


contact

ERICSSON  PUBLICATION FOR EMPLOYEES WORLD WIDE

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Ericsson on display in Moscow



Moscow is one of Europe's largest capitals. Here, Igor Ignatov is in his element. He is one of Ericsson's drivers, and one of the people without whom a major exhibition like Sviaz would not be possible.

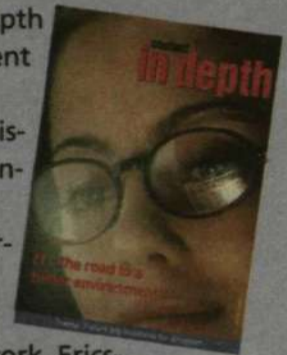
Photo: THORD ANDERSSON

Ericsson recently exhibited its products to the Russian market at the "Sviaz-Expocomm" telecom trade fair in Moscow. In Russia, foreign investments in telecom are expected to increase by almost 50 percent this year, and the market is seething with activity. Ericsson entered the Russian market somewhat late in the game. Nevertheless, sales are growing steadily here and are expected to exceed the SEK 2 billion mark this year.

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Ericsson and the environment

The In-depth supplement included with this issue of Contact addresses Ericsson's environmental work. Ericsson's operations lend themselves well to environmental work. As telephones and other devices become increasingly compact, their environmental impact also decreases. With increased telecommunications there is less need for transportation, which also benefits the environment. Read about Ericsson's environmental work and how you can contribute.



Hospitality at Ericsson

Every year, several thousand foreigners come to Sweden to work at Ericsson. Ericsson Guest Support specializes in taking care of these employees.

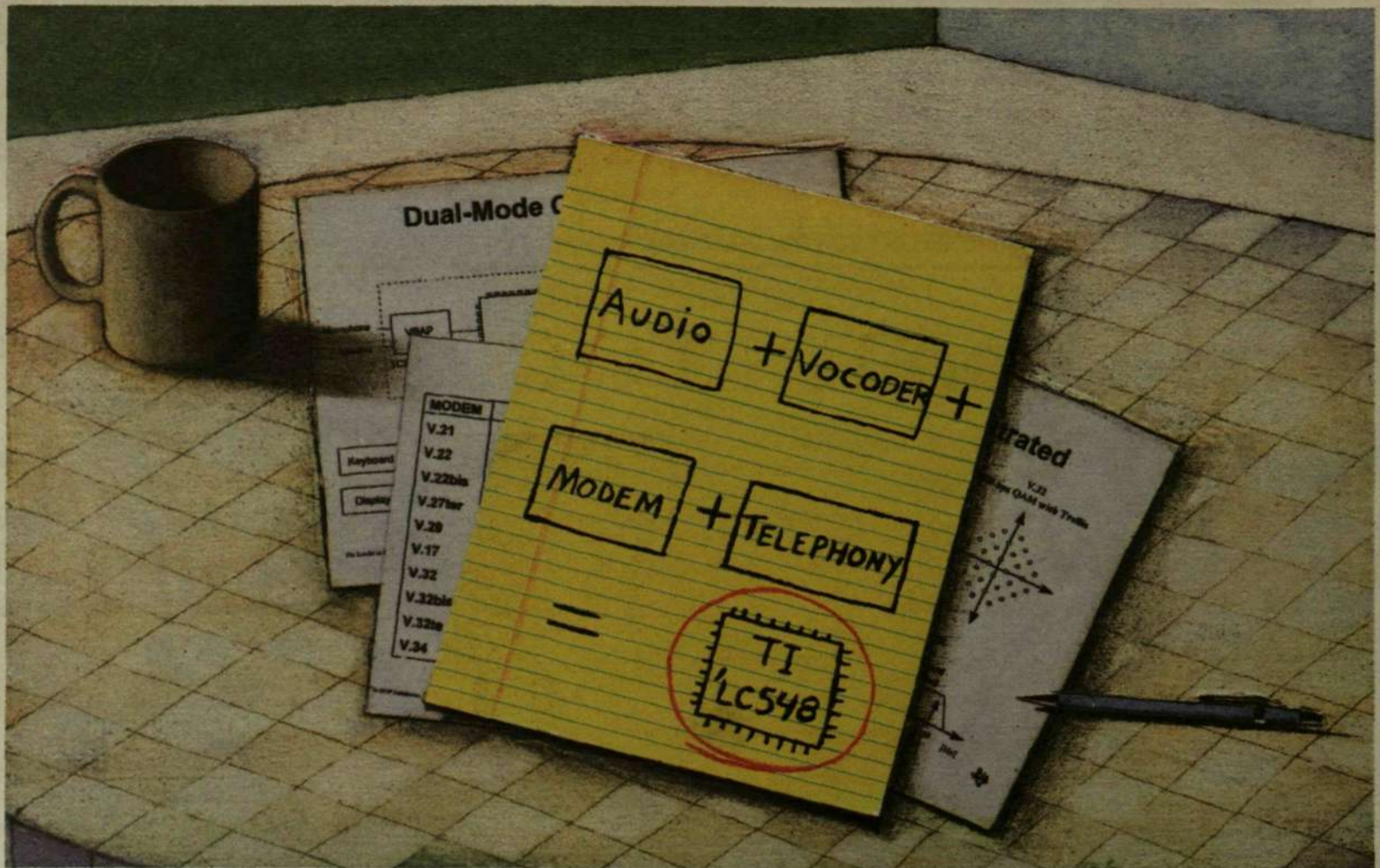
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Inroads in Africa

