in the first program, which is being conducted by the Ericsson Management Institute (EMI). They are the ones who hold the promise of the future for the Asian companies!

Bo Landin

background

Supporting the Asian business



Bo Landin is Corporate Management's representative in the most expansive part of Ericsson's world. His "home base" is in Hong Kong.

A Corporate office for the Asia Pacific area was established in Hongkong last summer. Bo Landin, Senior Vice President – Corporate Markets, was assigned to serve as Management's representative in that expanding part of the world. At the first of the year Bo left his marketing position at the Head Office to concentrate more fully on his important new role.

His job is to provide strong, focused support for the growth of Ericsson's business and other activities in the Company's fast-expanding market region. This involves being available when important business require the presence of a representative of Ericsson's top management – and being the spokesman for the region in dealings with management back home in Sweden.

Board member

"In practice, this means that I serve on the boards of directors of a number of the Asian companies – in China, Korea and Vietnam, for example," Bo says. "I am also a member of a new steering group for Ericsson in Japan. So I travel a great deal within the area in order to maintain the best possible contacts with our companies out here."

Bo emphasizes that his assignment does not involve any change in Ericsson's operating procedures in the local companies. It does not, for example, affect the ways in which the companies report to Sweden. His job is to provide support for the companies in business and organizational matters as well as project financing, the development of managers, quality control programs and the like.

"I work closely with my colleagues in the Corporate functions in Sweden," Bo explains. "This involves, in particular, the important function of supporting the development of local expertise, an area in which Britt Reigo and her department have a key role."

Working close together

"And I naturally work closely with the Corporate Markets function. Bengt Forsberg, my successor, has many years of experience working in Southeast Asia, and that further strengthens Ericsson's activities in Asia. My role is to supplement the marketing function at the local level."

His duties in Asia do not mean that Bo has given up all his European assignments. He still has some – including serving on the boards of directors in Italy and Ireland, as well as on the boards of the Radio Communications and Business Networks business areas.

"I spend about 10 percent of my working time in Sweden, 25 percent in Hongkong and the rest of the time traveling," Bo says. "The great advantage of being based in Hongkong has to do with trips in the area. Even if Jakarta and Seoul are far apart, they are still in the same time zone. "I now have to deal with a time difference of a couple of hours, at the most, instead of the eight to ten hours that was often the case when I made trips from Sweden."

LARS-GÖRAN HEDIN

Big effort needed to make a small phone

Ericsson's new GH388 mobile telephone, which was introduced a few weeks ago at the CeBIT exhibition, is the tangible result of one and a half years' work on the part of some 55 employees at Ericsson Mobile Communications in Lund and Kumla, Sweden.

From the outside, the GH388 shows few changes — the real news is on the inside.

"The previous model, the GH337, contained two circuit boards, whereas the new model has only one. Technically that's a major step," says Dan Rylander, who head mobile phone R&D and was the technical manager for the GH388 development project. Placing the new phone beside the GH337 reveals that it is 3 mm thinner.

"In comparison with the competition, Ericsson is in the lead, because no one else uses as little silicon as we do," Dan notes.

The new phone means an even greater degree of automation at the Kumla plant, which in turn lowers manufacturing costs. A new production method is developed for each new phone, which is a necessity for continuing to reduce manufacturing costs.

New equipment

Investment have also been made in the Kumla plant for new equipment for increased automation. The industry trend is toward new phone models each year, just like cars.

Although the technical innovations in the new phone are "under the hood," it distinguishes itself from its predecessors in

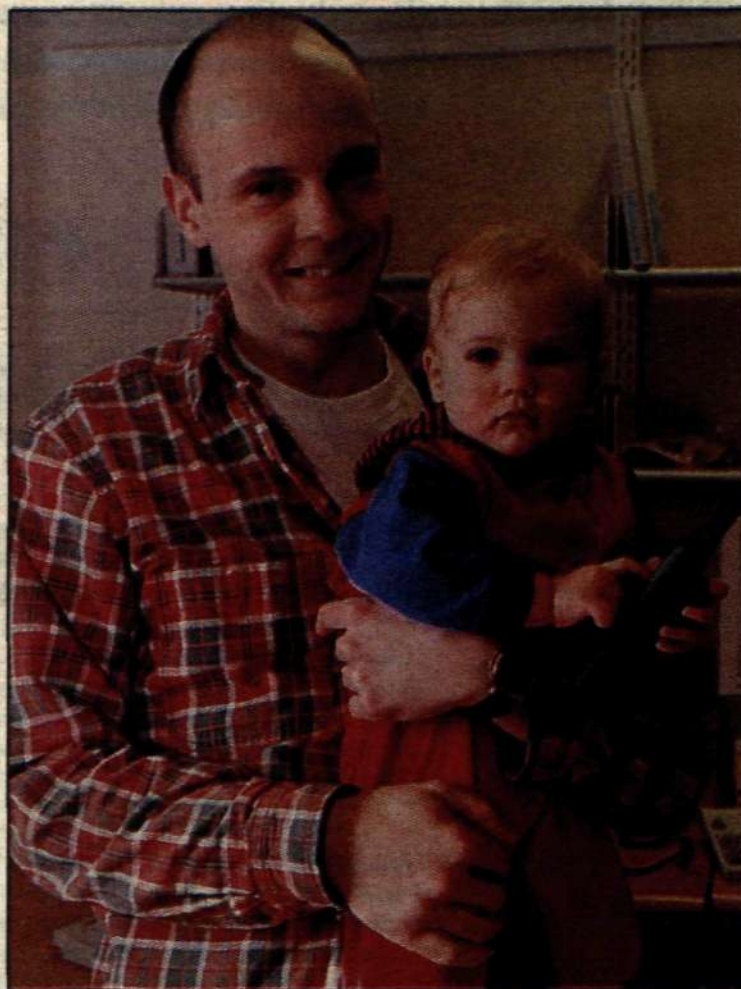
several ways that are immediately apparent to users. The new display, for example, is more legible. Operating time has been increased, and the phone is lighter. The new phone also has more data functions, a much requested improvement.

Start in autumn 1994

The development project for the new GH388 and a simpler version called the GA318, which was also launched at CeBIT, began in October 1994. Prior to that, a three-month pre-study had been conducted.

"A total of about 55 people worked full time on the project, 40 here in Lund and about 15 at the plant in Kumla," relates Johan Frogner, who was the project manager. The project consisted of seven sub-projects for mechanical design, data logic, radio, software, production, purchasing and documentation.

"For most of us here in Lund, the job is finished. We are now involved in new development projects, focusing on the 1997 phones, for example. Some of the project members in Kumla, however, continue to concentrate on optimization of production. It



Ericsson's smallest phone, the GH388, is examined by Sofie Hellmark. Her father Martin was one of the developers of the radio subsystem in the new phone.

really is a case of mass production. Over the next year, millions of phones will be manufactured. Trimming a new product and new equipment is a lot of work, but it pays off in the long run," says Johan.

Ericsson Mobile Communications in Lund and Kumla are not the only units contributing to the new phones. The plastic case comes from Ericsson Telecom's plant in Kristianstad. The circuit boards are supplied by the Ericsson Radio Systems circuit board plant in Kumla, and Ericsson Components naturally plays a central role.

Many tests

The first step in creating a new phone model is a design proposal from an industrial designer. The design, which includes color and form, is considered by a design council, of which Ericsson Mobile Communication's president Johan Siberg is the chairman. When a functional prototype has been produced, it is tested by the

design engineers. As the prototype progresses towards a finished product, it is tested by a large number of persons, including people from the company's marketing and sales organizations.

Among the so-called "friendly users," there were also representatives from the three Swedish mobile telephone operators. The phones were even tested in the U.K and Malaysia. Everyone involved in the test completes a test protocol in which their opinions are recorded.

"Developing the GH388 was a lot of work but it was fun. This autumn, in particular, was challenging, because all the pieces had to fall into place," say Johan and Dan, both of whom are already involved in new projects. Of course they are working on new telephones, but they refuse to reveal any details.

"You'll have to wait until CeBIT 97," they say with a laugh.

GUNILLA TAMM



Part of the development team behind the new mobile phone. Standing from left: Martin Hellmark, Lennart Nordström, Hans Stattin, Bo Ekdahl, Dan Rylander, Johan Frogner and Fredrik Palmqvist. Seated from left: Göran Pehrson, Regina Johannesson and Anne-Lott Hedberg.

Japanese add-on order worth SEK 577 m.

Ericsson has received an add-on order for expansion of the PDC (Personal Digital Cellular) mobile telephone network operated by Tokyo Digital Phone (TDP). Subscriber growth in TDP's network has been rapid in recent months, and the operator has therefore ordered new AXE switches and base stations, as well as new software functions.

Delivery will take place during 1996. The total value is SEK 577 m. (JPY 9 m).

Both capacity and security will be increased with the installation of new switches. A new control center will also be installed toward the end of the year.

Ericsson is the system supplier for six different mobile telephone operators in Japan.

Three local companies have been established in the country. These are a joint venture with Toshiba, a wholly owned subsidiary and Ericsson Mobile Communications Japan.

Today there are nine million mobile telephone subscribers in Japan. By the turn of the century, this figure will exceed 30 million. The majority are expected to use digital systems.

New vice president at Microwave Systems

Major General Svante Bergh was recently appointed Vice President at Ericsson Microwave Systems. Bergh will head the Defense Electronics business unit.

Svante Bergh has held the rank of Major General since 1992. Before joining Ericsson, he served at the Swedish Defense Department.

news

D-AMPS starts in Puerto Rico

Ericsson has now placed a digital D-AMPS cellular phone network in operation in Puerto Rico. The total order value was SEK 67 million (USD 10 m), but this sum also includes an add-on order for the analog AMPS system. The purchaser is the Puerto Rico Telephone Co. (PRTC).

With D-AMPS PRTC will be able to offer PCS services this summer on the 800 MHz band.

The capacity of the Puerto Rican D-AMPS system is about 10,000 subscribers. There are a total of about 170,000 subscribers in the country. Today three are over two million subscribers in digital D-AMPS networks. There are more than 42 million subscribers in analog AMPS networks, of which Ericsson equipment serves more than 17 million.

Ericsson now sole owner of Orbitel

In January 1991, Ericsson acquired half of the British mobile telephone supplier Orbitel. Ericsson has now reached an agreement with the Vodafone Group to acquire the outstanding shares.

Orbitel designs, develops and markets mobile telephone products, including both pocket phones and systems equipment. The company is profitable and has some 1,100 employees. Operations will continue under the name Orbitel Mobile Communications.

Vodafone has concentrated its operations to services, and the sale of production operations is thus a natural step.

Kyrgyzstan is 114th AXE country

A contract valued at SEK 80 million (USD 12 m) was recently signed with Kyrgyz Telecom in Kyrgyzstan. This makes Kyrgyzstan the 114th country to which Ericsson has supplied AXE equipment.

The order will mean an expansion and modernization of the public telephone network in Kyrgyzstan. The equipment is scheduled to be taken into operation in November of this year.

Kyrgyzstan, which has been an independent country since 1991, has a population of 4.5 million. The country borders on China, Kazakhstan, Uzbekistan and Tajikistan and is one of the world's most mountainous countries.

Use of PROPS on the rise

PROPS is by far the project method most often chosen within Ericsson. The method has also been sold to several external customers, both in and outside Sweden. Today, 45 people are employed at Ericsson Infocom Consultants with PROPS development, training and with various services.

"Just six months ago, only eight of us were busy with this project. The unit has experienced truly explosive growth," according to Peter Witt, product leader for the PROPS method.

Ericsson Infocom Consultants was formerly a part of Public Telecommunications but is now a Radio Communications company.

"It doesn't matter so much which business area we belong to formally. What we work with has corporation-wide application," says Peter Witt. "And we have overall responsibility for PROPS within Ericsson."

There are certainly many who have heard of PROPS. A total of 15,000 persons have been trained through one of the various PROPS programs.

Simply stated, PROPS is a method of supporting an organization's, or a company's, capability of attaining goals in project form.

"It is a matter of providing a simplified method of project management with a common terminology and clear-cut roles. If work is conducted according to PROPS, all members



It is important to have common international terminology to carry through a project. PROPS offers a method within Ericsson of conducting project activities. Illustration: Lars Eklund

of the project group know what is expected of them," Peter Witt continues.

The method is relatively general in application and can be utilized for a wide range of different project types. This is clearly the case when observing that Ericsson sold the method to several other companies, both in and outside Sweden. Companies such as Telia have bought it and adapted it to their requirements.

Listen to the user

It was during the development of AXE 10 at Ericsson Telecom during 1987-1992 that the method was formulated. It was developed and refined until 1994 and last year made the

transition to a corporate-wide method.

"PROPS is being constantly improved through our listening to comments and requirements from users. At present, we are focusing on the project-planning aspect," Peter Witt explains.

PROPS has relevance for anyone coming in contact with, or who works with, projects. Ericsson's operations are conducted overwhelmingly in project form.

Today, PROPS is a protected trademark. There is no requirement that all Ericsson projects use PROPS, though actually there is no alternative. Ericsson's quality goals stipulate that a project control method be employed.

This means PROPS.

Half of the unit working with PROPS is located in Karlstad, with the other half in Kista, near Stockholm.

In addition to the 45 persons in the unit, there are in excess of 100 PROPS consultants in 50 companies in 24 countries. These function in a kind of ambassador role on behalf of the method. As the representative within their local organization, they are responsible for PROPS being utilized effectively within the respective organization.

"So you can really say that we amount to more than 145 persons who actively work with PROPS," says Peter Witt.

PATRIK LINDÉN

Ericsson Australia appointed Premium Dealer by Telstra

Telstra has appointed Ericsson Australia as Australia's first Premium Dealer for the sale of both mobile and fixed Telstra network services.

The appointment provides a significant expansion of Telstra's research into the small to medium-sized business market through Ericsson Australia's nationwide network of dealerships.

The privately-owned dealerships, known as Ericsson Business Phone Centres, will sell exclusively Telstra network services. Products sold by Ericsson Business Phone Centres will, under the new partnership agreements, be offered in a total package that includes connection to Telstra's services.

The decision to offer Telstra services exclusively will, according to Ericsson Australia's Business Systems National Distribution Manager, Tim Boucaut, bring substantial benefits to Australian business.

"We strive to offer complete communications solutions to Australian businesses, and this agreement will help in meeting the total needs of our customers. In addition, the agreement that we have entered into will enable businesses to fast-track in their decision making when it comes to choos-

ing from the numerous services offered by Telstra," according to Tim Boucaut.

"In the past, customers bought their products from Ericsson, and then made separate arrangements in selecting the network services that they felt would be suited to their business needs. As a National Premium Dealer for both MobileNet and Fixed Network, our dealers have an intimate knowledge of every Telstra service that is available. As a result, we are now able to put together a communications solution that is complete in every sense of the word. Customers are able to rely on the knowledge of Ericsson Dealers to advise them on any of the myriad of services, and to arrange connection to those services. These range from straightforward connection, to obtaining FreeFax, FaxStream, MessageBank, ConferLink, Freecall 1800 services, an ISDN link, selecting relevant call plans, and so on."

"In our experience, businesses need this expert advice to cut through what might otherwise seem a confusing array of options, and they can now turn to Ericsson for not only product assistance, but also service assistance. Our advice will enable businesses to achieve maximum communications efficiency and cost advantage", Tim Boucaut concludes.



New joint venture in China

ERICSSON AND SIMTEK in Shanghai have established a 51-49 percent joint venture for the manufacture of microelectronic products for the telecom industry.

Shanghai Ericsson Simtek Electronics Company Ltd will have about 50 employees at year-end 1996, with registered capital of USD 5 million. Production will begin in November this year, with the product line to consist of line-card modules and DC/DC transformers. These products are already used in transmission and switching equipment in the Chinese market.

"The strong trend in China's telecom industry will result in a pressing need for microelectronic components and, we can see that the market for the new company will develop very strongly," says Bert Jeppson, who heads the Components Business Area.

"The new company has excellent prospects of supplying Chinese industry with components, since it is based on Ericsson technology and is experienced in the Chinese market.

INGER BJÖRKLIND BENGTSOON

news

Expansion contract in Thailand

Ericsson signed a contract with the Thai network operator Advanced Info Services (AIS) valued at SEK 700 million covering further expansion of the NMT 9000 and GSM networks. The contract is for switches and base stations for the networks.

Intelligence to China

Guandong's post and telecom administration have signed a contract with Ericsson for delivery of intelligent networks to Guandong Province in southeastern China (formerly Canton Province). This is an important breakthrough since this is Ericsson's first contract for intelligent networks in the rapidly growing market for fixed-line public networks in China.

Chinese record

Ericsson has been contracted to deliver equipment valued at SEK 837 million for expansion of the GSM network in Liaoning Province. This is a record order for Ericsson in northern China. After the expansion, the network will serve more than 800,000 subscribers. Deliveries are scheduled to begin this year.

Ericsson to deliver PCS to Omnipoint

During a five-year period, Ericsson will deliver mobile radio equipment, radio base stations and peripheral services for IS-661 and PCS 1900 technologies. The order, valued at SEK 2.3 billion, is to the American telecom company Omnipoint. In addition to this contract, mobile telephones valued at SEK 670 million will be delivered.

Mobile expansion in Japan

Ericsson recently signed an agreement to deliver switching and radio base station equipment to Japan for SEK 565 million. The equipment was ordered by the Japanese telecom operator Central Japan Digital Phone (CDP) which ordered the equipment to meet the anticipated stream of subscribers next year.

Near the end of March, Dallas was the center of everybody's interest in the strongly expansive American mobile telephone industry, when CTIA held its annual congress and exhibition there. Ericsson was on the spot with a display stand that attracted a large number of visitors.

Successful new stand concept

Ericsson was "Talk of the town" at Wireless '96 in Dallas

In September 1995, the number of mobile telephone subscribers in the U.S. surpassed 30 million, which is only about 11 percent of the country's 265 million inhabitants. Optimistic forecasts project a mobile telephone density of 50 percent by the turn of the century, a target level that seems increasingly realistic. A visit to Wireless '96, the annual congress and exhibition arranged by the Cellular Telecommunications Industry Association (CTIA), was convincing: radio-based telephony is BIG in the U.S.!

CTIA is an internationally oriented organization with more than 700 members that include companies and other interested parties in the mobile industry that have been affiliated with the American CTIA since 1984. A large part of CTIA's work is focused on lobbying activities among organizations that set the framework for mobile telephony in the U.S. — with particular emphasis on the U.S. Congress and the Federal Communications Commission (FCC).

Since its first year in 1984, CTIA has organized a "Wireless" exhibition in conjunction with its annual congress. The growth of the exhibition has paralleled expansion in the industry it represents and reflects. Wireless '96, accordingly, was the largest exhibition yet, with about 550 displays by different companies and organizations at the Dallas Congress Hall, the focal point of the congress and exhibition.

The number of visitors is not as great as numbers attracted by various exhibitions in Europe. Included among the 20,000 visitors to Wireless '96, however, was virtually everybody who is anybody in the industry, and virtually everybody with any influence, not just in the U.S. but on both American continents.

Talk of the town

In preparation for this year's exhibition, Ericsson's American companies had mustered all available resources. The basis of Ericsson's special efforts at Wireless '96 was the Company's position as a world leader in mobile telephony. This was a matter of strengthening positions in the ongoing struggle for deliveries to the new PCS system. Under the theme "Talk of the town," Ericsson broadcast the following message: "Many people talk about PCS, but we are the only company that has built a commercial network."

Ericsson display panels could be seen high and low throughout Dallas and around the exhibition area. And right in the center of the exhibition hall was Ericsson's own city. The entire display stand was designed as a Texas city, with shops and stores, bell towers, cinemas and all. In an unusually instructive manner, the exhibition showed how Ericsson products can be used. A Coca Cola dispensing machine, for example, was hooked up via a Mobitex system to keep the distributor informed of consumption of the American national drink. And there were several small shops in which management personnel demonstrated the many different system solutions offered to mobile operators by Ericsson.

Well attended

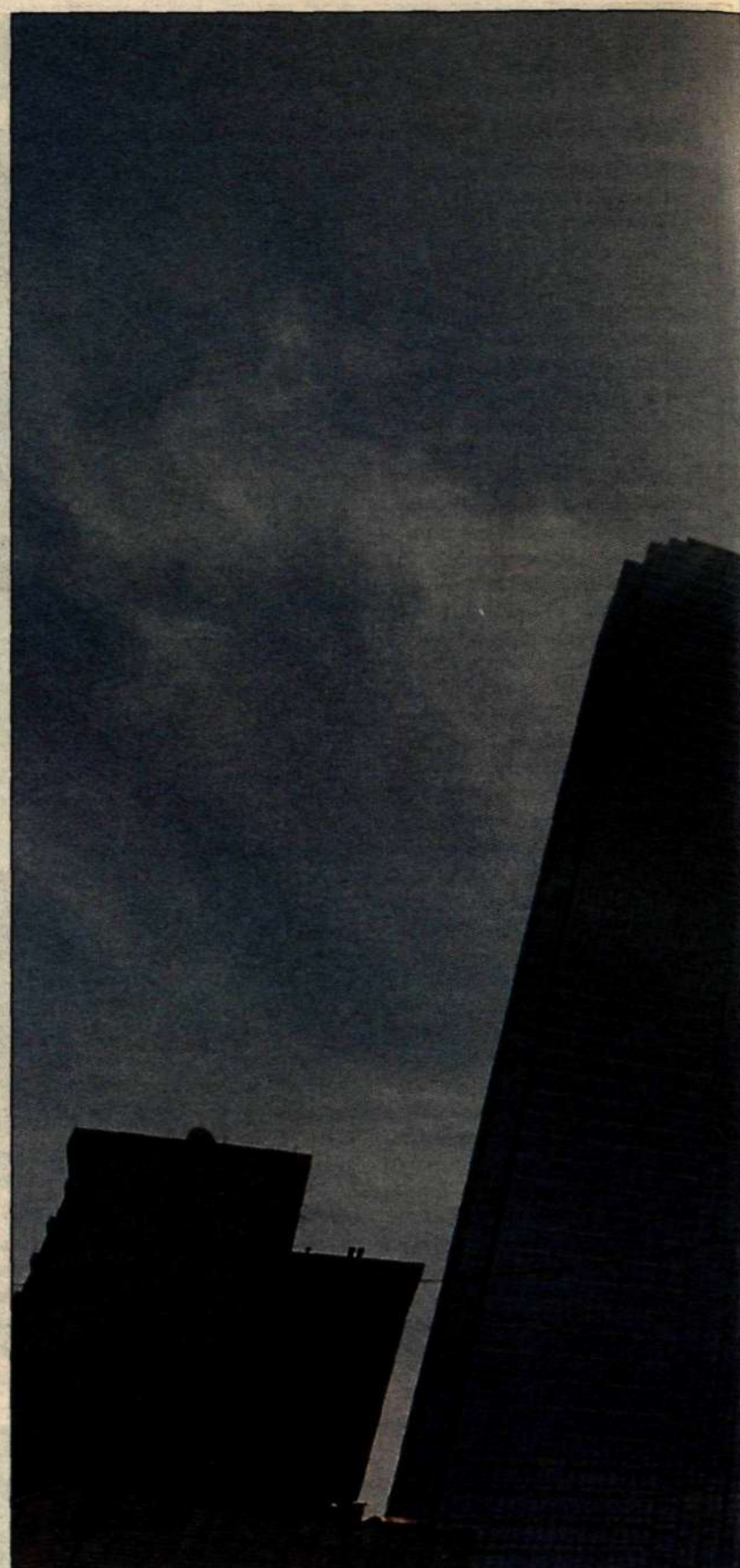
The exhibition stands of Ericsson competitors were by no means smaller but it was clear that many of the visitors to Wireless '96 felt more comfortable at Ericsson's display stand. The café in the square of Ericsson City was always crowded. Lines were long at the coffee machine which produced what virtually everybody said was the best cup of coffee in town. The cinema played to one full house after another with its spectacular shows around a rotating theatre. Video, still pictures and a stage with live actors and actresses complemented each other in the cinema.

Tough fight

Nobody at Wireless '96 could avoid the hottest mobile telephony question in the U.S. today: Will it be TDMA or CDMA? TDMA stands for Time Division Multiple Access, the technology on which GSM, DECT, D-AMPS and other standards are based. CDMA, Code Division Multiple Access, is an American technology that has entered the battle against the "European" TDMA. Of all the large suppliers, Ericsson is spearheading the drive by TDMA advocates. The North American players — Nortel, AT&T and Motorola — introduced CDMA as an alternative solution, with Qualcomm's enthusiastic support. Qualcomm is the company that has developed most of the technology related to CDMA. Wireless '96 also pushed the company's CDMA pocket telephones at the exhibition.

Nokia helped Ericsson with the TDMA argumentation, but also stated that it has worked with the CDMA technology for several years. Alcatel kept a low profile at Wireless '96 and Contact never even saw a trace of Siemens at the exhibition.

LARS-GÖRAN HEDIN



In various places all over Dallas, on cars and billboards, Ericsson's theme at Wireless '96 could be seen: "We've got Dallas talking." A



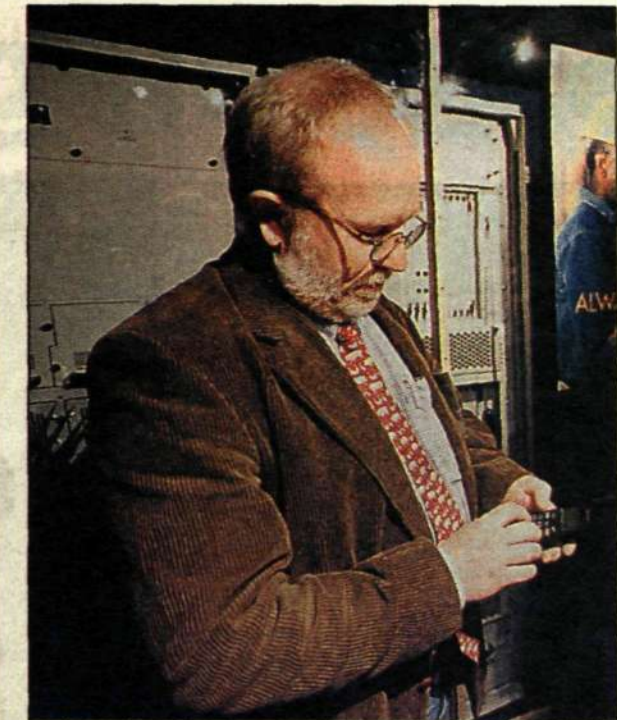
When visitors entered the Ericsson stand at Wireless '96, they found themselves in an exciting city atmosphere where Ericsson's products were displayed in various shops and stores, coffee was served at a café on the square and a highly professional show was performed in the cinema.



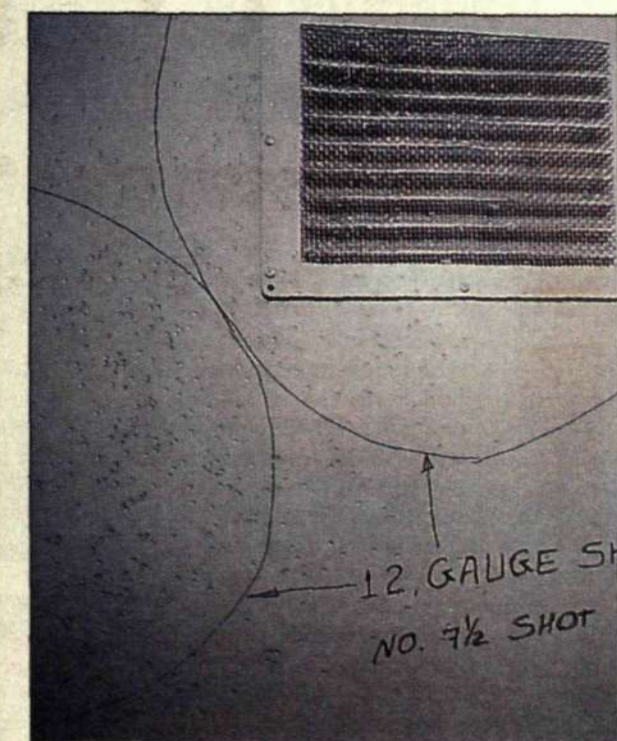
highly visible and clearly defined message in the city where many visitors to Wireless '96 were talking about Ericsson's display stand. In addition, the largest mobile telephone system in Dallas was installed by Ericsson.



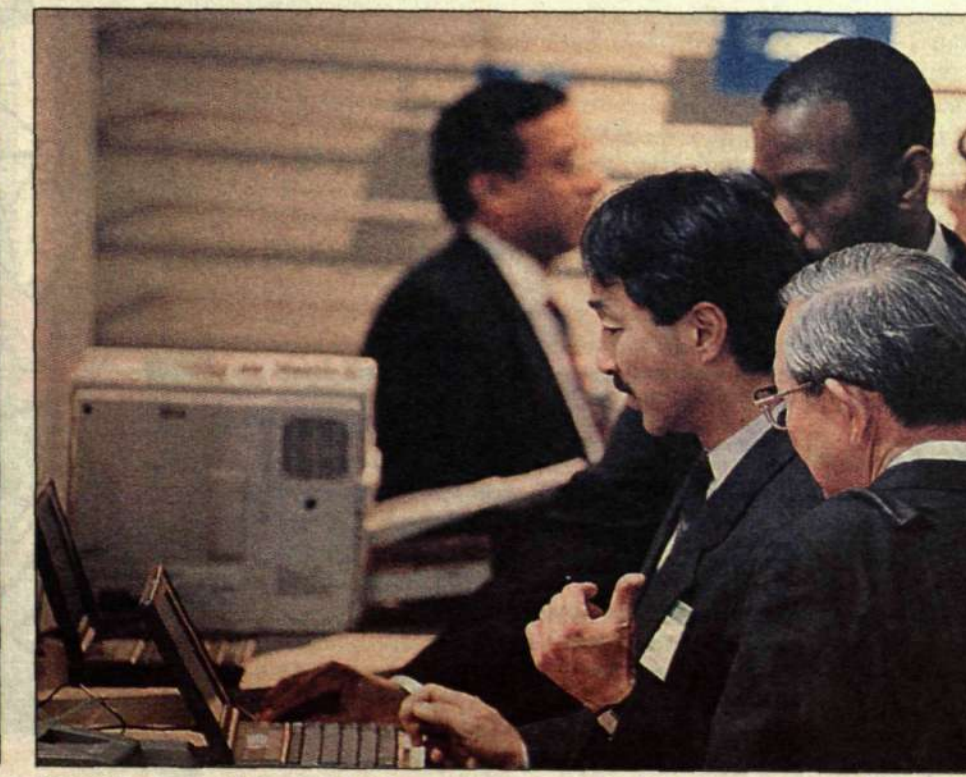
Coffee served on the "square" in the heart of Ericsson's display stand was a popular meeting place during Wireless '96. Lines of waiting people gathered at the magnificent brass coffee machine. Many agreed that Ericsson served the best coffee at the exhibition, just another way of making a favorable impression on the American market.



CDMA advocates made a big show of the pocket telephones developed by Qualcomm. Its functionality at the exhibition, at least, was attested to by this journalist during a test call to Sweden.



Growing and widespread violence in many large American cities has placed special demands on mobile telephone equipment. When Lucent Technologies, formerly Bell Labs, displayed CDMA base stations, they also showed the results of bullet-proof tests. A sawed-off shotgun can't hurt a CDMA casing, was the message.



Around town in "Ericsson City," practical examples of what Ericsson products can do were shown to interested visitors. Mobile data communications from PCs represented one of the most interesting displays. It included equipment and software for communications via Mobitex.

Photos: LARS ÅSTRÖM

Speeding up mobile nets

Ericsson has now begun to develop the foundation stones for high-capacity networks for mobile telephony of the future. Better radio transmission and advanced ATM technology for the transport network are the two key features that will give mobile users the same high performance available in the fixed-wire network in terms of quality, working in the Internet, linking mobile video conferences, full access to data bases, and other services.

ATM technology, improved radio transmission are keys to higher speed

A new mobile telephone project – WCS (Wideband Cellular System) – has grown very rapidly since it was started last December. The project is being conducted by the strategic-product-development unit formed recently in the Radio Communications Business Area. The unit currently consists of 150 persons.

The project can be described as the implementation of research conducted for a number of years in Radio Communications' central research unit. It involves developing wideband radio that strengthens today's digital systems and can constitute the base for new access technology. The work is well in the forefront of programs in this area and some services and technical solutions are still in the development stage.

Enthusiasm

"We have been successful in bringing together people who have broad experience in mobile telephony and it is gratifying to see the enthusiasm with which the current studies are being conducted," says Lars Cronfalk, the senior project manager.

The project is being supervised from Kista but one of the subprojects – pertaining to the transport network – is located in Nacka Strand. The project has three main parts:

- (1) Design of a base station for wideband transmission
- (2) Creation of a Radio Network Control system, and
- (3) Development of an advanced transport network based on ATM technology.

Better base stations

The total system is being designed to be as "generic" as possible. It should be compatible with today's leading digital mobile telephony standards – GSM, D-AMPS and PDC (Japan) – and capable of supporting future technologies for radio access. All the work is being done in cooperation with the business unit that develops terminals for mobile communications.

The group in Kista is working on base stations, network control and system matters.

"Our job is to develop radio base stations that can handle high transmission speeds and which are more compact and



"We have succeeded in bringing together people with broad experience in developing mobile telephony, which will be critically important for the project," says senior project manager Lars Cronfalk.

Photo: Anders Anjou

cost-effective than present stations," says Ingemar Sohlman, who is responsible for system engineering of the stations.

Standard solutions

"A great deal of compression and advanced signal processing will be involved. We will work with standard solutions that can be applied in all our systems and which will be able to offer new services for users – for example, the ability to receive images and gain access to the Internet."

"We have a tough job ahead of us."

In the first stage of the project engineers are dealing with wideband – approximately 100 kilobits per second – and will later work with even higher bandwidths. But new forms of modulation will then be needed and the project group will have to test new access technologies.

Test system

Per Vollmer, who is responsible for signal processing, says that his group is actively engaged in optimizing the signal-

processing algorithms required for the system.

In Nacka, south of Stockholm, about 80 persons are working on ATM (Asynchronous Transfer Mode, a digital packeting technology for sound, images, data, video, etc.) that is being planned for use in

the link between the mobile switch and the radio base station. The specifications – defining what the system should be able to do – have been completed and technicians are now engaged in project planning.

"Our goal is to produce a test system during the coming year," says Gunnar Nilsson, a senior project manager. He notes that his group is working in accordance with an "incremental-development" model. Essentially, this means that the system is being developed in small stages. A small "core" is constructed first. Then, when the developers are sure that it works, new functions are added successively.

Results faster

"This way of working is very stimulating," says Åsa Dahlberg, project manager responsible for the traffic functions in the system. "It yields results faster and makes it possible to conduct tests before we develop the commercial product. In my subproject we have to have our first prototype ready in August this year. We will then have to test certain circuits to be sure that we are on the right track."

The activities noted above are only a few examples of a major Ericsson project that is now under way and which will not end until some time after the turn of the century.



Mobile telephony will now become broadband, offering the same high quality and performance available in fixed-wire telecom networks.

Illustration: Ulrika Andersson

LARS CEDERQUIST

ATM from coast to coast

The first broadband transmission of images and sound over a long distance, using ATM (Asynchronous Transfer Mode) technology, was carried out in mid-April. The world premiere took place in Mölndal before an invited audience that was able to view video and sound transmissions at 30 megabits per second in real time between Kista and Ericsson Telecom's facilities in Mölndal.

The successful project was made possible by unique cooperation involving Ericsson Telecom, Telia, Hewlett-Packard, Chalmers Institute of Technology and SISU and SICS, two research institutions in which Ericsson has interests.

"This would never have been possible if we had not had the cooperation of these strong partners who, combined, represent substantial expertise in the telecommunications and data field," says Leif Henriksson, who represents Ericsson in the joint venture and is responsible for Telecom's installations in Mölndal.

The ATM broadband transmission project is code-named CHESTS, with each of the participants (Chalmers, Hewlett-Packard, Ericsson, SISU, Telia and SICS) contributing a letter to the name.

Leif Henriksson noted that relations between Telia and Ericsson Telecom had improved as a result of the cooperation. Earlier, there had been a number of problems.

Worked as a team

"We worked together as a team and the project was rewarding for all parties," he says. "Many people said that we would never succeed but we didn't let that discourage us."

"We had a demonstration version ready as early as last autumn, but it didn't function completely. It is important to underscore that this has not been a commercial project and that the cooperation will not cease."

Bo Hammerström, from Telia, said that it will be possible to offer broadband services between more than 30 locations in Sweden before the end of the year. A Nordic network, which will include the Baltic States, is also being built.

Price for user not yet set

Sven Tafvelin, a professor at Chalmers Institute of Technology, is one of Sweden's leading authorities on ATM and broadband.

"I have reached the age where I don't

With the speed of light between Mölndal and Stockholm

believe anything until I have actually seen it work," he says. "There has been a lot of talk about ATM but now we can demonstrate that it works in a national network."

Those in the audience in Mölndal were able to see how three video channels and a sound channel were transmitted simultaneously in real time from SICS in Kista, outside Stockholm. A public demonstration of ATM is unquestionably difficult, since all one sees is what appears on the screen, not the transmission itself. Despite this, the demonstration was impressive. Various types of conference systems that are under development were also displayed.

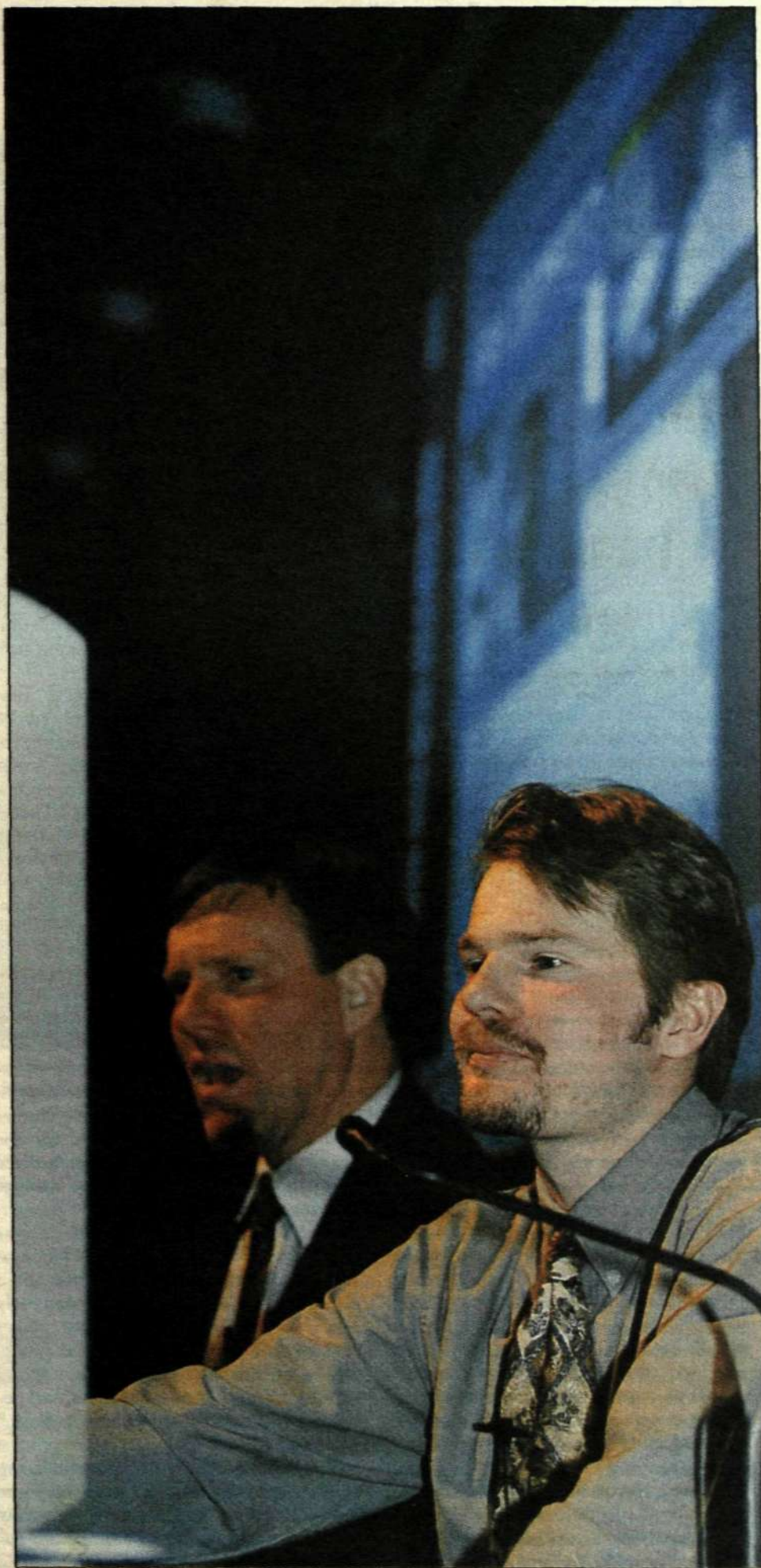
Potential users of ATM broadband facilities, representing municipal authorities, county councils and colleges, were among those present. They were unable to get an answer to their questions about the cost of ATM to the end-user, however. But the system will use largely standard products.

Bo Hammerström of Telia said that services of this type were as yet available only in pilot projects and that price information would be available at a later date.

PATRIK LINDÉN



Representatives of the CHESTS project who, combined, possess exceptional expertise in ATM technology — greater than that of any individual organization. From left: Bo Hammerström of Telia, Lars-Åke Johansson of the SISU research foundation, Leif Henriksson of Ericsson Telecom and Prof. Sven Tafvelin of Chalmers Institute of Technology. Hewlett-Packard is also represented in the project.



Mattias Johansson of SISU handled the practical aspects of contacts between Kista and Mölndal. In the background: the result of the transmissions.

Photos: MARIE ULLNERT

What is ATM?

■ The initials ATM stand for Asynchronous Transfer Mode. Briefly stated, it is a broadband technology that permits rapid transmission of large amounts of data of various types over the same network. Data, sound, moving pictures, text and speech — all can be transmitted simultaneously.

In the transmission of data, only the band space required at any given time is used. ATM thus offers high signal-transmission capacities and a high degree of flexibility, in part because the subscriber can adapt capacity of a linked connection to actual need.

ATM makes it possible to transmit large "data amounts" of sound and images over long distances.

Camilla Sundström has come a long way in Ericsson, although it hasn't taken all that much time. She has advanced from her original job as a clerk/typist to manager of Customer Support Service worldwide. She just doesn't know how to turn away from new challenges.

“I have a very enjoyable job”

a

ctually, Camilla wanted to be a teacher. After secondary school,

however, and a sabbatical

year spent travelling the world, she returned to Sweden, tried her hand as a substitute teacher and discovered it was not what she really wanted to do for the rest of her life. She decided to find another job, save some money and go abroad again. Camilla Sundström applied for a job at Ericsson, was hired and started in the shipping department. But there were no trips to foreign shores this time. Instead, she met the love her life and stayed home. It was 1982.

“The first job I had lasted only three months. I was offered a job in the export shipping department and I've been here ever since. I have worked with

all of Ericsson's markets and gained a broad range of experience. Except for my first and present jobs, I never applied for any of the other jobs I've had. I was always transferred/promoted,” Camilla explains.

Camilla Sundström has been manager of Customer Support Services in Ericsson Telecom since 1994. The job involves providing support to Ericsson companies throughout the world in the form of marketing materials and advice on how they should approach prospective customers. It also involves making sure the services are profitable. Camilla summarizes her job responsibilities as follows: “formulating strategies and visions to secure profitability.”

Her sphere of responsibility also includes the Global Response Center, which employs about 40 persons in Dallas, Melbourne and Rijen.

Man's world

“I've got a great job. It's international, diversified and tough in a positive way. It would be difficult for me to work with something I don't believe in, and I definitely believe service is the future,” she explains.

Camilla was appointed to her first managerial position in 1984 when she was only 20 years old, as a group manager in the shipping department. She was the first woman to become a manager in the man's world of shipping, which involves contacts with banks, consultants and shipping companies, often in parallel with tough negotiations with customers.

“I never hesitated to accept the job,” Camilla continues. “I felt deep down in-

side that I was the most qualified candidate but, of course, I wondered how I might handle the workload. I didn't feel my being a woman was the biggest barrier, but rather my age. At about the same time I realized the problems, I thought, this is really going to be fun!”

Camilla has a hard time turning away from challenges. Things are meant to be little bit tough, give you butterflies in the stomach, in order to be really interesting, she says. Even as a child, Camilla was curious and wanted to try everything. “There's no point in telling Camilla how things work, she'll want to test herself anyway,” her father always said of his daughter.

It became her strategy in life, and has left some bruises, major and minor, but

♀ Women managers

she has learned by her experiences without necessarily rejecting theoretical studies and knowledge. She is grateful for the training and education she has received through Ericsson and the few college courses she has attended.

Likes people

Camilla grew up with two brothers and a sister, learning to assert herself at an early age.

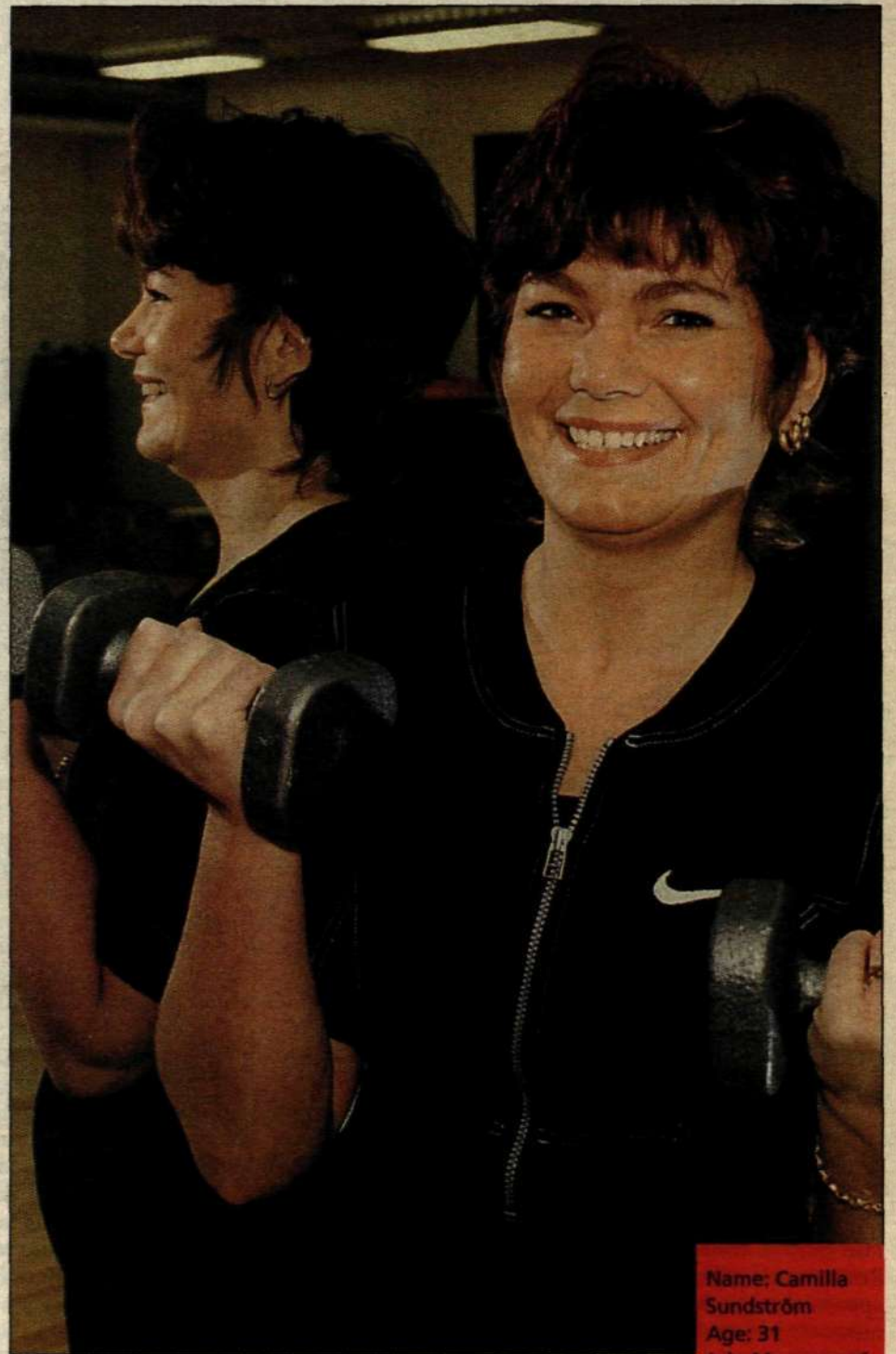
“Growing up in a fairly rowdy and large family, by Swedish standards, you learn to express yourself, speak your mind, and develop a fearlessness when conflicts arise,” she says.

She often thinks about her own leadership style, and even questions it on some occasions. Early in her career, Camilla tried hard to learn how to speak and socialize with others, trying to adapt to male leadership methods. Over the years, she has learned to let her femininity and own personality take charge. Today, she feels she can call upon and apply whatever attitude is best suited for the situation.

An interview with Camilla Sundström can easily shift into a conversation between two people. Her genuine interest in people makes it as easy for her to listen to others as talking about herself.

“I think you should treat everybody with respect and humility. I truly like people and I'm always curious. I can talk to anybody, even if we have nothing in common with my job, I can always learn something.”

“My old aunt meant a great deal to me and served as a role model. Her ability to show respect, be considerate and listen to



Physical training is important to Camilla Sundström. She rides horseback once a week, and attends aerobics classes or works out with weights two or three times every week.

Photo: PETER NORDAHL

others but still remain true unto herself were characteristics that Camilla has tried to adapt in her life and her lifestyle. She also passes the same advice on to other women who may be hesitating to pursue careers in management.

“Don't fall into the trap of believing that all managers have to be from the same mould. Stand up for what you believe in! Tell your boss right from the start what you think is important so that he/she supports you. If you have small children, place demands that your job must meet so you can perform satisfactorily at work and at home. Work out the distribution of domestic responsibilities, and you can accept any job that comes along!”

Pros and cons

Camilla has been supported by good bosses who provided insight and encouragement. She has also attended Ericsson Telecom's mentor program for women.

“The program is excellent, having access to mentors and the female network. Access to other people's experience and knowledge in cooperation with a mentor was a fantastic experience. It was also very rewarding to meet other female managers from other parts of the Company. They were clear signals from the Company that

it's OK to be a woman and a manager.”

Four and a half years ago, Camilla gave birth to her daughter Linda. It has been difficult at times to combine parenthood with the responsibilities of management. If you are also a person who gives 100 percent at all times, some days just don't have enough hours. With a strong will, however, a good husband and helpful grandparents to little Linda, everything has gone very well so far”, says Camilla.

The many business trips, which are both rewarding and exhausting, have also been handled one way or another.

“Every once in a while, I sit down and wonder if it's all worth it, if I should continue to work the way I do. I weigh the pros against the cons and, so far, the pros have always won. Working with something you enjoy, making a difference and contributing to change is very important to me,” concludes Camilla Sundström.

And when she feels that rush of adrenaline, that's when Camilla Sundström is in her element.

Name: Camilla Sundström
Age: 31
Job: Manager of Customer Support Service in Ericsson Telecom
Staff: 15 persons report directly to her
Family: Married, daughter four and half years old.

LENA GRANSTRÖM

When you grow up as the middle sister of two brothers, you learn how to fend for yourself. And if your home life is characterized by candor, spontaneity and emotions, it is only natural that you learn to stand up and fight for what you think is right later in life. And I do.

"I have learned to fight for my opinions"



Ann-Charlotte Dahlström likes to spend her leisure time in the great outdoors, preferably with her family. Some of her favorite hobbies include jogging, skiing, skating and tennis.

Photo: PETER NORDAHL

O

ne of the first things that impressed me when I met Ann-Charlotte Dahlström is that she talks fast, talks a lot and likes to talk.

"I have learned to be more restrained at certain times. My voice is not always the loudest," she says.

However, in her position as personnel manager for the Business Networks Business Area, Ann-Charlotte has many opportunities to be heard and pursue issues she considers important.

"It's important for me to work with something I believe in and support. I become totally committed," she explains.

Ann-Charlotte Dahlström made her career choice early in life, deciding she wanted to work with people. She worked part-time in nursing while still attending secondary school, and continued when she attended university to study business economics, sociology and personnel management.

Lots of energy

When she completed her studies, it was only natural for Ann-Charlotte to continue working with personnel matters in nursing. She accepted a job at a hospital near home, married Bo, whom she had met at the university, and gave birth to two sons, Fredrik and Mattias.

"I worked sparingly during the years when the children were young, mostly part-time. There was a triangular pattern in my life, moving from home, the nursery and work. When my youngest boy started school, I felt it was time to concentrate on my professional career. I felt like I had untapped resources and lots of energy," Ann-Charlotte recalls.

At about the same time, her husband started his own company. Being in control of his working hours, he decided not to devote more time than normal working hours, which enabled Ann-Charlotte to pursue her career without having to feel

guilty about neglecting the children.

"It's extremely important to agree on sharing responsibilities, you can't hold discussions every day on who should drop the children off or pick them up from the play school."

Women managers

"I started working as a personnel staff member at Ericsson Components in Kista. It was fun to start over again in a completely new area, technology, a word I could barely spell. What really impressed me about working for Ericsson, compared with the public sector, was that I never heard anybody at Ericsson say, 'you can't do that.' There is a desire to effect change and support for new ideas, a striving to suppress bureaucracy as much as possible," explains Ann-Charlotte.

Recruiting is fun

Job assignments at Ericsson Components varied a great deal. Ann-Charlotte has worked in most of the business units and her responsibilities have included the business area's contacts with colleges and universities, staffing and developing skills in the sub-microelectronics facility in Kista and, for the past two years, personnel issues in the business area.

"It's very enjoyable, I still think it's fun to recruit and, if I may say so, I'm pretty good at it. I think I'm a pretty good judge

of character. I enjoy my work because Ericsson really has something to offer to talented, ambitious young men and women. There is enormous development potential in Ericsson."

For a while, Ann-Charlotte Dahlström worked as personnel manager of the microelectronics division. The prospect of shouldering management responsibility was never a dramatic step for her.

"I had worked as a supervisor in my nursing days, assuming management responsibility for a pool of 40 persons without fixed assignments, who were shifted from one department to another. That was a tough job. When I got to Components, the next step was only natural. I have never sought a particular job, they have just sort of evolved. In fact, I think I have advanced a little too quickly. It seems I have always been right in the middle of some major project when I have been promoted," she continues.

When she left Components after eight years, and was transferred to Business Networks in Nacka Strand, the change was accepted with a certain melancholy and a sense of relief.

"Because I 'grew up' in Components, it was difficult to let go of things I had been involved with for so long. At times, the workload was tremendous, with long hours and times when I took the job home with me. When I started here two years ago, I decided not to let the job take over my life to the same extent and, with a little

practice, things have gone very well. And, in my opinion, I do my job just as well as I did before.

Burning commitment

The change of workplace was also a boost for Ann-Charlotte's self-confidence. The feeling of success in a completely new role in a completely new job working with new people was an important step in her own personal development. However, climbing the "career ladder" is not what's important to her, but rather working with something she believes in and has the potential to influence.

Ann-Charlotte does not feel that she has encountered any barriers working as a woman in a company dominated by men. On the contrary, if anything, but adds that she has always worked on traditional female turf, concentrating on so-called soft issues. It has been difficult at times, however, to pursue personnel issues in a group of engineers. That's when she has benefited from her burning commitment and verbal talents.

"I have a very important and enjoyable job. I am convinced the best companies of tomorrow are the ones working systematically today with skills development on personal and organizational levels. Product development and personal skills development must go hand in hand!"

Name: Ann-Charlotte Dahlström
Age: 44
Job: Personnel Manager of Business Area Business Networks
Staff: Six people report directly
Family: Married, two sons, ages 17 and 16

LENA GRANSTRÖM

Lars Magnus Ericsson. Who was he actually, the man who laid the foundation for Ericsson of today? Historians who have studied his life in detail have discovered a man of determination and great talents, a self-made man who went from a job as a miner when he was 11 years old to become the Director of a company with 1,000 employees at the turn of the century. Furthermore, one cannot help but notice the consistency with which Ericsson celebrates important events in its history on even-numbered dates. It is no exaggeration to state that Ericsson has good reason to celebrate some anniversaries in 1996.

Ericsson's fourfold anniversary

**Ericsson celebrating 150th, 120th,
100th and 70th anniversaries**

Lars Magnus Ericsson was born 150 years ago. Ericsson was established 120 years ago. It became a stock corporation 100 years ago.

And Lars Magnus Ericsson passed away 70 years ago this year. On May 5, 1996, the memory of a fascinating man, our founder, will be celebrated and honored in the Province of Värmland on the 150th anniversary of his birth.

On a farm with a small forest and four cows in Värmskog, between Karlstad and Arvika, Lars Magnus Ericsson was born in 1846, one of nine children. He was third oldest of the five children who lived to adulthood.

When he was only 11 years old, Lars Magnus went to work to help support his family after the death of his father. He worked as miner and blacksmith apprentice.

He wasn't comfortable at either job, however, and realized he was not cut out to be a farmer or miner. After a



A Swedish postage stamp commemorating Lars Magnus Ericsson was issued in 1976 in a series entitled *The Birth of Industry*. The series included such other noted Swedish inventors as John Ericsson, who invented the propeller, and Sven Winquist, the inventor of ball bearings.

few years, he started working as an art metal smith, spending some time as an apprentice.

In 1867, at the age of 20, Lars Magnus was hired by Öller & Co. telegraph workshop in Stockholm, at a salary of SEK 5 per week. Lars Magnus later described the job in a letter to his son.

Enjoying life for the first time

"...guided by a mild sense of providence, I was hired by Öller & Co. telegraph workshop and, after a one-week test period, I received a salary that covered my needs. With a tremendous sense of gratitude, my life was brighter than ever before and, for the first time, I felt sense of enjoyment in my life."

Working at Öller & Co., Lars Magnus became an accomplished instrument maker and studied languages in the evenings.

It soon became obvious that Lars Magnus Ericsson was man of unusual skills and talent. He traveled throughout Europe twice during the 1870s on government grants. In 1876, at the age of 30, Lars Magnus and his partner, Karl Johan Andersson, established LM Ericsson & Co, a mechanical engineering company. They rented kitchen premises at Drottninggatan 15 in the center of Stockholm, where they operated a foot lathe to make instruments.

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Borrowed 100 kronor

With borrowed capital of SEK 1,000 and one messenger boy, the operations were started, the same operations that 120 years later would employ 85,000 persons in more than 100 countries. A coincidence in history shows that Sweden's Department of Communications is now headquartered in the same city block where Lars Magnus Ericsson first started his telephone business operations.

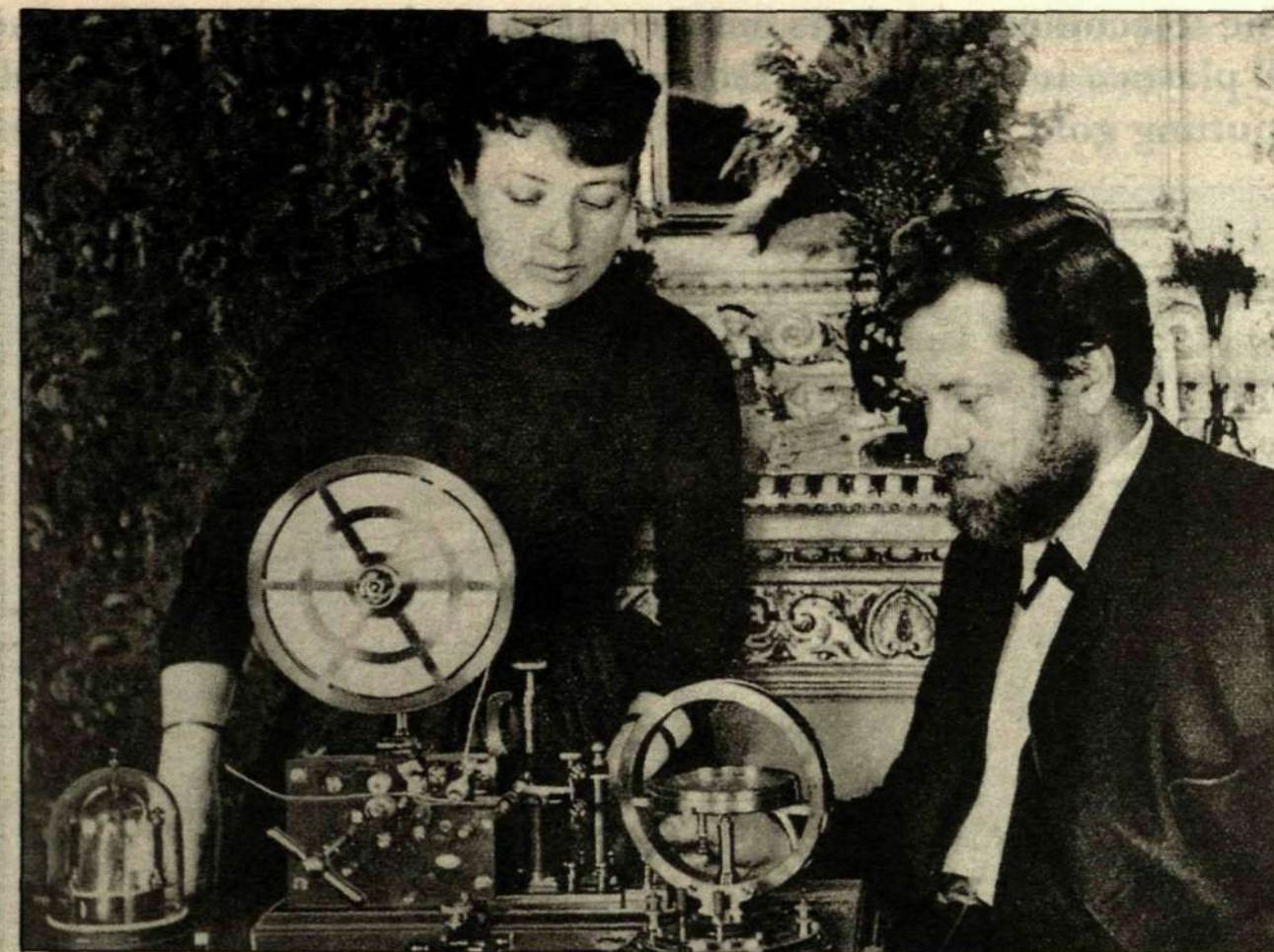
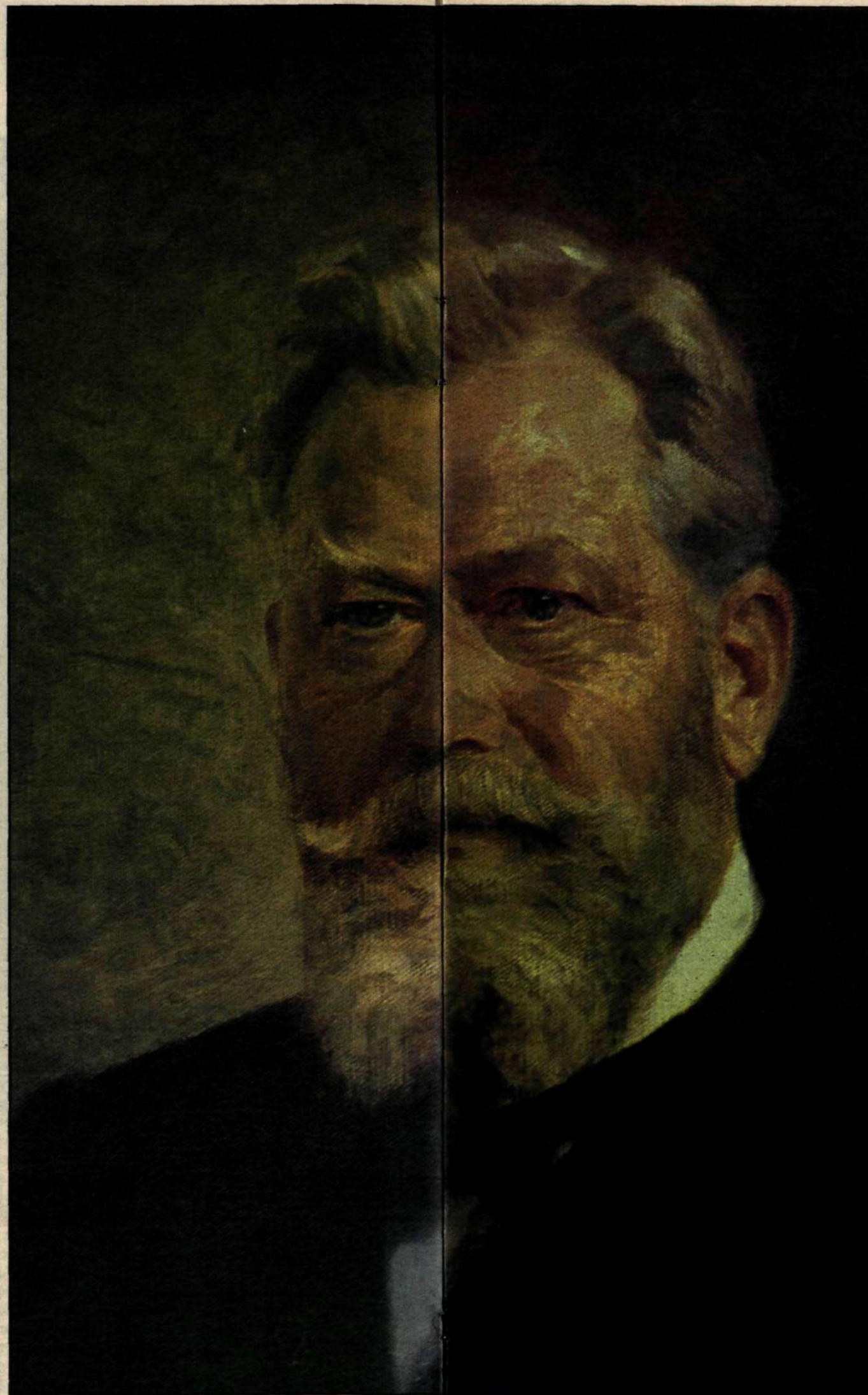
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Above: Lars Magnus Ericsson with his wife Hilda. The picture was taken around 1880 when Lars Magnus was still repairing telegraph machines.

Right: Hägelby Manor. In his old age, Lars Magnus moved here to his country estate after transferring ownership of Ahlby Farm to his son. He bought the estate in 1906 and moved into the Manor upon completion of renovations in 1918.

Lower right: The County Council uses the main building at Ahlby Farm today as a treatment center. The exterior remains virtually unchanged from the days of Lars Magnus Ericsson.

(Photos at Hägelby and Ahlby: Patrik Lindén)

Left: A portrait of Lars Magnus Ericsson painted in 1905 by Axel Jungstedt, a Swedish artist.



About the same time, Lars Magnus got to know Henrik Tore Cedergren and the brothers Max and Ernst Sievert, which would later prove to be valuable acquaintances.

In 1883, H.T. Cedergren established Stockholms Allmänna Telefonaktiebolag, which was later incorporated in Telefonaktiebolaget LM Ericsson. The Sievert brothers started Sieverts Kabelverk in Sundbyberg, which has been a wholly owned Ericsson subsidiary for many years and part of Ericsson Cables since the 1980s.

By the mid-1890s, the company had approximately 500 employees and was considered a large concern by standards in those days.

Developed Ahlby into model farm

In 1896, the company was reorganized as a stock corporation, and Lars Magnus gradually started to withdraw from everyday operations. He bought a farm at Ahlby on

Lake Mälär south of Stockholm. In 1900, he retired from his position as President of the Company and, three years later, relinquished his post as Chairman of the Board of Directors. At the same time, he sold all his shares in the Company.

Lars Magnus Ericsson devoted his time to modernizing agricultural methods on the farm, which became a sort of model farm, a far cry from the little tract of arable land where he grew up in Värmskog.

When Lars Magnus turned 70, he gave the farm to his son and moved to Hägelby Manor, an estate near Tumba, south of Stockholm.

Died at the age of 80

In December 1926, Lars Magnus Ericsson died at the age of 80. He was buried with very little pomp and circumstance in Botkyrka, also south of Stockholm. There was

no special monument or other memorials to mark the site of his grave. In 1946, on the 100th anniversary of his birth, a memorial stone was erected in his childhood parish in Värmskog. The brief inscription reads:

"The Swedish telephone industry is testimony to his accomplishments."

Based on available descriptions of Lars Magnus Ericsson, he was a modest and humble man, more shy than vain. His modesty was exemplified in 1909 when he was offered an honorary doctorate by the University of Stockholm. A very dignified title for a man who attended school for only a few years. Lars Magnus thanked the university but was adamant in his refusal to accept the offer:

"However, as my conscience cannot hide my lack of qualifications for the honor in question, I am forced by my inner peace to respectfully decline your esteemed offer."

PATRIK LINDÉN

The telecommunications industry is sometimes regarded as modern-day "Klondyke." But all players on the market are not looking for gold. In Stockholm, a city owned company is "putting gold into the ground." AB Stokab is the company that is re-utilizing and adding

Expansion at the speed of light

Fiber optic cable upgrades Stockholm's infrastructure

We have 250 kilometers of fiber cable and the company will add another 150-200 kilometers this year, says Sverker Lindbo, marketing manager of AB Stokab.

Expansion of the network is proceeding rapidly. At year-end 1995, every commercial address Stockholm's inner-city could be served by Stokab's optical fiber network. By year-end 1996, it will be possible to connect every commercial address in the Greater Stockholm area to the network. In another year, by year-end 1997, the network will be equipped to connect every commercial address in the Stockholm region with each other.

Private households and colleges will also be affected by the expansion program. During 1996-97, every block in Stockholm's inner-city will be able to connect to Stokab's fiber cables. Every college and university will be linked with the network during 1996.

"This year, we will also link up with all local government and public offices included under the city zoning board reform recently approved by local politicians."

Trunk network for optical fiber

Stokab's business concept is to offer trunk network services to all operators who wish to disseminate information via the optical fiber cable network.

Stokab also aspires to make connections with the network as cost effective as possible by utilizing existing channelization in the form of electricity, water and sanitation facilities and to use the subway train tunnels.

"We may be likened actually to a municipal services board. We build roads or, perhaps more accurately, we provide every customer with his/her own electronic road to drive on, but we don't have any cars of our own," explains Sverker Lindbo.

Customers include about 10 large telecommunications and information operators, companies that work with conventional telephony, cable TV, mobile telephony and data communications.

"However, we have also received increased activity from niche companies offering special services such as inexpensive telephone calls outside Sweden, internet connections and similar services," Mr. Lindbo continues.

Stokab regards itself as a small but strategically interesting customer for Ericsson Cables.

"We buy many meters of cable as well as network materials. We get our cable from Hudiksvall and buy splicing boxes and other products from Ericsson in Sundbyberg, just outside Stockholm. But we have also purchased network construction services from Ericsson in conjunction with a link-up in cooperation with Teracom and TV4."

Future business potential

On the whole, Stokab is satisfied with Ericsson's performance as a supplier. Some delivery problems have been noted, however, due to a global shortage of fiber. The shortage was manifested about one year ago when demand for fiber virtually exploded, primarily in the U.S. but also in Europe.

Furthermore, there is only one city in the world today investing in the construction of an open cable infrastructure - Stockholm. As a result, Stokab receives a steady stream of inquiries from various cities around the world that are considering a similar network.

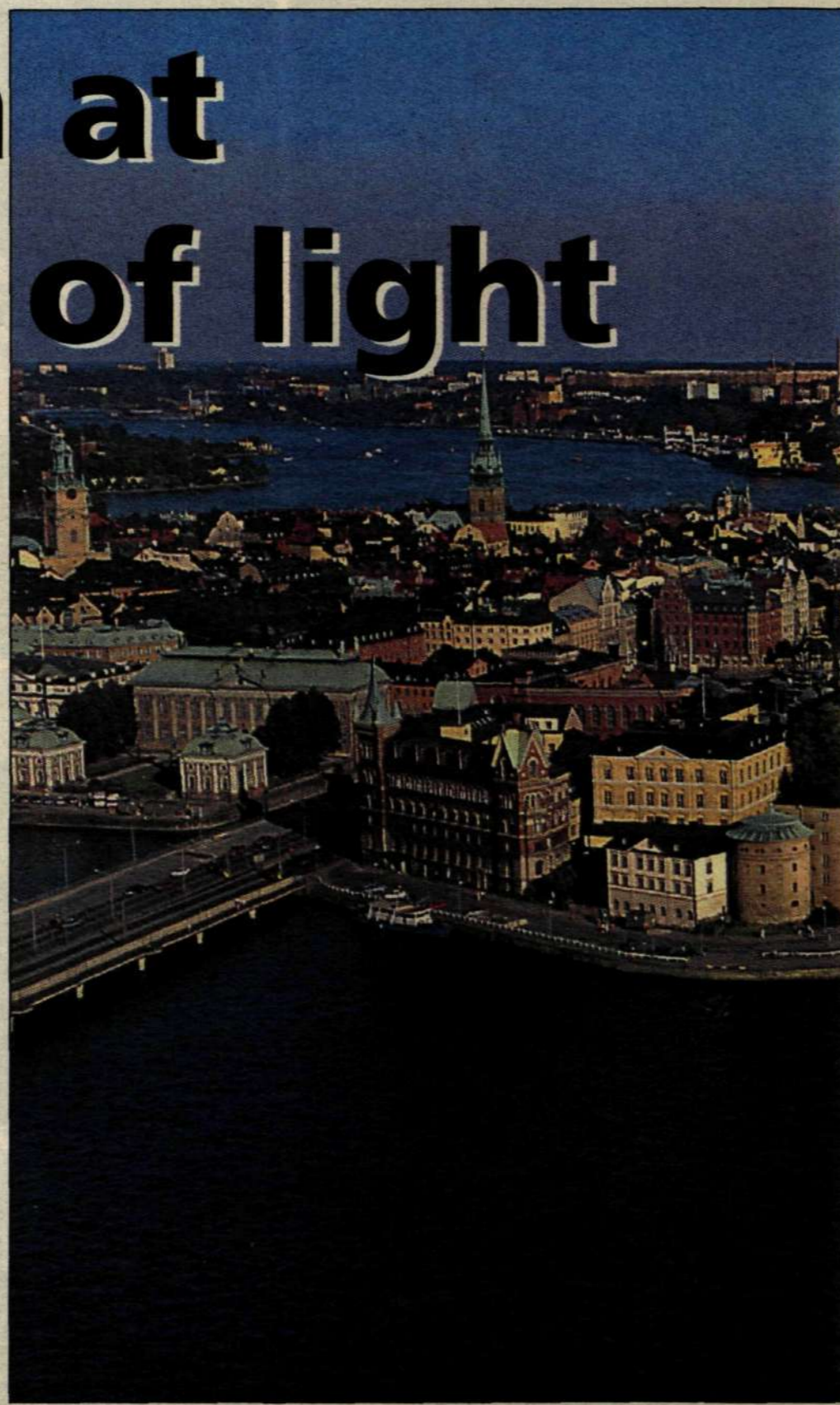
"We are not a major Ericsson customer today, but if other large cities start to build networks like ours, our method of creating an infrastructure might become a major source of business opportunity for Ericsson," Sverker Lindbo says.

"As more operators link up with our network, new demands will be placed on network materials, compared with demands now made by national telecom companies," he continues.

For this reason, Stokab has held meetings with representatives of Ericsson's management staff in Hudiksvall to review its present needs and future business potential.

Stokab complies with the procurement ordinances that govern municipal companies, but that does not prevent the company from conducting an open dialogue with Ericsson.

In addition, Ericsson plays a vital role in Stockholm's economy.



In 1994, Swedish TV channel TV 4 built a transmission network in cooperation with Teracom and Stokab. Different customers have different needs. The Swedish Broadcasting Corporation believes that 8 Megabytes is the standard required for quality TV transmission. Transmission over its network in the city itself, which has about 60 circuits, would allow a capacity of 60 times 500,000 television channels.

value to the infrastructure investments being made during Stockholm's expansion year. Optical fiber cable from Ericsson Cables in Hudiksvall is the element being used to upgrade the city's subway train tunnels and electrical transmission lines.



At the latest meeting of Stokab and Ericsson representatives, Lars Renström and his staff at Hudiksvall provided clearly defined answers to several key questions.

"They presented several finished products that meet our requirements. But they also described a number of development projects now in progress that involve new products that may be valuable to us in our operations. In conclusion, they promised to 'take home' and consider some of our questions and requests," Sverker Lindbo summarizes.

"It was obvious, for example, that Ericsson in Hudiksvall tries to maintain a firm grip on what is taking place in other areas of Ericsson's business world so they can convey our wishes and requirements."

Stokab hopes Ericsson will maintain a rapid pace of product development. It would enable the municipal company, which started to build its network at an early stage of optical fiber development, to maintain the lead it has today over competitors.

"Since we are pioneers in this field, naturally it is difficult to put a price tag on

our services. We must not price ourselves too high, because others might say they can build a cheaper network. But we mustn't price ourselves too low, either, as we need to reap some benefits of our investment," Sverker Lindbo says.

Stokab revenues in 1996 will total approximately SEK 30 M. Five years from now, annual revenues are expected to be in the range of SEK 100-150 M.

"Projected sales correspond to about one-one and a half percent of value added in the telecommunications industry in Stockholm. Consumers are rewarded with competition at all levels in return for the money," he adds.

Telia is the only company beside Stokab that is now building a network of its own outside Stockholm proper.

The fiber optical lines now being installed by Stokab are capable of processing up to 40 Gigabytes per second. The network's total capacity today is 4 Terabytes.

8 Megabit TV-standard

"Different customers have different needs. For example, the Swedish Broadcasting Corporation believes 8 Megabytes

is the standard required for quality TV transmission. Transmission over our own network in the inner-city itself, which has about 60 circuits, would allow us to handle far more: 60 times 500,000 television channels."

"So I think our capacity will be adequate for quite some time."

"For some customers, the actual broadband is not the important element, but rather the possibility to have their fiber for transmissions of confidential information, for example, monetary transactions," Sverker Lindbo explains.

The fact that Stokab, a company owned by the City of Stockholm, was commissioned to build an open network for various operators competing against one another reflects Stockholm's role as an active player in the local economy. Ultimately, local politicians hope that Stockholm will offer an attractive alternative for the business operations of many different companies.

Stokab is intended to make Stockholm an interesting alternative to such cities as Frankfurt and Taipei.



AB Stokab, a customer of Ericsson Cable's telecommunications cable division in Hudiksvall and Business Networks, in Sundbyberg, is owned by the City of Stockholm. The company has been commissioned to build a fiber optical network for all operators and other users in Stockholm.

During 1996-97, every block in Stockholm's inner-city will be able to link up with Stokab's fiber optical cables. During 1996, all high schools will be connected. Stokab is also introducing a Terabyte Network in Stockholm for Internet.

After years of modest-scale operations, things have really begun to move for Ericsson in the Philippines. Following several network-establishment orders in 1994, and mobile telephony contracts in 1993 with SMART, the new operator,

these projects are beginning to draw attention from a sales standpoint – and in size, at the Philippine companies Ericsson Telecommunications, Inc. and Philnet Ericsson, Inc. This year, operations will grow from 750 to 2,000 employees.

Ericsson is on the move

Perserverance is one of Ericsson's three common values. Ericsson's history in the Philippines is a good example of what this characteristic can mean. Per O. Pedersen arrived here in 1988. With 10,000

Philippine pesos in his pocket, he registered the country's first Ericsson company. Ericsson had been awarded a network-construction contract valued at USD 4.24 million.

During the 1988-1995 period, five separate network-construction projects were carried out at a combined value of USD 51 million. The Makati project accounted for about half, and was concluded last year. However, there were periods of relative calm on the business front.

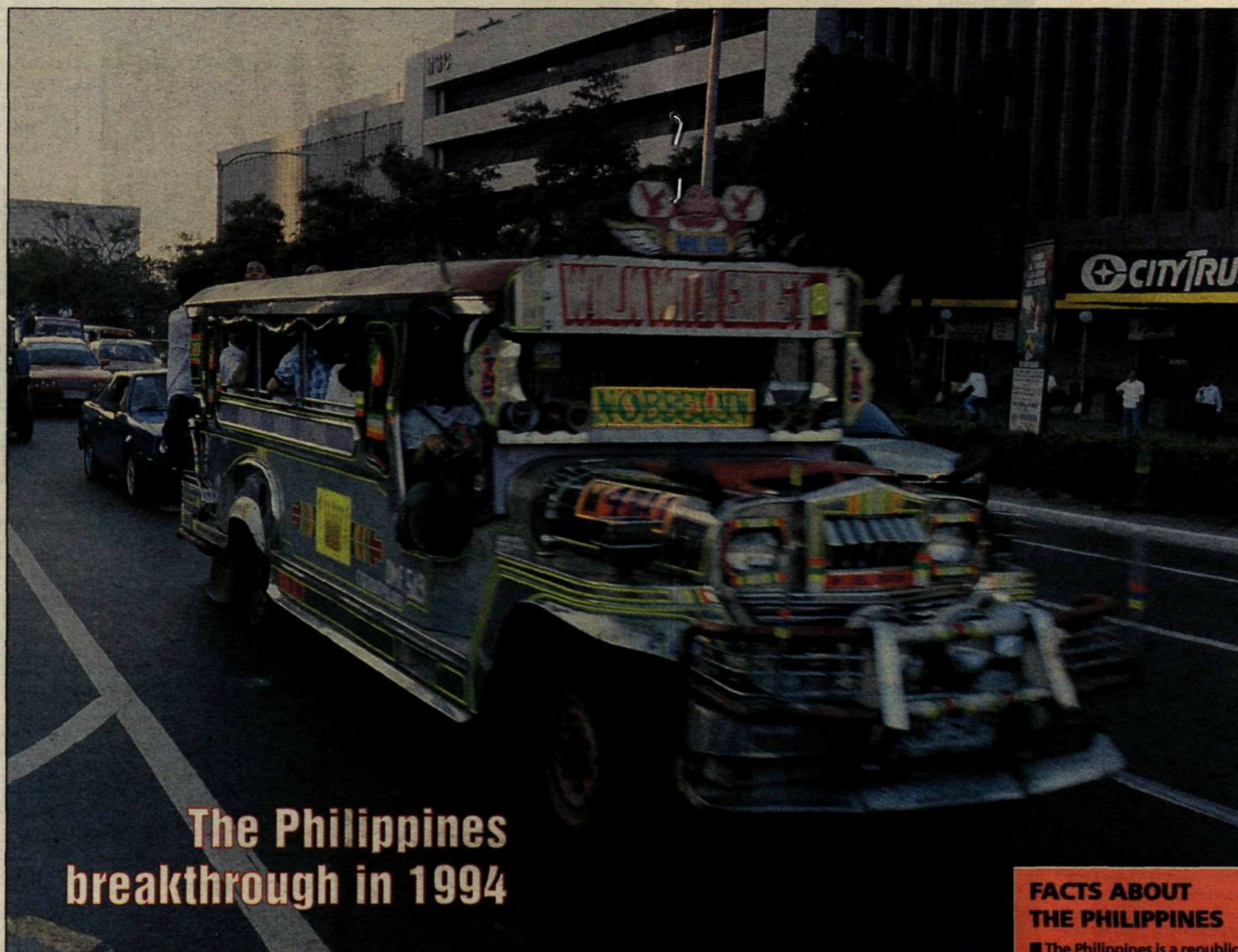
Then came 1993 and Ericsson became the mobile-telephony systems supplier to SMART. The first order was valued at USD 14.25 million, and was then followed by an expansion order in several batches totaling USD 70 million. Things began to really accelerate in 1995. Ericsson's network construction operations landed three major

network expansion projects; one for PLDT, the state-owned operator, one for Digitel – of which Telia is part-owner, and one to SMART. Order bookings for the year totaled USD 557 million, including the mobile telecom expansion for SMART and other operations.

Mostly a network builder

This is the year in which 1995's successes in business negotiations will really begin being noticed in Ericsson's daily operations in Manila and elsewhere throughout the Philippine islands. In early March, Ericsson had 750 employees, of which some 60 had been expatriots from Sweden, Australia, the U.K. and elsewhere. Before year-end the number of employees will reach 2,000, some 80 of whom will be expats. Network construction operations will account for 1,800 of the total staff.

Great numbers of people are required to implement network construction projects, and yet almost as many are employed by sub-contractors. Ericsson has for many years worked with Miesco, a construction contractor owned by a Philippine supplier of electric power. Miesco has had as many as 2,000 men active with Ericsson projects, as well as a fleet of a couple of hundred con-



The Philippines breakthrough in 1994

The "Jeepney" is a typical sight in the heavy traffic on the streets of Manila. This small bus, which has room for some 15-20 passengers often carries many more. They are the backbone of the public transport network in the capital. Photos: LARS-GÖRAN HEDIN

struction vehicles! Much of the components and other materials used in the network projects come from Sweden. For example, 60 to 70 percent of cable is obtained from Ericsson Cables in Hudiksvall.

Different companies

The Philippine operations are conducted by two companies. Ericsson Telecommunications, Inc. is a wholly owned subsidiary, while Philnet Ericsson is only a 40-percent owned. The remaining interests are in Filipino hands.

Philnet Ericsson, which is a unit within the Business Networks business area, carries out network construction projects, with the wholly owned company being the one that secures the contracts and handles all other Ericsson operations in the country. Exceptions are sales of MD110, Eripax and EDACS private radio systems, which are handled by a Philippine dealer.

"It should be noted that the two companies, Ericsson Telecommunications and Philnet Ericsson are operated as a single industrial unit," points out Hans Ekström. Following a detour to Singapore, the former head of operations in China has now taken over as corporate head in the Philippines. Per O. Pedersen, who got everything start-

ed out there, has moved on to Telia International.

Deregulated

The telecom market in the Philippines is presently characterized by extremely keen competition among several different operators both in fixed and mobile networks. This is a result of the deregulation instituted by President Fidel Ramos in 1993. In that year, two government decrees were issued which are the dominant guidelines for the telecom market today.

The one decree mandated that all authorized public telecom operators are to be linked to a fully integrated nationwide telecom network.

The other stipulated requirements that these telecom operators also involve themselves in the fixed local network. Each operator with a license for international telecom traffic was required, during the next three years, to build 300,000 local lines. Mobile operators were each allowed five years to build 400,000 lines!

In March last year, there was a decision by the president that all state-owned telecom companies were to be privatized during the next three years. The general public was encouraged to become shareholders. Thirty

percent of the shares were directed toward private shareholders.

Many can become customers

The efforts Ericsson has expended in the Philippines so far have yielded a good return. It is now a matter of looking further on, according to Hans Ekström. PLDT, SMART and Digitel are three financially strong customers. In addition to these companies, there are some 10 others in fixed and mobile networks to be cultivated.

In the mobile sector, there are two GSM operators, both of whom chose suppliers other than Ericsson. Nokia landed the order from Globe Telecom, the largest of the GSM operators. With regard to fixed networks, Siemens dominates the market, with Japanese NEC number two. Ericsson holds third place. Within network construction, Alcatel is the main competitor although Ericsson is the market leader.

"There is much that remains for us to do in this country. We intend to introduce GSM and establish AXE with several operators. And waiting around the corner is PCS, with some 10 operators having indicated an interest in securing licenses. We are cultivating them all," promises Hans Ekström.

LARS-GÖRAN HEDIN

SMART to build on a common platform

The Philippines' second largest mobile operator is committed exclusively to Ericsson. SMART, as the company is called, has based both its fixed and mobile networks on AXE as the system platform.

"This strategy provides us with unique possibilities, jointly with Ericsson, to create new telecom services which offer our customers package solutions for both fixed and mobile telephony," maintains Michael G. Pilgrim. He is the company's chief operating advisor – who in practice manages daily operations."

Michael G. Pilgrim is British by origin. Together with SMART's president, Orlando B. Vea, he directs the company's operations. Michael is the company's foremost expert on telecom and telecom technology. His words weigh heavily in the Board's deliberations, of which he is one of the 11 members. SMART's major owners: First Pacific, with 28 percent, Metro Pacific, with 35 percent and Japanese NTT with 15 percent of the shares.

Tough requirement

In common with the three other mobile operators in the Philippines, SMART secured its license on the condition that company would also build fixed telecom lines. For SMART, this meant a requirement for 700,000 fixed lines in the areas the company has been allotted – including the capital Manila. Michael G. Pilgrim has no doubt that it is a tough requirement to meet:

"What the national telecom authorities has tried to do is to compel the new operators awarded licenses for mobile systems or international telecom traffic to build 4.7 million lines in three to five years' time. This is not realistic, due in part to the fact that it will require investments exceeding USD 4 billion. That much capital is not available in a country which has experienced no real movement in its economy in recent years.

"Nor, in my opinion, is demand that great. An average family in this country earns 150,000 pesos annually. In order for us to obtain sufficient investment in telecom networks, revenues amounting to 1,000 pesos per subscriber are required. This is entirely too large a part of a normal family's income," according to Pilgrim.

"Therefore, I believe that the law which dictates terms and conditions for operators will be amended to allow us more time!"

Not all will survive

One consequence of the authorities' rigorous demands is that it will hasten a regrouping among Philippine telephone operators, according to Michael Pilgrim.

"Many of today's operators will not survive the enormous financial demands which the expansion will entail. Those who do survive are the ones with access to capital, i.e. those with strong shareholders."

Michael Pilgrim believes that four out of ten operators in fixed networks will remain and that three of five mobile operators will cope satisfactorily with the tough competition for investment funds and market shares in the immediate years ahead. SMART definitely intends to be one of the surviving companies.

"That we have a strong position in the mobile sector, where we are now the third largest

operator and hope soon to be number two, is a strong safeguard. Mobile telephony is of course the area where the largest revenues are to be derived."

A matter of packaging

According to Michael Pilgrim, the decisive factor for success will be the ability to combine fixed and mobile telecom services in the right way. SMART's ambition is to be the best in the Philippines at offering customers package solutions for both mobility – in the form of mobile telephony, personal telephony, or paging – and services in the fixed network.

"For example, we are now one of the foremost operators worldwide in implementing integrated billing systems. In combination with Ericsson, we are developing a system which will provide major advantages for our customers. This is the type of thing that confirms the correctness of our choice in the systems segment, when we committed to AXE as the common platform in our network."



Michael G. Pilgrim and Orlando B. Vea of SMART.

"We aim to fully capitalize on AXE's Intelligent Network capabilities."

Wireless in fixed networks

SMART is conducting a pilot experiment with DECT technology from Ericsson for wireless access to the fixed network (Wireless Local Loop). In Manila, 750 subscribers have been chosen to be the first to test the new solution, which Michael Pilgrim believes is the wave of the future.

"Today, we build networks exclusively of copper and fiber but, in three years, 30 percent of our subscribers will be wireless. Within five years, the relationship will probably be half of each."

From TACS to GSM

With 130,000 mobile subscribers, SMART has secured a strong position in the market. Within three years, this number will have grown to around 400,000. This will mean supplementary TACS orders to Ericsson. However, Michael Pilgrim predicts that in a few years investments in analog systems will have ceased.

"We must make the transition to digital to cope successfully with eventual capacity requirements, mainly here in Manila. What I foresee for us is a change-over from TACS to GSM in the 900-Mhz band during the first phase and then to PCS in the form of DCS1800 in a couple of years."

"We do not regret having decided to commit to TACS from the beginning," Pilgrim maintains.

"It was a strategic decision to concentrate on mature technology in which high capacity could be rapidly developed at comparatively low cost. In this way, we got off to a flying start through having Ericsson as our supplier"

LARS-GÖRAN HEDIN



On the island of Cebu in the Philippines, Hans Ekström (second from the left) hosted a regional Asian company managers meeting in the middle of March. Bo Landin, Bengt Forsberg and Lars A Ståhlberg from the corporate management participated.

In a Malaysia that was as hot as a sauna, representatives of the Public Telecommunications Business Area (BX) from all parts of the world gathered recently to discuss their strategies for growth and review 1995 achievements. By the time they sat down for dinner on the first day of the conference they had agreed that BX stands for "Being Xellent."

Inspiration from Asian expansion

By the year 2000 — Asia will be Ericsson's dominant market and the boom in the Asian economy is particularly apparent in Kuala Lumpur.

The city is growing at a dizzying pace. During late evenings when the heat is not so stifling, construction work proceeds at full speed. Kuala Lumpur's residents are especially proud of the newly completed Twin Towers which is now the world's tallest skyscraper.

This environment was a natural site for the first large meeting of Public Telecommunications representatives in more than ten years.

"I can't think of a better place in which to be inspired by, and understand, what is happening in Asia today," says Anders Igel, head of the Public Telecommunications Business Area.

Achievements

Anders Igel opened the two days of intensive discussions by citing the achievements recorded throughout the world in 1995. Some examples:

Spain contributed the most to Ericsson's profitability in 1995. The Spanish companies are making very large sales, are delivering on time and are following Telefonica over the world.

UPT (Universal Personal Telecommunication), the most advanced IN (Intelligent Network) service in the world, will soon be introduced in Australia. Ericsson Australia is the telecom industry's leading model for building good relationships with customers.

In England, Ericsson introduced AM (Application Modularity, an enhancement of AXE system architecture) and made deliveries to both Eurobell and British

"Strategies for Growth" describes the Public Telecommunications Business Area's strategies for growing faster than the market and becoming the leading supplier of fixed-network public telecommunications.

Send your order for "Strategies for Growth" to ETX.ETX-SIAA, or via fax: +46-8 645 97 27.

Telecom. Ericsson in England is increasing its sales and capturing new market shares, while the time from order to delivery and payment is being reduced.

The Philippines, a new market for Public Telecommunications, is a source of business for both Smart and Digitel. The Philippines account for a substantial part of the Business Area's growth.

Customer Services opened Global Response Centers in Holland, Australia and the United States and can provide around-the-clock service to Ericsson customers throughout the world.

Worldwide production is being coordinated for the first time and, with the aid of a so-called WMC (World Manufacturing Cost) system, it is possible to compare production costs in all parts of the world.

Strategy summit in Kuala Lumpur

"We know what we want to accomplish," Anders Igel says. "We have set our objective, which is to be the leading supplier of fixed-wire telecommunications, with a profitability that ranks among the best in the world. We will continue to be a telecom supplier, not an operator. We will be our customers' best partner, and we will understand our customers' needs best."

Clear message

The Broadband Network Systems business unit delivered a clear message: "We believe in broadband!" And to demonstrate that this belief was based on reality, Björn Hemstad, manager of the business unit, invited all those present to visit the unit's reference network.

"In view of our earlier performance, we can understand that people doubt our ability to offer broadband solutions," he said. "But most people accept the evidence of their own eyes. So we invite you all to visit our reference network in Stockholm after June 19, when we will have placed it in service. The network will be kept updated and will serve as an important index of what we can offer."

Strong growth world-wide

The strategy of the Switching and Network Systems business unit is to focus

on customer and product segments that offer a major growth potential. The business unit is determined to grow substantially throughout the world by custom-tailoring total systems, expanding its product portfolio and shortening lead times while offering improved quality.

"Our objective is to be clearly the leading telecom supplier in our field," says Ingemar Nilsson, manager of the Switching and Network Systems business unit.

Based on the unit's forecasts, sales of network intelligence will more than double, sales of customer-support services will triple and sales of access systems will increase nine-fold. This will occur at the same time that the number of AXE lines throughout the world will double.

"If we are to be able to increase sales to our installed base, we have to persuade subscribers to use their telephones more frequently, market ISDN as support for Internet traffic and help the operators to reduce their costs."

"The most important thing about the conference was that the strategy for growth and profitability was presented very clearly and that we obtained a total presentation from the entire Business Area," says Bo Nilsson, manager of Fixed Networks at Ericsson in Australia.

"One thing that became clear during the conference was how complex the situation really is. People in Stockholm see the world divided into business areas, while we who are working in local companies are focused on our companies. The conference helped us to understand this complexity better, and indicated how we can deal with it. We have to learn to work together, across business area boundaries."

"It was interesting that the conference was held in Asia. Foong Wai Fong, who gave the presentation on trends in Asian growth, gave us a great deal to think about, as I discovered in talking with others who participated in the conference. Perhaps we can apply some of the efficient

Twin Towers in Kuala Lumpur is the world's tallest building and a source of pride for the city's inhabitants.



cy of the Chinese business networks in our methods of conducting business."

Cooperation among companies

"During the conference I was impressed by the cooperation among all Ericsson companies," Paulo Castelo Branco, manager of the Public Telecommunications Business Area in Brazil, emphasized. "And this cooperation is naturally made easier when we are able to get together in a conference like this. I can report that during the meeting I have discussed four LARGE sales projects: one with Ericsson in Norway, one with Ericsson Telecom and Ericsson Hewlett-Packard, another one with Ericsson Telecom, and one with Ericsson in Brazil. I have gotten the impression that Ericsson has now become a true transnational company."

Trends that are changing the world



A borderless society based on economic networks is emerging in Asia. (Picture above.)

"Telecommunications is the driving force in the borderless society, the prerequisite for networking across national boundaries," says Foong Wai Fong. She is a vice president of the Transforma Companies marketing firm and the co-author of John Naisbitt's book, "Megatrends Asia."



A borderless society based on economic networks in which telecommunications is the driving force. That's how Foong Wai Fong describes modern Asia. Wai Fong, a Chinese, is one of the new female entrepreneurs in Asia. She was the co-author with John Naisbitt of the book, "Megatrends Asia," dealing with the trends that are shaping the new Asia.

During the 1960s and 1970s entrepreneurial Asians fled to the West; there were no growth opportunities in Asia. Asia was an outpost; the West was the center of the world. Now many Asians are returning and young Asians want to work in domestic companies rather than in Western multinational organizations. There is a growing pride in Asia and an awareness that it is on its way to becoming the center of the world.

"It is important for foreigners who want to do business in Asia to understand this new self-esteem," Wai Fong says. "Western companies must act on the Asians' terms and not attempt to teach them how to do business the way the Western world does."

Chinese networks

To Western observers, Asia's emerging economy is something new. It is based on networks linking Chinese families outside China, networks that operate across national boundaries. The new Asia consists of cities and regions, rather than countries. One speaks of Kuala Lumpur and Manila, rather than Malaysia and the Philippines.

The Chinese network can be compared with the Internet. It is global and it has no central control. The United States and Europe have to "log on" to this network if they do not want to be left hopelessly behind.

"It is important to have a local connection," Wai Fong says. "Generally, the best way to understand and break into

the local market and into the networks is to have a local partner."

The Asian economy is growing under conditions that differ from those in the West. According to John Naisbitt, the West is handicapped by its welfare system. The Chinese take it for granted that a person should take care of himself and his family. It is almost humiliating to shift the responsibility to the Government or the local society. As a result of this attitude, taxes are low and personal savings are high.

By the year 2000 nearly half a billion Asians will belong to the middle class. The Chinese, according to a Gallup survey published in February 1995, want to "work hard and become rich." The Asian economy will increasingly be driven by domestic consumption — of capital goods in particular.

Asians are highly receptive to technological progress. The population is very young — with more than 50 percent below the age of 25. For these young people, modern technology — data processing and telecommunication, in particular — is the key to the future. Asia is changing from an agricultural society to a high-tech society in which telecommunications and the information age are dominant factors.

More women in business

Many Asian companies are family-owned and it is a matter of no consequence whether a son or daughter takes over a business. Twenty-five percent of the businesses in China are run by women. Women are visible in all fields to a degree that was not common earlier. "This is also something that it is important for Western companies to understand," Wai Fong says. "You will be dealing more and more with women managers in Asia. Maybe you, too, will have more women managers?"

ISABEL WERNER

Eighth trends will dominate growth

- Borderless economic networks will be more important than national boundaries.
- With a growing middle class, Asia's economy will be increasingly based on domestic consumption.
- There is a new Asian pride that must be understood in order to do business in that part of the world.
- Economies in the region are changing from planned to market economies.
- The shift of population from rural areas to the cities is occurring with amazing speed.
- Parallel with urbanization, there is a change from labor-intensive industry to high-tech industry, most notably data processing and telecommunications.
- More and more women in Asia are active in businesses.
- Earlier, "the world" was synonymous with "the Western world." But now Asia is on the rise and the world is becoming Asia-oriented.

"Following this conference I feel much more certain that Ericsson's different local companies can work together as a team and as a single company," Anders Igel says. "Earlier, it was easy to work with Ericsson Telecom, but more difficult where other local companies were involved. I now feel that the local companies can cooperate with each other just as easily."

"Our competitors include some of the world's largest companies. The competition and pressure on prices are increasing. It's a tough situation. But I received so many encouraging signals at this conference that I now know that we can handle it."

"We have the expertise in telecommunications, an enormous market presence and the best switch in the world."

ISABEL WERNER

"We have managed to pick up momentum again after an unproductive period. The partnership with Marconi has restored market confidence in us," says Dirk Uhlemann, manager of the SDH/AIDA program in the Broadband Network Systems business unit at Public Telecommunications.

Time to equip the world with SDH

The agreement with Marconi is beginning to produce beneficial effects. There have been many positive reactions to the partnership, as the numerous new contracts secured by Ericsson in areas such as Latin America and the Far East testify.

"Since signing the agreement with Marconi, we have secured contracts in Mexico, Colombia, China and Vietnam, as well as obtaining approval as an SDH supplier in Venezuela," relates Dirk.

But it is not only Asia and Latin America that are in line for SDH. Europe is also an important market, with many new operators.

"We are focusing a lot of energy on the new network operators in Europe," continues Dirk. "In Sweden, for example, we have signed an agreement with France Telecom."

Dirk adds that his group has a substantial list of potential customers - or "prospects" - worldwide, meaning that product volumes can be expected to rise strongly.

The challenge will be not only to produce the required equipment but also to implement the many customer projects.

"We shall be doubling the number of people involved in sales activities and implementation of SDH, from 70 today to approx. 150 employees," notes Dirk. "We are recruiting a wide range of expertise - from tender coordinators and customer project managers to network planners and technical sales support, implementation and training personnel. There is a great need for competent employees."

Growing market

SDH is a growing market. The global SDH market today is valued at about SEK 20 billion. A conservative estimate is that the market will be two to three times as large by the end of the century.

"Ericsson is extremely well placed. We have an excellent product portfolio, which attracts customers who today choose their suppliers on a strategic basis," continues Dirk. "For this reason, it is vital to establish relations with customers who will have a large requirement for SDH products during the next few years. Even if the initial contracts are small, they will gradually generate larger ones."

Meeting expectations

SDH has had a slow start. Customers have waited a long time for SDH to meet their high expectations. Now the second generation of SDH is on the market, and Dirk Uhlemann is convinced that the market is ready for SDH.

"Customers know about the capacity they can achieve with SDH, and they know that they will get greater reliability in the network and that SDH makes it easier to offer transport network services," explains Dirk.

"As a network supplier, we have an important task to carry out. We must be able to offer our customers network competence and show them how they can use SDH to expand as rapidly as possible."

Today, Ericsson promises its customers network competence even before the tendering stage.

"I have a concrete example of a customer who received assistance with network planning before we submitted our tender," relates Dirk.

Ericsson's most important product - and its primary weapon in the battle for customers and market shares in the SDH arena - is the Cross-Connect. According to Dirk Uhlemann, it is this product that makes the Ericsson/Marconi portfolio unique.

"Our SDH portfolio is the world's best, in all categories, for SDH systems based on the Cross-Connect, and this applies both to functionality and delivery capacity," concludes Dirk.

ANETTE BODINGER



Mini-glossary

SDH, the Synchronous Digital Hierarchy, was originally created to reduce operating and maintenance costs for telecoms.

SDH is not a switching system as such, but rather a signal transfer technology. SDH is greatly superior to its predecessor, PDH (Plesiochronous Digital Hierarchy), being far more flexible.

SDH functions as a cross-connect, multiplexer and demultiplexer, meaning that it packages and distributes traffic on the telecommunications network.

What is Cross-Connect?

Cross-Connect is a digital cross-connect which is controlled by a software program and can reconfigure the transport network if there is a line break.



Dirk Uhlemann is manager of the SDH/AIDA program in the Broadband Network Systems business unit at business area Public Telecommunications.

There have been many positive reactions to the partnership with Marconi,

Is the market ready for broadband?

Last autumn, Ericsson signed a partnership agreement with Marconi of Italy. As a result, Ericsson/Marconi can offer the market a world-class SDH portfolio.

SDH is ready for the market. The question is: Is the market ready for SDH?

Gray Murray is responsible for transport product management at Ericsson Telecom Broadband Network Systems.

"SDH has taken longer than expected to come to fruition," notes Murray. "The sales volumes that had been expected to develop three years ago are only now becoming a reality. Thanks to the partnership with Marconi, we have the most competitive SDH systems on the market."

Competitors in the SDH area include Siemens, AT&T, Alcatel and - to some extent - Northern Telecom. According to Gray Murray, these companies have already formed their own partnerships in order to top broaden their product portfolios.

"There are many competitors and small-scale suppliers who can deliver SDH network components, and a few suppliers offer total solutions," explains Murray. "We are one of the few suppliers who can offer a complete and competitive system."

Gray Murray describes the Swedish-Italian partnership as a "win-win situation."



as the numerous new contracts secured by Ericsson in areas such as Latin America and the Far East testify.

Photo: PRESSENS BILD

"Marconi has products that complement our SDH portfolio. We have the systems and the market channels. Together, we are the world leader in SDH."

Implementation of SDH has taken longer than anticipated. It is only now, with the advent of the second-generation SDH network, that the system provides the features that customers had hoped and believed that the first-generation SDH network would offer.

"Many customers are currently using PDH systems, which they are expanding and upgrading piecemeal with SDH components," notes Murray.

When the SDH network was introduced a few years ago, it was envisaged that it would accommodate virtually any system or product the market could offer, regardless of the supplier. That concept remained a dream.

"Standardization has not yet progressed to the point where multi-use is possible," explains Murray.

"But it is on the way to becoming feasible, and the dream could become reality within a few years."

Not a package solution

It is important to remember that SDH is not a package solution. Different customers have different needs. The motivation for using SDH is not the same in China as in Europe or Latin America.

"It is vital to understand local markets," continues Murray.

"In Europe, most operators have fixed networks. Quality, availability and speed are the primary requirements. But in

China, capacity is the top priority."

One reason why SDH got off to such a slow start is that many customers' existing PDH systems already provide high-quality performance. Few operators are prepared to risk taking a backward step for the sake of introducing new technology.

"Take British Telecom as an example," says Murray. "They would never go over to SDH unless they were guaranteed the same high quality provided by PDH systems. Ericsson/Marconi have a complete, world-class SDH product. The market is ready and waiting, and SDH is ready for the market! It is up to the market to take the step forward to SDH."

However, this relationship merely represents a transitional stage.

"Within the very near future - perhaps within six months - we can expect to see a number of rapid decisions being taken," predicts Murray. "Documentation and specifications will be superfluous. A customer inquires, can you do this? In that case, do it. And do it now! The day of protracted negotiations is past, as several examples have already demonstrated."

Naturally, it is all about money. Operators want to reduce their operating costs, while at the same time offering more services to their customers. SDH is the solution to their problem.

"Soon it will no longer be sales that we have to focus on. It will be volumes of a size to keep us awake at night. But that's the right kind of problem to have!" concludes Gray Murray.

Invitation to:
Third Ericsson SDT & ITEX User Group Meeting
 Utiö, 13-14 June 1996

For the third time Telelogic has the privilege to invite you and your Ericsson colleagues to a joint Ericsson user group meeting in the archipelago of Stockholm. The seminars during the user group will focus on Ericsson user experiences and Telelogic's plans for future development.

This year the aim is to have user presentations from different geographical areas in Europe where SDT and ITEX have been used in various Ericsson projects. Since the last user group meeting, Ericsson have invested time and resources in developing methods adapted to SDT and evaluating the code generation possibilities in SDT and ITEX. Today, products using code generation span from base-stations for GSM to modems and small embedded systems. In parallel different methods for an efficient use of SDT have evolved.

There will, of course, be a number of rewarding presentations during the user group meeting. But there will also be numerous possibilities for you and your colleagues to exchange experiences with each other. The idea is to have an efficient mix of presentations and possibilities to take up discussions with colleagues and/or Telelogic staff.

The Ericsson SDT & ITEX user group meeting addresses SDT & ITEX users as well as managers responsible for projects where SDT & ITEX are used. It is focused on giving an update of the latest experiences on SDT and ITEX usage within Ericsson, but there will also be an open forum for discussions around Telelogic's products.

For more information and registration please contact Petra Ericsson,
 Latest date for registration: May 1st,
 phone: +46-40-17 47 64,
 fax: +46-40-17 47 47,
 or e-mail: petra.ericsson@telelogic.se

If I could I would say that it was mandatory.

Welcome!

Petra Ericsson
 Area Manager
 Nordic Countries

Telelogic

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The telecommunications network is no longer simply a place where A can call B. Instead, it has become the world's largest marketplace, workplace and entertainment complex, opening the doors to entirely new business opportunities that both attract new operators and necessitate new strategies and flexibility on the part of the established operators.

From Intelligent Networks to Network Intelligence

It all began in the U.S. in the 1980s, when the telecoms market was deregulated and Bell became a separate company. At that time, the focus was on the introduction of Freephone services, and the Intelligent Network (IN) concept was launched by Bellcore. The demand for IN services in the U.S. prompted Ericsson to start operations in the same product area in 1986.

Kjell Persson, who was then working on AXE development, ordered the new product from Lennart Söderberg, working in the project management organization as it then was. The actual development work was performed at Ericsson in the Netherlands.

Trends and driving forces

As the fixed telephone networks in an increasing number of countries begin to become saturated with lines and subscriber connections, operators have to find other weapons with which to compete. Global deregulation is another factor intensifying competition between operators. All efforts focus on retaining – and preferably increasing – market share. At the same time, something of a paradigm shift is under way in the telecom world – one telephone per family or household is no longer sufficient. Soon everyone will want one or more individualized services linked to his or her own telephone number – a number which will be retained for the subscriber's lifetime, regardless of location. This principle applies to both companies and individuals.

Globalization forces the pace

Globalization is the main factor shaping and propelling the development of IN, even at the level of the individual. As the world "shrinks," the telephone and the net are used in an entirely different way than previously. We travel and work across national boundaries. We telework, do our banking over the telephone network, use short numbers to contact our closest friends and colleagues, and order goods and obtain various types of information over the telephone. This increases the demand for mobility; subscribers want to be able to use the same telephone services away from home as they are used to at home.

It will be necessary to harmonize both the fixed

and the mobile networks in order to be able to offer subscribers services that use both networks in combination.

Why Intelligent Networks?

IN is an extremely effective competitive weapon, since it enables operators to distinguish themselves from other operators in the battle for subscribers. Many operators focus on niche markets in various market segments, or particular target groups, building their profile around new service offerings. This is especially true of the new operators, who primarily target corporate customers wishing to internationalize their business.

Speed is essential, however, in order to beat competitors in the race to capitalize on new business opportunities. Success depends on offering a system that can be rapidly installed in the network and is flexible enough to permit changes in the services offered in response to market demands. Ericsson's Intelligent Network is such a solution, providing broad scope for changing the services offered.

Comprehensive offering

Today, Ericsson offers a comprehensive range of IN-based services, platforms and telephony functions, with new products continuously under development. Current versions of IN products are characterized by a wide range of options and enhanced capacity achieved through further improvements to the platform, such as substantially increased management ca-

capacity and – in the APZ 212 20 – the use of the latest processor technology. In line with Ericsson's commitment to freedom of choice, the product portfolio has now been strengthened by the addition of a new computer-based Service Control Point to complement the telecom-based SCP (see under the heading: Key Network Products).

Ericsson's motive for developing an alternative solution to the AXE-based SCP is that a number of customers seek a solution based on standard computers. As a result, the new product has opened up an entire new market for Ericsson.

Regarding actual services, operators have previously opted to purchase the IN platform itself and develop their own services. Now, however, it is becoming increasingly common for customers to purchase the complete package, including products, services and the competence required to build an IN structure.

MARIE HÅKANSSON

■ Here at Ericsson, the concept of IN has been expanded during the past year into a new and broader concept – Network Intelligence (NI), encompassing more than "mere" IN technology. Kjell Persson, who is responsible for global product management for NI, explains why:

"From a purely technical point of view, today's telephone switches will be divided so that the transport of voice, data and multimedia will be separate from the setting up of a connection (call) and the service offerings. This will necessitate integration of the different networks for fixed and mobile telephony, data and broadband services."

This is where NI comes into the picture through its capacity to keep track of different numbering systems, time zones and service offerings to keep pace with the explosive pace of development in the information and data communication services offered via telephone links. The new network structure enables new ser-

vices to be offered. The NI concept includes the new telephonist functions, which allow telephonists to perform functions that complement the standard range of services. The technology permits such telephonists to be geographically located wherever is convenient – at the office or at home, in town or in the country.

The concept also includes what are known as Intelligent Peripherals (IP), products incorporating advanced technology such as voice recognition, voice messaging and voice mail. In addition to these actual products, the NI concept also provides value-added for companies, such as Ericsson, that are high up in the operator's value chain. One example is joint marketing, a product to support the customer's marketing and sales efforts.

Today's Intelligent Network services still include the highly popular Freephone service, but this is now joined by another ten services. A few of these IN-based services are briefly presented below.

IN or NI?



Illustration: MAGNUS ANDERSÖ

■ Freephone, prefixed in the U.S. by 800, enables the recipient of the call, such as a mail order company, to pay for the call. This service is usually combined with the next one:

IN-based services

■ Universal Access Number, which allows a company with a chain of branches, for example, to offer its customers a single number to call. Regardless of where the customer is calling from, he or she is connected to the nearest open office or branch.

■ Account card calling permits the customer to make calls from any location and direct the bill to a specific account. This service is used by both private individuals and companies.

■ Information services, such as Premium Rate, provide information, such as weather reports or stock market news, in return for a higher call charge.

■ Televoting is another popular service, used by TV companies in programs where viewers actively participate by calling in and voting – on the best melody, for example.

■ Universal Personal Telecommunication (UPT) offers users a single personal telephone number with special UPT services which the subscriber selects and controls by linking them to his or her UPT number. The service functions for both incoming and outgoing calls.

■ Virtual Private Network (VPN) is an IN-based telephony and data service. A "virtual private network" gives subscribers, mainly corporate customers, greater control over their telephone bills (through discounts and preferential call charges), short numbers and a customized number scheme. Since VPN is entirely unaffected by national boundaries, the service can accompany a company when it moves or expands to a new country or city. This in turn enables the operator both to retain its corporate customers and add new market shares by acquiring new customers.

VPN is a "big seller" that was first placed in operation for Unisource last autumn following an intensive campaign by an international Ericsson team cooperating with Ericsson in the Netherlands.

Strong demand

Ericsson is currently working at maximum pressure to meet the demand for IN services. To date, Ericsson has delivered IN solutions for both fixed and mobile networks to more than 50 operators in almost 30 countries (estimated at twice as many as the nearest competitor). Ericsson is the world leader in VPN and UPT services.

Key Network Products

■ IN consists almost entirely of software, but a number of network products are required to create the nodes through which the services are delivered. The following products are included in the network structure, mainly based on AXE:

■ Service Control Point (SCP) – the point where the service logic is implemented in the IN network – is available in both an AXE-based (SCP-T) and a com-

puter-based (SCP-G) version, the latter for use in a UNIX environment. Normally located at a central point in the network.

■ Service Switching Point (SSP) – the exchange that executes instructions in the network received from the SCP. These instructions may, for example, specify a destination or payment form for the subscriber. Can be installed in Ericsson's local and transit stations.

■ Service Switching Control Point (SSCP) – a combination of SCP and SSP, see above. An SCP and an SSP make up the smallest possible combination for creating an IN.

■ Service Data Point (SDP), a UNIX-based solution, is the database used for storage of extremely large amounts of data. Normally found only in the transit level of the network.

■ Service Management System (SMS) permits continuous direct manipulation by the operator, who can add or remove subscribers as required, control billing, generate statistics, etc.

■ Service Creation Environment (SCE) is a "toolbox" that enables the user to create or program services and install the services chosen by the operator in the network.

■ SIB stands for Service Independent Building block. SIBs are modules, represented by icons, which can be combined in different ways to create a telephony service.

Russian Alexander looks for a future in Ericsson

Interest was widespread when Ericsson opened its doors during a weekend in March and invited the general public in Moscow to a two-day career seminar. Hundreds of visitors came to look around, gather information and seek employment with the Swedish company.

Telecommunications is nothing new to Alexander Jevstratov. The 23-year old Russian works at Dealkom, a Moscow company, attended the Russian Institute of Communications for five years and has some excellent vocational experience. But the young engineer also wants to broaden

Broad interest for trainee education in Moscow

his horizons. Alexander enthusiastically filled in the application forms that were distributed during Ericsson's two career days in Moscow recently.

"I want to work closer to the producer," Alexander explained in excellent English. "I have worked with network matters and am very familiar with Ericsson."

Present and recruit

Ericsson had several objectives for the Career Days, which were held at the Aerostar Hotel a few kilometers from heart of Moscow. Naturally, one of the goals was to present Ericsson to the Russian telecommunications industry – a sector that is virtually screaming for knowledge, qualified personnel and technology. The main objective, however, was



Alexander Jevstratov visited Ericsson's Career Days in Moscow and would love to work for the Swedish company. He has professional experience and an educational background in telecommunications, but he was far from the only applicant with similar qualifications.

to recruit 32 persons for an Ericsson trainee course due to start in May. The company also has more than 30 other vacancies to fill. Instead of trying to lure Swedes to Moscow, the vacancies will be filled by locals, that is Russians.

The Career Days were a success. More than 500 visitors were registered during the 15+ hours that Ericsson had its doors open to the public. They carefully studied display panels, read through presentation

brochures and anxiously filled in job application forms.

Foreign expertise is needed

"I live in the Serposjovskij region, outside Moscow," explained Alexej Marinin, an engineer at the local telephone office.

Foreign expertise is needed in Russia, Alexej Marinin says, who would love to tackle his countrymen's problems – with an Ericsson business card in his valise.

Alexej was also quick to fill in a job application form. But he too will be competing with 400 other applicants with aspirations of working for Ericsson. A quick glance at the stack of applications is a clear sign that it might not be too difficult for Ericsson to recruit the number of qualified people it needs. It may be a time-consuming process, however, as many applicants showed impressive qualifications.

Local personnel

Ericsson opened its Moscow office in 1994. Sales in 1995 doubled, compared with the first year of operations, to about SEK 1 billion. Sales next year are expected to reach approximately SEK 2 bn. The office now has about 125 employees, of whom 100 are Russian. The workforce must be expanded to keep pace with rapid business development. Ericsson can no longer support the operations with personnel from Sweden. In fact, it has been difficult to lure Swedish personnel across the Baltic to work in Russia, much to the lament of Thomas Holmberg, administrative manager with responsibility for personnel issues.

"Russia has a bad reputation that it does not deserve," he explains with a deep sigh, alluding to general impressions of political instability, low standards of living and personal safety risks.

"But conditions are not that bad," Thomas Holmberg declares.

Available skills and know-how

To reduce its dependency on Sweden, the Moscow office is now focusing on recruitment of local personnel to secure job renewal and reduce the office's vulnerability. Thomas Holmberg does not believe Ericsson will have any problem recruiting locally.

SOPHIE FAHLBECK HEINE

OPS to mobile operator in Italy

Although the competition against Ericsson was strong, Telecom Italia Mobile placed an order with Ericsson in the summer of 1994.

The order was for Ericsson's Operator System, OPS, and consisted of 400 Operator Work Stations.

Telecom Italia Mobile, Italy's public operator of the TACS/GSM network, has more than 3.500.000 subscribers. According to Ole Lindskov, of the Interactive Network Services department in Denmark, Telecom Italia Mobile is the first mobile operator to place such a large order with Ericsson.

Since 1987, the development of operator systems has been the responsibility of this department in Denmark with Ole Lindskov as manager of Marketing and Sales support for Operator and Audio Service Systems. The de-

partment is a part of the Global Product Line Management department in Stockholm, Sweden.

It was in co-operation with the Danish department that Ericsson Telecomunicazione in Italy could give an offer to Telecom Italia Mobile.

Telecom Italia Mobile's purpose of installing the OPS system was to offer their TACS/GSM customers a one access point support and service. With OPS, they now get a service which is able to register new subscriptions, change existing subscriptions, offer information on the customer account, offer information on the network, radio coverage etc. and settle account disputes.

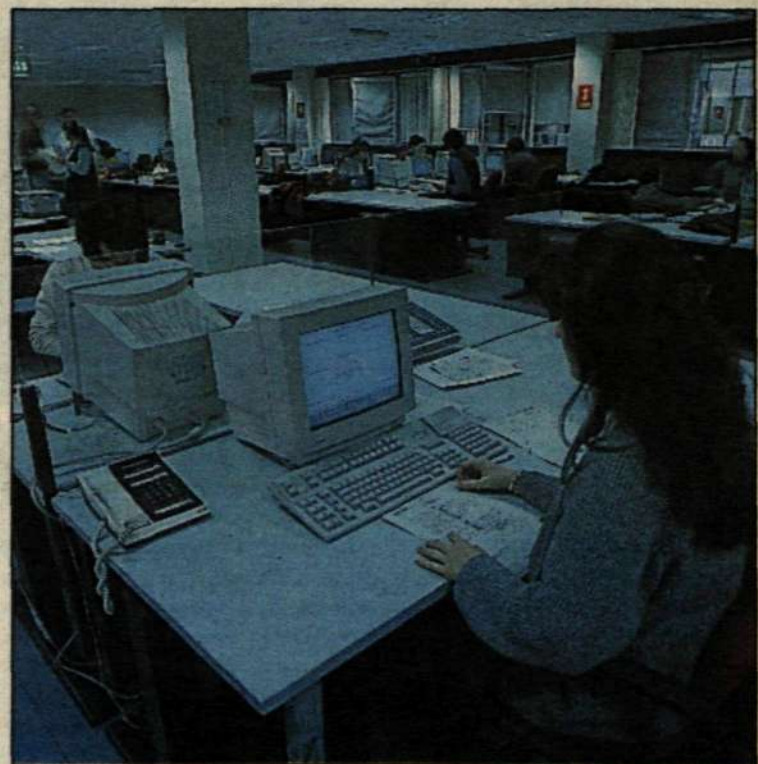
Another of the OPS systems advantages is the customized features offered by the optional OTN Feature System. A feature is a piece of software capable of interacting with workstation applications and is activated by events occurring in applications.

The OTN feature system enables features to be designed according to customer needs.

A service Ericsson's competitors cannot offer.

Based on Telecom Italia Mobile's requirements OTN Features were designed to ease the handling of different services. For example to support the retrieval of information which is most frequently used, enabling the operator automatic admission instead of having to shift to the specific database for information.

Telecom Italia Mobile is in the process of expanding the number of extensions in the system. During December 1995 60 additional Operator Work Stations were installed which makes a total of 460 stations activated. Another 154 have been ordered to be installed during February 1996. This brings the amount up to 600. However Telecom Italia Mobile and Ericsson Italy are discussing how to expand the system further beyond 1000.



The Operator Work Stations are located in seven different cities. Each operator is allowed to be connected to several different databases systems simultaneously.

Working with customers for several days and discussing common issues and problems in an easy-to-grasp manner is a good way to strengthen customer-supplier relationships. Five operators, all members

of the AXE User Forum, held a working seminar in Copenhagen recently to discuss remote-controlled operations and maintenance, as well as network operations as a commercial concept.

Dialog with customers

AXE User Forum met in Copenhagen

The working seminar was organized by Lotti Steenbuch-Kvisterud in Ericsson Telecom's Customer Services Unit. The participants came from Telia (Sweden), Jydsk Telefon

in Denmark, Telecom in Italy, Telefónica in Spain and Telstra in Australia, and included representatives of Ericsson Telecom and Hewlett-Packard.

"It is useful in many ways for Ericsson, our local companies and the operators to meet in one location and discuss common needs for future network operations. It definitely helps Ericsson to understand customers' operations and the special situations they face."

"At the same time the operators get many answers to questions about how Ericsson can best support them in their efforts to be more competi-

tive in the telecommunications market" says Lotti Steenbuch-Kvisterud.

Ole Jörgensen, who is responsible for services related to network operations, also participated in the seminar. "I think the seminar was very useful for Ericsson," he says. "It is not often that we have an opportunity to meet so many qualified operators in one place and discuss common needs in the area of future network operations."

"The next step will be for us to answer the questions we received during the seminar and document them in a report. It is encouraging to see that a number of services are considered to offer the solution to at least some of the operators' problems."

Lotti Steenbuch-Kvisterud says that the results of the seminar will be summarized and reported in September at the next AXE User Forum.

The customers speak out

Mogens Larsen, Jydsk Telefon, Denmark:

"More direct measures"

"This working seminar differed somewhat from the usual AXE User Forum meetings in that we concentrated on only two things. Another innovation this time was that Ericsson had local companies represented, which was a very good idea. Their presence makes it possible for Ericsson's people in Stockholm and the local companies to understand each other better. I think that there were more direct measures on Ericsson's part in terms of what should be done."

"We are trying to look ahead. This was the first time we have discussed the relationships between the various problems we are facing. At earlier meetings we didn't discuss things in this way, merely talked about problems. This feels like a much more constructive way to untie some knots."

Silvio Valeau, Telecom Italy

"Shared experience makes for better contacts"

"This is the fourth meeting of this type that I have attended. And, as always, the Ericsson people who take part are involved in trying to

find solutions. The manner in which we worked earlier seemed a trifle 'formal'. But under the right circumstances - such as this meeting - we can concentrate more on our job and focus sharply on the real problems."

"A working seminar of this type gives us an opportunity to share experiences with other participants. And we can focus on the things we have in common. Having the local companies participate is very beneficial. It makes contacts between Ericsson's product managers and the local companies easier."

"I think that networks are the future and that the commercial opportunities will lie in services. Services result in shorter lead times, greater added value and give us an opportunity to learn customers' needs."

José Maria Escanciano
Telefónica

"There will not be only one future"

"What we have done here has been very interesting, not only for Ericsson but for our companies. There is a connection between the information we receive and the needs we have. As in this case. We are trying to get certain information from others and discuss our future. We need to take advantage of Ericsson's ideas and the ideas other opera-

tors may have. At the same time we have to offer information on our interests and our view of the future."

"The ways of thinking in Europe are changing rapidly. I reported my thoughts about the future. Others did the same. Despite the fact that there were a great many similarities."

"In brief, we achieved certain concrete results," he adds. "We naturally did not determine what is coming in the future, but by checking our ideas against each other's we achieve an unbiased exchange of opinions."

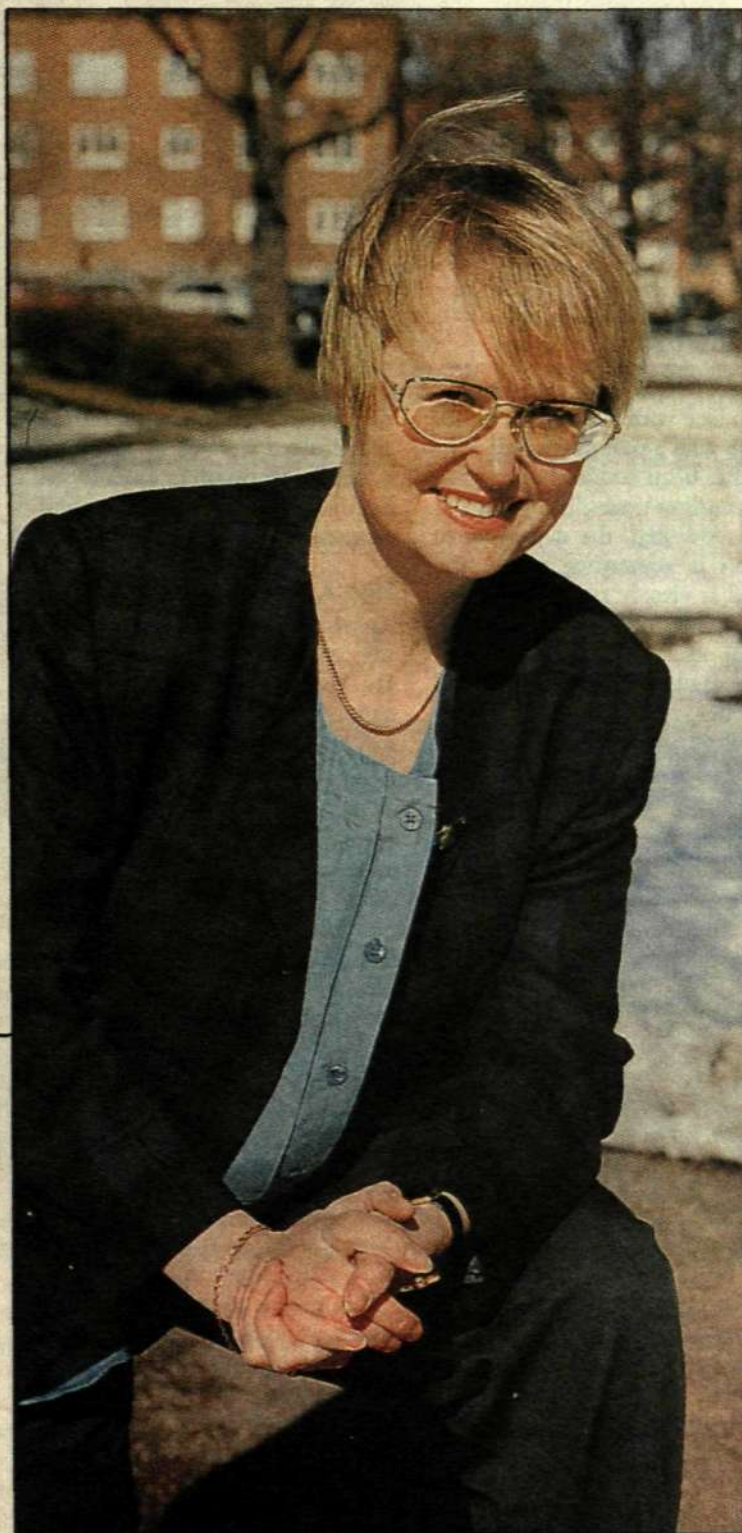
Rolf Johansson, Telia
Chairman of the AXE User Forum

"We are certainly competitors, but we have to cooperate"

"We reached certain conclusions during the working seminar. One of them is that we should discard a model that we have worked with for some time. One of the purposes of a seminar like this one is to enable us to tell our principal supplier - Ericsson - about our short-term problems in order to help the company understand our needs over the long term and be able to meet them."

"The main topic this time was remote-controlled operation and maintenance, which means that an operator may have employees on the job 24 hours a day."

Rolf thinks that contacts be-



The working seminar was organized by Lotti Steenbuch-Kvisterud in Ericsson Telecom's Customer Services unit.

Photo: PETER NORDAHL

tween operators and suppliers are very important.

"Sometimes we don't agree, but then we find a way to solve the problem. I think it is very important to listen to what we - the operators - have to say and what we think. I think it is very important that we have this international cooperation. We are certainly competitors but we have to cooperate."

"Centralized remote control of operations and maintenance is necessary in Telia's case since we have to reduce the number of employees. Moreover, many of our switches are located far from any operations center. If a system fault occurs, it results in an excessively long interruption of service, due to the travel time involved. Ultimately, when we change over to centralized operation and maintenance, it will be possible to dramatically shorten the time it takes for new services to reach the market."

Mal McDonald, Telstra
Australia

"Ownership and a common goal"

"It is important to have joint discussions about the future. Ericsson has listened to our needs and I hope there will be some kind of follow-up. I work with network operations, an activity that crosses over organizational boundaries. We still have a long way to go before we can convince people that network operations is not a cost item, but a source of income. This is partly a matter of education. I think that when we took up network operations as a commercial concept we really dealt with something worthwhile. Everyone participated and had a common focus."

MICHAEL NOTRICA
MY SPANGENBERG

Internet development just getting started

"It's important to remember that the Internet is a new medium and that it has enormous potential, particularly for cutting costs and making business more efficient," says Ken Ryan, who is responsible for Ericsson's external Web site, in part in response to such criticisms as "The Internet is mostly garbage," or "It's impossible to find anything on the Internet."

Ericsson has had an external Web site with its own news for more than a year and a half. The site has been accessed more than four million times during this period. Although the definition of access is somewhat vague, the trend is clearly rising. Most accesses, about 83 percent, are external users. On a typical day, there are between 15 and 20,000 searches of Ericsson's Web pages. The current record of 28,000 was noted in conjunction with the latest interim report.

The material on Ericsson's Web pages is deliberately Spartan, without a lot of flashy graphics.

"Graphics require high capacity and slow down the system," explains Ken.

External and internal

Use of the Internet within Ericsson is divided between external and an internal components. This article describes only the external portion.

Ericsson's external Web pages reside in databases running on two Unix servers. The master server is located in the Netherlands, while the slave server is in the U.S. (A third is planned for the Asia Pacific region.) The U.S. server was taken into operation to improve the system's speed. Crossing the Atlantic takes time, even with today's high-speed data communications. Both servers contain the same information, however.

Everything in one place

The fact that everything is gathered in one place is seen as a major advantage.

"We target three groups: journalists, investors and engineers," says Ken. "We do this by sending out press releases, background information, financial information and technical articles."

"I really want as many clearly defined target groups as possible, because this will broaden our readership, which should benefit Ericsson."

"Unfortunately, we are still lacking in product information, which is very much in demand. This is particularly evident in the comments we get on our Web pages."

"Today we are producing more and more material that is de-

signed specifically for the Internet, whereas in the beginning of the project we put up a lot of general information already on hand or material that I myself adapted."

Home language

Another enhancement now being implemented is that pages are being created for different countries in their own languages. Home languages currently sup-

The Internet provides a tremendous opportunity to save money and make business more efficient

ported include Finnish, Danish and German.

There is a person in each country who is responsible for submitting information from that country and for localizing general information.

The goal is to build a "virtual organization," of information managers and to distribute responsibility. This will allow more people to post pages, as long as they use the templates and follow the guidelines established for how information should be presented.

The Ericsson Web site will contain country-specific information that is managed by those who are most familiar with the respective markets. More general international information will be placed at a higher level in the web structure.

Over-hyped?

But to return to where we started, is the Internet over-hyped?

"Should we really place different demands on the Internet than other media?" counters Ken. "What kind of programming do you find on radio and TV?"

Neither is the fact that the Internet today can be compared with a library where the books and magazines are lying almost anywhere, without any real order a reason to dismiss the Internet. Search methods are improving constantly, and the entire network is still changing rapidly.

Instead Ken points to the Internet's development potential. He also emphasizes that there is at present no other way



"We should not have different demands on the Internet than on other media but instead see the development potential," says Ken Ryan, who is responsible for Ericsson's external Web site.

Photo: Karl-Evert Eklund

to distribute the same amount of information globally. Year-end reports, recruitment ads and other information can be distributed to millions of people at low cost.

"The real benefit will be evident in a few years' time. Then we will see that people know where to find us."

Shaping development

In closing, it should be noted that Ericsson is monitoring what competitors are doing and making comparisons, called benchmarking, and that it is already clear that many competitors are investing significantly greater resources.

"We were out on the Net early,

and we have many visitors today," notes Ken.

"But we cannot stand still. We must try new ideas and ensure that posted material maintain high standards of journalism in

order to give visitors what they want.

"In five or ten years, the Internet will be completely different from what it is today."

LARS CEDERQUIST

On the Ericsson home page

Ericsson's external Web site is found at the address:
<http://www.ericsson.com> or
<http://www.ericsson.nl>

At this site you will find the latest information, including general information about Ericsson, available jobs and current study projects, as well as presentations of the various business areas, local company

addresses, press releases, financial reports, stock prices, country-specific information in home languages, a number of Ericsson magazines and statistics on site usage.

The material is kept up-to-date by removing old documents.



Toward common electronic standard

Ericsson has taken the initiative in promoting cooperation between suppliers and operators in developing a common standard for electronic documentation.

"The advantages are obvious, both for us as suppliers and for our customers," says Gunbritt Jonsson, who is coordinating the project within Ericsson.

It is already extremely important to develop good common standards for product documentation in the emerging electronic media. Within two years the earlier paper documentation prepared for AXE systems and mobile telephone systems will probably have been replaced by electronic information in operations support systems and – following a changeover period – on webs via CDs.

"Initially, a cooperative project (Tec-Pad) financed by the European Union dealt with the problem, but this project is now ending in May and there is no follow-up," says Gunbritt Jonsson at Ericsson Utvecklings AB. "We and representatives of leading suppliers and operators in Europe have offered to continue the project on our own."

First meeting

At the first meeting in Skärholmen, outside Stockholm, in February, representatives of Ericsson, Siemens, Alcatel, Italtel and Nokia met with operating company personnel from British Telecom, Belgacom, Tele Danmark, Telecom Italia, Telia, E-Plus Mobilfunk (Germany), PTT Telecom (Holland) and Telefonica of Spain.

Organizational rules and the manner in which the project is to be conducted were discussed at the meeting. The group is calling itself EFTI (European Forum for Telecom Industry Information Interchange).

Everyone has an interest in standardization. Customers are increasingly asking for electronic documentation and a common method of documentation is required to prevent the situation from becoming overly complicated with a large number of systems, and to make it possible to establish links between information for various products.

Major change

Based on the meeting in Skärholmen, there are indications that the participants will use today's established ISO 8879 standard, SGML (Standard General Markup Language), as a base. SGML is used to handle large amounts of text in a standardized manner with the aid of computers.

SGML has to be supplemented in a number of respects, however, notably where linkage of images, voice, animation and other elements are involved. Project members are now working to define the new requirements and will later agree on a common format.

Another question is whether EFTI should develop a complete concept or a "semifinished" one that each customer/operator can adapt to its specific requirements.

LARS CEDERQUIST



"Everyone gains by having a good, standardized interface for electronic documentation," Gunbritt Jonsson, Ericsson Utvecklings AB, emphasizes. Gunbritt, together with representatives of leading suppliers and operators, is involved in the EFTI development project. The first meeting was held in Stockholm in mid-February, with the next one scheduled to be held at Tele Danmark in Copenhagen at the end of May.

Photo: KARL-EVERT EKLUND



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A story worth telling

I won't be able to tell my grandchildren about any great sports triumphs in my youth but I will be able to say that I received a patent. And it wasn't easy."

That's how Corneliu Rosu sums up his thoughts about the patent he recently received in Europe and the United States for his method of optimizing network operations.

The patent was granted for a method of "Overload adjusting in telecommunications networks." Corneliu Rosu deals with consulting services in the Customer Services unit of the Public Telecommunications Business Area.

The patent is valid for 18 years in Europe and for 20 years in the U.S.

"And this is during a period when the telecommunications industry is characterized by tough competition," Corneliu points out, adding that one of the major advantages of the patent is that it does not name any specific system. His network optimization is equally applicable to mobile network, ISDN or ATM.

"The traditional method of optimization," he explains, "deals with the traffic itself. It works if the other network-dependent variables are constant and if there are no great variations in the projection parameters. But with today's hard-to-estimate rate of growth in network customers, long-term planning is becoming short-term planning - and short-term planning is requiring flexible network operations."

The method of optimization in real time described in the patent also covers sudden "skips" in the flow of traffic. These skips may be due to radio or television programs or other heavy-overload problems that can result in reduced revenue for a network operator.

Weakest link

"It's like a chain whose strength is determined by its weakest link," Corneliu says. "We find the weakest links that are due to overloading, defective groups of instruments and other factors that can cause loss of calls and thereby affect an operator's revenue. A decision-support system that is part of the patent makes it possible to simulate various traffic solutions for the net-

work and then select the best solution for getting network traffic to flow smoothly. Another aspect of the patent is a method for reconstructing networks in the event of a "crash" or extreme overloading.

"This activates the method of optimizing the network in real time even if something should happen in an exchange or in a part of the network. We can plan in advance for what should be done in the event

Perseverance and professionalism resulted in new Ericsson patent

the system crashes or its use is impaired in some other way. If this happens, we can implement our crash plan for network optimization. Reconstruction and network optimization in real time are two important parts of the patent.

Some of them pertain to networks used for purposes of optimization and to decision-support systems for this type of optimization.

"In the end it is a matter of business opportunities for Ericsson Customer Services. Based on this patent, we have developed a network evaluation model and prototypes for decision-making tools. And we can sell services based on them. The model makes it possible to optimize a customer's existing network and the 'crash planning' for various overload situations.

"The sale of licenses will mean revenue for us, as will the services we can perform for customers. Moreover, as an extra bonus, I think we can 'freeze' competitors' development work in this area."

Another factor that should not be neglected is the creation of new jobs.

"Today at least 50 persons within Ericsson are involved in projects dealing with overload conditions in telecommunications," Corneliu notes.

It certainly sounds like something to be proud of - a story worth telling one's grandchildren.

**MICHAEL NOTRICA
MY SPANGENBERG**



Corneliu Rosu deals with consulting services in the Customer Services unit of the Public Telecommunications Business Area

Photo: PETER NORDAHL

Major Local Companies aim for better relations

Ericsson Telecom in Kristianstad was host to more than 40 representatives of Major Local Companies and components units during a meeting early in March. Participants from all parts of the world came together for two days to draw up guidelines for future cooperation.

Since January 1 all business contacts with Major Local Companies have been handled by each company's components unit. The change is part of the outsourcing of components units.

"I think it was very helpful to be able to establish personal contacts with the people in subsidiaries to whom we are sell-

ing," Ulf Eriksson, Katrineholm, said.

"We think the meeting offered a great deal of essential information," said Jeanette Kamberg and Olaf Jorissen of Ericsson Telecommunicatie in the Netherlands. "It was absolutely necessary for all of us to get together in order to agree on how to cooperate in the future."

Improved relations

"It is much easier to establish contacts, now that we have met personally," Ulf Eriksson said. "Now we know whom to contact. We have a common platform to stand on."

"I came to the meeting with mixed expectations," said Kersti Bergqvist-Ström, who deals with marketing involving the

large companies outside Sweden, notably Matra Ericsson Telecom in France. "It was a very good idea to draw up guidelines at such an early stage."

Problems remain

"There are still some specific problems," Jeanette Kamberg pointed out.

"Companies are still waiting for data files showing prices and products."

An action plan was prepared at the end of the meeting. Many of the participants were asked to change their procedures, including those pertaining to the supply of components from the system units, price lists and product lists, forecasts made directly to each supplier, and changes in instructions dealing with claims.



Ericsson Telecom in Kristianstad was host to more than 40 representatives of Major Local Companies and components units recently. Participants from all parts of the world came together for two days to draw up guidelines for future cooperation.

"As a result of these steps, customer relationships are much improved and we have a greater understanding of each other others' operations," say Daniel Ljunggren, Joan Ekelund, Susanne Ostberg and Kenneth

Mårtensson who work with logistics and planning in Kristianstad.

"Earlier, we didn't have any direct contact with customers. This is a completely new way for us to work." **ULRIKA HERSTEDT**

Vacancies

AT ERICSSON

■ This is a selection of vacancies within the Ericsson corporation. They are published in the electronic News system, which is being updated once a week.

For further information about advertising here, send a memo to LME.LMEJOB.

Contact no. 4 1996

Updated April 22

Ericsson Schrack AG, Wien.

MARKETING & SALES MANAGER LOCAL LOOP TRANSMISSION - WESTERN EUROPE

■ For our Local Loop Transmission business, which is one of the main product suppliers within Ericsson's overall Access portfolio we are looking for a MARKETING & SALES MANAGER / Western Europe.

The candidate will have to work extensively with European subsidiaries of Ericsson and with European Public Telecom Operators to make sure that LLT products are being introduced into the Access Network in Europe.

We are looking for somebody that ideally has a good working knowledge in public telecoms, knows European Operators and has experience with marketing through Ericsson Local Companies in Europe.

The ideal candidate would be around 35 years of age, has an excellent command of the English language, speak a little German (but this is by no means required) and is a very dynamic and result oriented sales person.

He or she should be able to discuss on all levels of Ericsson Local Companies and of customers and in particular be able to engage efficiently in reviewing business cases related to our product offering from the customers point of view.

The assignment shall start asap. Ideally the candidate would be ready to move to Vienna, other arrangements are, however, possible. In any case an

extensive training periode, mostly on-the-job, will require presence in Vienna initially. The position requires quite extensive travelling within Europe.

Application: including CV and photo to ERICSSON AUSTRIA AG, Human Resources, Pottendorfer Strasse 25-27, A-1121 Vienna

Ericsson Radio Systems AB, Kista.

PRODUCT MANAGERS - NETWORK APPLICATIONS

Business Unit Cellular Systems - American Standards (RMOA) offers our customers solutions for PCS networks in the 800 and 1900 MHz frequency bands based on the D-AMPS specifications. We are offering not only wide area mobility but also office, residential and fixed cellular applications.

■ The responsibility of a Product Manager, working with Network Applications, is to evaluate new business opportunities by means of Business and Technical analysis. Define new product concepts jointly with the systems design organization and customers. Carry out product presentations and participate in discussions with customers.

Strategic Product Planning at RMOA has now open positions for some well skilled and ambitious individuals to work as Product Managers in key Application areas:

- Fixed Cellular - Wireless Office - Reseller and Down Banded Cellular - Datacom & Multimedia - Network Convergence and Service Architecture

The position as Product Manager implies responsibilities and authorities to secure and maintain Ericsson's position as a leading cellular systems provider. As Product Manager, you will get opportunities to gain a wide cellular market knowledge and broad competence in advanced Telecom applications. You have an academic degree, Telecom background and working experience from Cellular Systems. The work entails international contacts and travel.

Contact: Stefan Manner, phone +46 8 757 1742, memoid ERA.ERASM or Osborn Hogeveik, phone +46 8 757 3379, memoid ERA.ERAOH. Application: K/ERA/AH Britt Bosrup, Ericsson Radio Systems AB, 164 80 Stockholm.

Ericsson Radio Systems AB, Kista.

PROJECT MANAGER PRICING

■ Around the world, cellular markets are growing rapidly. D-AMPS/AMPS mobile systems today serve more than 50 % of mobile world-wide subscribers, with Ericsson having the largest market share. Our CMS 8800 family of products continues to be successfully deployed world-wide in both traditional and new applications. Within our business unit, Cellular Systems - American Standards (RMOA), a reinforcement to our product marketing and pricing group is needed. This group is driving product marketing and supports the organization with price-related issues.

As project manager for pricing you will support

RMOA sales management and the sales force with price analysis and coordination. In your position you should be able to work and drive smaller projects of your own. You will work in a high-paced, international environment, in close contact with our sales force.

Qualification and experience: The applicant should have a university degree (M.Sc., MBA or similar). Fluency in English. Ability to cooperate and drive for results. Open-minded, flexible and enjoy working in a fast growing organization.

Contact: Thomas Anjou, phone 08-4044626, memoid ERATANJ; Bengt Waxberg, phone 08-7641785, memoid ERAWAX. Application: K/ERA/AH Anette Spångberg, Ericsson Radio System AB, 164 80 Stockholm.

Public Network Business Unit, Australia.

PRODUCT MANAGER

■ NETWORK INTELLIGENCE, OPPORTUNITY TO "GROW" THE MARKET, LET'S CREATE THE SOLUTION. The Public Network Business Unit is committed to advancing the future using Intelligent Networks Applications and in this objective shall include a number of different strategies and activities.

One of these activities is to enhance the Personal Number project, jointly being undertaken with our major customer. Within this project, there is a need to provide Product Management support and services in the network intelligence area.

Your prime focus will be to provide solutions to identified opportunities for IN application. In addition you will facilitate the introduction of products into the Telstra network by providing advice and recommendations in order to maximise the use of products capabilities. In fulfilling these key responsibilities your sound interpersonal skills will be fully utilised and continually tested.

It is expected the successful candidate will possess a number of years of product management experience in the field of Intelligent Networks and ideally have knowledge of network management platforms such as SMAS/TMOS. Should an international contractor be appointed to the position it is anticipated that the contract will be for an initial two years.

Application: Michelle Raeburn, memoid EPA.EPAMER, outlining your experiences and suitability for this position by May 10, 1996, quoting reference number 960414.1.

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The CB35000 family for example offers designers the best volume solution available today. It includes features such as advanced 0.5µ triple level metal technology with stacked contacts and vias, low power consumption and a comprehensive library of advanced macro cells including RAMs, ROMs, PLLs

and telecom cells. In addition the library is supported by state of the art CAD tools from all leading vendors including Mentor, Cadence, Synopsys and others. In short ST has everything you need to get your design right on track. And whatever your design ST has the package you need including standard TQFP and BGA types as well as a whole range of specialised flexible power performance packages.

But it's not just technology that gives ST the edge.

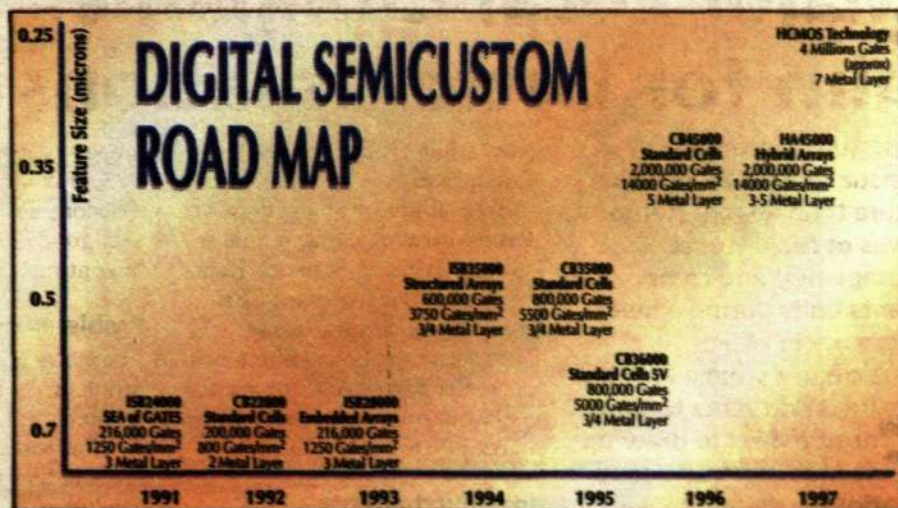
A global player, ST offers internal multi-sourcing with state-of-the-art fabs, assembly and testing in Europe, Asia and the USA plus an extensive world wide network of design centers interconnected on a dedicated global link which puts the full force of ST technology right at your finger tips.

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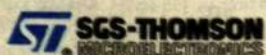
ST recognises that to keep on track it has to be able to offer its customers a well defined roadmap for future advanced technologies and applications. That's why, year after year, ST continues to invest in new

technologies and products whilst maintaining continuity of supply. The next generation of devices are being readied right now. These feature 0.35µ transistors and full 5 layer metal with optimised design rules giving leading edge gate densities. And we're already working on 0.25µ technologies.

So no matter what your application requirements you can be sure the right direction to take is SGS-THOMSON - we're working to keep you on track.



Service and Technology



SGS-THOMSON Microelectronics AB - Borgarfjordsgatan 13 - Box 1094 - S-16421 Kista - Tel: +46 8 793 6920 Fax: +46 8 750 4950 - http://www.st.com

Ericsson S.A. Spain.

GSM SYSTEM SUPPORT AT ESO

Ericsson support office at REE in Madrid (Spain) have been assigned the responsibility to support customers in Spain, Portugal, Gibraltar and Greece. In order to cover the new assignments and the challenges coming from these expanding and demanding markets, we are looking for system support specialists and system support engineers. The tasks to be performed by this new personal include different areas as trouble report handling, emergency support, consultation-service, software update, software-implementation and special projects.

At least five years experience in ESO/FSC, handling the CME20 product line.

Flexibility and good communication skills are needed as well as good knowledge in both GSM and AXE. If you feel like being a part of a flexible and team oriented organisation as well as live in an exciting city in the middle of Spain.

Contact: Peter Gustafsson +34 1 3392387

Ericsson Radio Systems AB, Sundbyberg.

MANAGER FOR FIELD SUPPORT CENTER, POLAND

We are looking for one experienced FSC manager to work on a long term (at least 1 year) contract in Warsaw, Poland. The successful candidate shall have the following experience:

- Preferably been working as FSC manager for some time or been working with system support in an FSC or ESO for at least 3 years.

- At least 5 years of AXE experience, with a good knowledge of the GSM system.

- Radio related support experience is an advantage but not a requirement.

We also want you to have the following personal skills:

- Managerial skills - Professionalism and perseverance - Initiative, high motivation and self responsibility - Positive attitude and flexible approach - Strong customer orientation - Team building skills

The stimulating task ahead of you is to build up a well functioning FSC from the beginning parallel with supporting an implementation project. This includes hiring and training all staff, both local and expat, required.

You will be part of the operation organisation, together with implementation, logistic etc, and reporting to the operation manager.

Our network will during the first year consist of 1 Stand Alone HLR, 3 MSC/VLR and co-located BSC's. The network is forecasted to grow very fast.

Contact: Anders Åkeson, memo id: EPO.EPOAKEA, phone: + 48 22 659 33 55. Application: SG/ERA/LP/NB Lars Norden, memoid: ERA.ERLANO, phone: +46 8 404 20 31.

Ericsson, Madrid, Spain.

SYSTEM SUPPORT ENGINEER

Ericsson support office at REE in Madrid (Spain) have been assigned the responsibility to support customers in Spain, Portugal, Gibraltar and Greece. In order to cover the new assignments and the challenges coming from these expanding and demanding markets, we are looking for system support specialists and system support engineers. The tasks to be performed by this new personal include different areas as trouble report handling, emergency support, consultation-service, software update, software-implementation and special projects.

At least five years experience from AXE, CME20 preferable. Five years experience in GSM where at least three years should have been related to ESO/FSC, system test or similar.

Flexibility and good communication skills are needed as well as good knowledge in both GSM and AXE. If you feel like being a part of a flexible and team oriented organisation as well as live in an exciting city in the middle of Spain.

Contact: Peter Gustafsson +34 1 3392387

Ericsson GmbH, Public Telecommunication, Dusseldorf, Germany.

SUPPORT ENGINEER

Are you interested to take the challenge to build up the support organisation towards the first customer within Public Telecommunication in Germany?

The role holder will contribute to customer support in AXE, mainly within local switching. Participate in 24 h ES, Help Desk, Trouble Shooting.

PROFILE: Deep knowledge in AXE support. Experience in IN/ISDN/OPAX is an advantage.

Experience in Local Switching (12.x system an advantage). Experience in TR handling and Ericsson databases. Experience in trouble shooting.

GENERAL SKILLS: Good communication skills. Written and spoken English skills. German is an advantage. Co-operative, team spirit.

DURATION: One year ASAP.

Contact: Maria Söderblom, memoID ETX.ETX-MASC, phone +46 8 7199013 or forward C.V. to Wafia Guindy, memoID ETX.ETXGW, phone +46 8 7195337 or Fax +46 8 6812670.

Ericsson Ltd, ETL/X, England.

ENGINEERS

Ericsson (UK) Ltd is the leading supplier of AXE10 digital exchanges in the UK market. Our commitment with a very demanding customer, British Telecom, means that we are constantly facing challenges in a dynamic environment with projects taking us well into the next century.

We are currently seeking individuals with that certain talent to help us meet our future challenges with the Build Management area in the following roles:

SENIOR DATA TEST TRANSCRIPT ENGINEER

This role is responsible for the creation and adaptation of loadable exchange dependent data packages for AXE systems. He/she is aware of and provides technical advice on issues concerning data transcript activities.

You will need 4 years experience in AXE10 environment, higher technical qualification in telecoms or software related subject, familiar with IBM mainframe applications and completed Testing I, II & III.

SENIOR BUILD HANDLING ENGINEER

This role is responsible for the effective assembly and performance of development testbeds. He/she is aware of and provides technical advice on issues concerning test build activities.

You will need 4 years experience in AXE10 environment and a higher technical qualification in telecoms or software related subject. You should have also completed Testing I, II & III together with having a thorough knowledge of all correction handling and mapping and a proven knowledge of all test build activities.

TEST BUILD SUPPORT ENGINEER

This role is responsible for locating the corrections and assembling blocks required for the testbeds. He/she registers, tests and sends primary and market corrections and assembles correction modification messages.

You will need 2 years experience of AXE10 environment, be qualified to degree level in a technical or software related subject and have completed Testing I & II.

For all the above positions you will have the ability to communicate and work as an effective team member. Appointments will be for a minimum of 1 year with the possibility of extension.

Contact: Pritesh Patel, memoID ETLPHPL, phone +44 1444 234751.

Ericsson Ltd, ETL, England.

Senior System Test Engineers

We at ETL are expanding our ability to verify more projects than ever before. We are looking for keen Senior System Test Engineers who possess the ability to fault find at a system level. To succeed in this position, you will have the following:

1. Proven system test experience from at least one market
2. Knowledge of 'AM' based AXE 10 structure
3. Ideally have worked with UK specific market functionality
4. Have had hands on experience with most Ericsson tools used during a Verification phase.
5. Ability to follow fault investigation to its conclusion in any part of the system.

If you have most or all of the above abilities and a desire to work in Verification testing in the UK, we would be pleased to hear from you.

Contact: ETL/XL/FDC Carl Gray, Verification Section Manager. MemoID ETLWCJG. phone +44 444 234240, fax +44 444 236221.

Ericsson Ltd., GSM Mobile, England.

LOCAL PRODUCT MANAGERS

The Local Product Manager is responsible for influencing the strategic development of specific products to meet UK customer requirements and maximise the Sector's profitability.

You will need to have product management experience, AXE10 product knowledge together with the ability to work closely with customers. A good

understanding of the UK telecoms business would be advantageous.

Contact: Bruce Fordyce, memoID ETLBJF, phone +44 1444 234389.

MOBILE SUPPORT ENGINEERS

An exciting opportunity exists to join ETL's Business Mobile Sector. In partnership with our client, Cellnet, we will be working to develop their GSM network within the UK. Cellnet's existing network, serving over 2,000,000 customers, is expanding rapidly and includes a large cross section of technologies.

The Mobile Support Engineer is responsible for developing systems integration and you will need a good AXE technical background, involving substantial software testing experience. Any experience with Ericsson's CME20 product, or other GSM experience, will be advantageous.

Contact: Alastair Swaffer, memoID ETLMASR, phone +44 1444 234184.

MOBILE SERVICES ENGINEER

An opportunity exists to join ETL's Business Mobile Sector. In partnership with our client, Cellnet, we will be working to develop the GSM Network within the UK. The Engineer will work as part of a team, will undertake technical work and will be accountable for decisions regarding technical issues in his/her area of responsibility. The engineer will specialise in either product support or integration and operates across both areas as required.

You will need a sound AXE software testing/faultfinding experience together with the ability to work as part of team in a customer focused environment. Any CME20 product experience would be desirable.

Contact: Brian Cakebread, memoID ETLBNCD, phone +44 1444 231811.

SENIOR DATA TRANSCRIPT ENGINEER

An exciting opportunity exists to join ETL's Business Mobile Sector. In partnership with our client, Cellnet, we will be working to develop their GSM network within the UK. Cellnet's existing network, serving over 2,000,000 customers, is expanding rapidly and includes a large cross section of different technologies.

You should be able to create and adapt DT2 builds to exacting customer specifications, and to provide technical advice on issues concerning data transcript activities towards fixed and mobile networks.

You should have experience of external/internal customer interfacing, providing and extracting detailed information for use in data transcript or support functions regarding network and also specialised areas.

Contact: Brian Cakebread, memoID ETLBNCD, phone +44 1444 231811.

SENIOR MOBILE SERVICES ENGINEER

An opportunity exists to join ETL's Business Mobile Sector. In partnership with our client, Cellnet, we will be working to develop the GSM network within the UK. The Senior Engineer will provide technical leadership and be accountable for decisions regarding technical issues in his/her area of responsibility. He/she will specialise in either product support or system test and operates across both areas as required.

You will need a sound AXE software testing/faultfinding experience. In addition, you will be highly self-motivated and be able to develop a work package from a basic assignment into a detailed specification and report progress to managers. An understanding of cost control will also be necessary. It may also be necessary to lead a small team of test engineers and therefore personnel management skills will also be required.

Contact: Brian Cakebread, memoID ETLBNCD, +44 1444 231811.

Ericsson Telecom AB, Moscow, Russia.

FSC-MANAGER

The Russian market is rapidly expanding and therefore we need one experienced fsc-Manager. The assignment will include:

- * Build up BX FSC-activities.
- * Organise TR-handling, help desk, emerg. service/routines, ISP.
- * Reporting routines.
- * Basic O&M at Customer.
- * 2:nd line handshaking.
- * Config handling.
- * Update/Upgrade Impl.
- * Staffing.
- * Arranging regional Support offices

Request:

- * Strong in TSS (ISUP, Analog sign, Converters) *
 - * 12.3 knowledge *
 - * Old technique (P83) is an advantage *
 - * Experience as FSC-Manager previously
- Duration: ASAP—One year

THE MINI-DYAD® 10mm REED SWITCH Provides Over One Billion Switching Operations

CP Clare Corporation's Reed Relay Division introduces the Mini-DYAD® Reed Switch. One of the world's smallest reed switches, with only a 10mm glass length, the device provides more than one billion switching operations at low level loads.

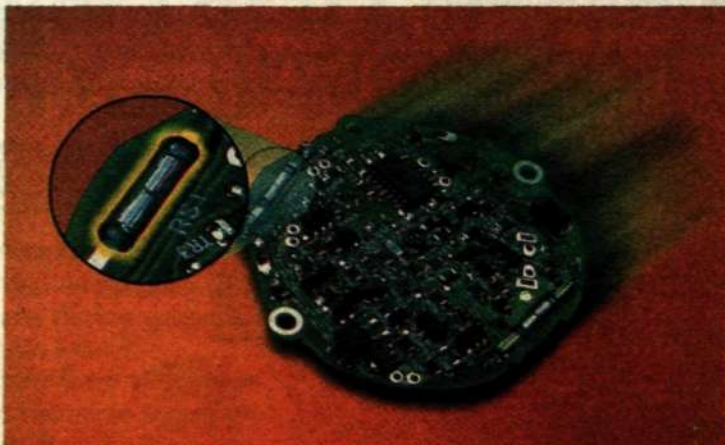
Unlike the competition's device, the Mini-DYAD's leads are easily formed without damaging the hermetic glass seal. With a typical switching speed of 0.5 milliseconds or less, this switch is faster than most other small signal switching technologies.

This 10 watt switch can carry 2.0 amps, switch up to 200V and switch currents up to 0.5 amp.

Operating temperature range is -40°C to +125°C.

The Mini-DYAD® is intended for use in security systems such as proximity sensors and smoke alarms; automotive applications including level sensors and lamp current sensors; telecom devices for hook and antenna switching; and industrial and level flow sensors.

The rectangular glass body and wide, flat, pre-formed leads provide the Mini-DYAD® with stability during surface mount operations. Selecting the surface mount configuration option, the Mini-DYAD® is the world's smallest dry reed SMT switch. With the available carrier tape, it is perfect for automated SMT assembly.



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If you have the qualifications, feel the challenge and have the dedication then we need you.

Contact: Matts Kangas, ECR/ECRMAKA or Lars Gillberg HF/ETX/X/OFO, ETX:ETXLAGI, tph: +468 7198010, Fax: +468 6812670. Send your application to Lars Gillberg.

Ericsson Ltd, Burgess Hill, England.

DESIGN ENGINEERS

■ Located in Burgess Hill, Sussex, close to Brighton and London we are looking for Design Engineers to participate in the Block Design and Function Test of FMP4.1 within the Charging Subsystem.

RESPONSIBILITIES INCLUDE: Writing Block Design Documentation. The Design, Writing and Test of Code. Function Test Documentation and Execution.

QUALIFICATION/EXPERIENCE/KNOWLEDGE: At least one Design Cycle in AXE. Charging Knowledge would be useful but not essential.

Contact: Nigel Usher, phone +44 1444 234460; Steven Griffiths, phone +44 1444 234624.

Ericsson GmbH, Duesseldorf, Germany.

SOLUTION MANAGER

■ **TASKS:** Work out of customer specific solutions and concepts for new network operators. Customer presentations. Handling of product requirements and preparing of tenders. Combining different products of Ericsson BUs to a complete solution. Work with product strategies, sourcing, consolidation of the requirements for the German market.

SKILLS: M.Sc or equivalent. Networks (AXE), private Corporate Networks (MD110, BMX) and access products including radio technology (DECT-RLL). Fluent in English and good knowledge of German. Flexible, a good team worker, think and work solution oriented.

ACCESS PRODUCT SPECIALIST

■ **TASKS:** Customer presentation of access products for public fixed networks. Work out of technical concepts for access products including the product specification of BMX, Smart Boxes, MD110-Centrex, Date-Access like ERIPAX, PFA and DECT-Access systems. Configuration of access systems corresponding to the customers requirements and calculation

of the market price. Work with product strategies, sourcing, consolidation of the requirements for the German market.

SKILLS: M.Sc or equivalent. Experience with BMX/MD110, Smart Boxes, DECT-RLL. Fluent in English and good knowledge of German. flexible, good team worker, think and work solution oriented.

NMS/BILLING SPECIALIST

■ **TASKS:** Work out of technical concepts for network management and accounting systems. Handling of product requirements and preparing of tenders. Customer presentations. Project related cooperation with business partners. Work with product strategies, sourcing, consolidation of the requirements for the German market.

SKILLS: M.Sc or equivalent. Experience with network management strategies and concepts. Experience with network management systems of different vendors. Knowledge of network management integration. Knowledge of billing and accounting systems. Fluent in English and good knowledge of German. Flexible, good team worker, think and work solution oriented.

AXE-IN SALES SUPPORTER/PRODUCT MANAGER

■ **TASKS:** Customer presentation of IN/VPN, Centrex and Service Creation Environment. Work out of technical concepts for IN/VPN, Centrex and Service Creation Environment. Configuration of AXE-systems corresponding to the customers requirements and calculation of sales price. Handling of product requirements and preparing of tenders. Work with product strategies, sourcing, consolidation of the requirements for the German market.

SKILLS: M.Sc or equivalent. Experience with AXE, configuration, knowledge of IN/VPN and Service Creation Environment. Fluent in English and good knowledge of German, flexible, good team worker, think and work solution oriented.

NETWORK PLANNING SPECIALIST

■ **TASKS:** Network planning in accordance to the customers business cases. Dimensioning of narrowband and broadband networks. Synchronisation planning, number planning, routing, data transcript planning.

SKILLS: M.Sc or equivalent. Experience in planning of public fixed networks, AXE, BMX and SDH networks. Fluent in English and good knowledge of German. Flexible, good team worker, think and work solution oriented.

AXE-CORE SYSTEM SALES SUPPORTER/PRODUCT MANAGER

■ **TASKS:** Customer presentation about AXE public switching systems. Work out of technical concepts for a public net including traffic requirements, routing, number planning and interfaces. Handling of product requirements and preparing of tenders. Work with product strategies, sourcing, consolidation of the requirements for the German market.

SKILLS: M.Sc or equivalent. Experience of AXE-configuration. Fluent in English and good knowledge of German. Flexible, good team worker, think and work solution oriented.

Contact: Dr. Gerd Neumann (Phone ++46-211-534-4180); Ina Mueller (Phone ++46-211-534-4341). Application: ERICSSON GmbH, Division Business Networks, Heerdter Landstr. 193, 40549 Duesseldorf, Germany, Attn: Ina Mueller, Human Resources.

Ericsson Radio Systems AB, Sundbyberg.

SWITCHING IMPLEMENTATION MANAGER FOR POLAND

■ We are looking for one experienced Switching Implementation manager to work on a long term (at least 1 year) contract in Warsaw, Poland. The successful candidate shall have the following experience:

- Previous experience working as switching implementation manager or project manager for switch implementation. - At least 3 years of experience within this field.

The personal qualities we would like to see in our new Switching Implementation Manager are:

- Managerial skills
 - Professionalism and perseverance
 - Initiative, high motivation and self responsibility
 - Positive attitude and flexible approach
 - Strong customer orientation
 - Team building skills
- Your task is to manage the installation and test-

ing of all switching nodes (MSC, BSC, AUG/EIR, VMS, ...). The task includes recruiting and training a mixture of local and expat personnel to handle the project on both long term and short term contracts.

You will be part of the operation organisation, together with FSC, logistics etc, and reporting to the operation manager.

Our network will during the first year consist of 1 Stand Alone HLR, 3 MSC/VLR and co-located BSC's. The network is forecasted to grow very fast.

Contact: Anders Åkeson, memo id : EPO.EPOAKEA, phone: +48 22 659 33 55. Application: SG/ERA/LP/NB Lars Norden, memoid: ERA.ERLANO, phone: +46 8 404 20 31.

Ericsson Radio Systems AB, Kista.

MANAGER, TECHNICAL SALES & MARKETING - PCS CANADA

■ The successful candidate will be responsible for managing Ericsson's PCS Sales and Marketing group in Canada. This includes leading and developing a team of account managers, responsibility for Canadian product pricing, preparing and delivering sales quotations/presentations, forecasting/budgeting, business planning, and developing strong customer relationships.

Your task will be to continue the deployment of CMS40 in Canada, while developing relations and securing business with other potential PCS customers.

To fill this position, you have previous marketing/sales and product knowledge (GSM preferred), and are an assertive individual ready to take a proactive and service minded approach to our business. You have good interpersonal skills, excellent communication skills, broad Ericsson knowledge, and a technical background with a strong customer focus. We offer a stimulating and exciting job in a dynamic, growth oriented business unit. This position is located in Toronto, Canada.

Contact: Al Haase, General Manager, Cellular Systems/GSM, Toronto, tel. +1 905 629 6836, memoid EMC.EMCALHA; Mark Henderson, Total Project Management, tel. +46 8 404 2905, memoid ERA.ERAKRAM; Solveig Vallentin, Human Resources, tel. +46 8 404 5619, memoid ERA.ERASOLO. Application: Ericsson Radio Systems AB, K/ERA/LJ/OS Sonja Johansson, 164 80 STOCKHOLM.

— Ericsson Business Mobile Networks BV, Enschede, The Netherlands —

Enthusiastic professionals welcome

Through total dedication and highly advanced technological concepts, EMN has grown from 55 to 300 people in just four years. And this rapid tempo does not allow a moment's rest. So we have tens of functions in all kinds of fields and at all levels.

For people who really want to achieve something in telecommunications. The vacancies are mainly in two areas: System and Design Engineering and Managers in various fields.

For all positions fluency in English both written and spoken is required.

An overview:

System and Design Engineers

System engineers: specification of mobile telecommunications systems and products at technical level, i.e. architectures, decomposition of functionality, performance and reliability.

Knowledge and experience: radio telecommunications, system architectures, performance analysis, protocols, propagation, operations & maintenance, system specification and standardisation.

Hardware design engineers: design, implementation, testing and documentation of mobile telecommunications products. Knowledge and experience: digital/mixed-signal circuitry, battery and LCD technologies and CAE for design and analysis.

Software design engineers: specification, implementation, testing and documentation of real-time software. Knowledge and experience: system architectures, real-time operating systems, call processing, operations & maintenance, ISDN or GSM.

Radio design engineers: design, implementation, testing and documentation of RF/IF and/or baseband radio circuitry. Knowledge and experience: mobile telephony, IC technology, radio architectures, RF design, TDMA or CDMA access and CAE for design and analysis.

Managers

Radio network deployment & performance manager: leading teams of system engineers in the area of performance requirements for cordless access applications and in

the field of radio deployment; human resource tasks. Knowledge and experience: research/systems engineering and/or management in this field.

Software development manager: leading projects for embedded real-time software; giving direction to software development technologies and methods; a great deal of international contact; human resource tasks.

Knowledge and experience: project and/or resource management and software design, preferably in telecommunications.

Interested?

If you're interested, please send your application to Ericsson Business Mobile Networks BV, for the attention of Mrs. E.A. de Vries, memoid emn.emnsadv, or P.O. Box 645, 7500 AP Enschede, The Netherlands.

ERICSSON 

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ERICSSON BUSINESS MOBILE NETWORKS. SO MUCH STILL TO ACHIEVE



contact

Ericsson, HF/LME/I, Room 811023, S-126 25 Stockholm

Swedish women travel to other parts of the world for various reasons – work, study, research, marriage, accompanying a husband on foreign assignment for a Swedish company, and so on. But they all have one thing in common: they can become members of the Swea Association.

Supporting Swedish women worldwide

Swea, the Swedish Women's Educational Association International Inc., is a worldwide organization for Swedish and other Swedish-speaking women who are or have been resident outside Sweden. The main purpose of the association is to protect the Swedish language, foster Swedish culture and traditions and establish a network of Swea members.

Swea has come to mean far more than this, however, both for individual women and for the image of Sweden in other countries. Gunilla Possenius has been the association's international chairperson for the past three years. Gunilla herself was previously the information and public relations manager at Ericsson Telecom, and today she is accompanying her husband, also an Ericsson employee, on a tour of duty in South Korea.

"Swea can provide a head start for a woman arriving in a totally unfamiliar country where she does not know anyone and the system is different from what she is used to. By establishing contact with Swea, she can adjust to her new life far more easily. She does not have to find out everything for herself but can get in touch with other Swedes who have already gone through the experience she is embarking on.

The Swea Association, which was founded in 1979, has grown under its own steam to the point where, today, it has almost 6,000 members in 45 locations in 18 countries. There is no particular need to recruit members, according to Gunilla, since information about Swea is spread by word of mouth.

Makes life easier

The association conducts its activities in local chapters worldwide. The program includes lunches or dinners with a guest speaker, excursions to sites of cultural interest, and study visits to Swedish or domestic companies, social institutions and the like. Through book clubs, folk-dance



The Swea Association now has almost 6,000 members. The association's international chairperson is Gunilla Possenius, who lives in South Korea.

teams and choirs, Swea members and their families preserve their Swedishness. At Christmas markets, May Day and Midsummer festivals, they can enjoy Swedish traditions, while also giving the inhabitants of their new host country the chance to experience the traditional Swedish celebrations.

"We are extremely proud to have won two major prizes last year," relates Gunilla. "Swea and its members were awarded the Positive Sweden prize for their efforts to enhance the image of Sweden abroad, and the founder of Swea was named Swede of the Year Worldwide."

"By providing the common denominator of Swedishness and the Swedish cultural heritage, Swea makes life easier for Swedes abroad. Swea also strengthens the ties between Sweden and other countries, provides a welcome, and serves as a safety net and a contact network. This in turn facilitates the eventual return to Sweden," concludes Gunilla.

LENA GRANSTRÖM

For more information, contact:
Gunilla Possenius,
tel. +82 2 797-6495, fax +82 2 749-4685,
summer tel./fax: +46 8 17 98 13.

end line

We must try harder!

The observant reader of Contact will have noticed that last spring was a stressful period here in the corporate editorial office. We have not exactly maintained the level of quality control which ought to be a sine qua non for all Ericsson units. As a result, a number of small, and a few rather more serious, mistakes occurred in the newspaper. I apologize for this to all readers, and promise that we shall improve. Measures have been taken to prevent printing errors and other gremlins from running riot in the newspaper.

One of the most important changes here in the editorial office is that, effective April 1, we acquired a new colleague. Patrik Lindén is our new full-time writer and reporter. Patrik's background includes a period working at *Finansstidningen* (a Swedish financial newspaper) and studies in economics, political science and journalism. We welcome him warmly. With Patrik's help, we shall make Contact into an even more interesting newspaper. In particular, we shall now have the resources to follow up the daily flow of news within Ericsson and in the outside world.

I hereby invite all of you readers to contribute to this magazine. As usual, we still apply the principle that suggestions for stories and news from the different business areas is mainly contributed by our business area editors: Gunilla Tham for Radio Communications, Isabel Werner for Public Telecommunications, Thord Andersson for Business Networks, Inger Björklind Bengtsson for Components, and Britt-Marie Wihdén for Microwave Systems. Contributions for Contact from companies outside Sweden are handled by myself or by Pia Rehnberg at the editorial office.

If you would like to broadcast your message globally, it is worth bearing in mind that we in the editorial office also produce Ericsson Connexion and Ericsson Review, as well as being responsible for electronic news dissemination via memo, the Internet and other channels. We also have at our disposal a centralized address database that is used for distributing a wide range of information from Group management, including Annual Reports (for which we also handled the graphical production this year – which was part of the reason why we had so much to do that our proofreading was less than 100 percent).



LARS-GÖRAN HEDIN