Africa is not yet a major market for cellular telephony. Still Ericsson has sold systems to several countries. South Africa is the best known example of this, but Ghana is another exciting new market. The GSM system delivered in the country gives Ericsson a strong position in western Africa.

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Ericsson world wide pages 15-18



Increased system functionality adds up to a single DSP.

With a road map to 100-MIPS performance, the new TMS320LC548 fixed-point DSP from Texas Instruments lets you integrate multichip solutions into a single chip. It also enables reconfigurable systems due to 32K words of on-chip SRAM with 4M word address range, which allows multiple algorithms to run from on-chip memory while minimizing off-chip accesses.

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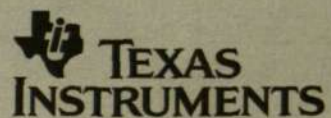
TMS320LC548

- 50/66/80/100 MIPS
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EXTENDING YOUR REACH



Microelectronics is the most fascinating subject and often beautiful to behold. Sigrun Hjelmquist, 41, convinced Ericsson managers of this at a meeting held in Sevilla, Spain in April. An engineer in technical physics with a licentiate degree in applied physics, she began working with AXE product planning in 1979 and is today the manager of Ericsson Component's microelectronics operations with 1,200 employees.

Understanding microelectronics

She says that she is unafraid, energetic, honest and likes time off so that she can be with her family, meet her friends and listen to music, which usually tends toward opera, although she recently attended a rock concert with the Who. She is firmly convinced that mastering microelectronics is crucial for Ericsson.

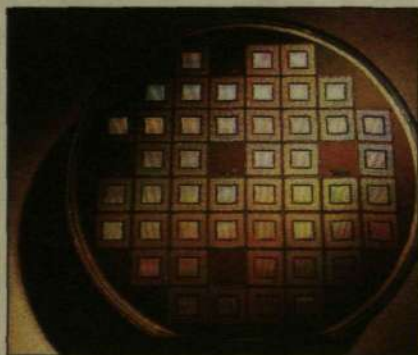
"Microelectronics as a field is an important and critical issue, even for Ericsson's system products. More and more functionality is being integrated in microelectronics, and integrated circuits are an increasingly important part of our systems," says Sigrun Hjelmquist.

As one of the scenarios in Ericsson's 2005 study depicts, Ericsson's position may be threatened by component manufacturers who are striving to add value to their products, thus moving up the value chain to become potential competitors at the system level.

"Many telecom suppliers today believe that they must have more control over microelectronics, while moving their skills up the value chain. This means that they want to own their microelectronic designs to protect their patents, know-how and intellectual property rights," says Sigrun.

Different needs

"We need to have control over the functionality in our systems all the way down to the microelectronic level. If we can do



A beautiful picture of microelectronics showing a silicon wafer with chips for ATM cross-connection circuits, each containing more than three million transistors.

that, microelectronics provides a competitive advantage, instead of being a competitive threat. The development trend, according to what is usually called Moore's law, is that integrated circuits double their capacity every 18 months. Today, we can see that the trend is accelerating," notes Sigrun.

Ericsson's needs are varied. The Mobile Systems and Mobile Phones and Terminals business areas are striving to maintain control over their own microelectronic designs, while the Infocore Systems business area can base its strategy on increased use of standard components.

Demanding customers

When Sigrun was appointed manager for microelectronics at Ericsson Components, there were two units, a Microelectronic Access Devices business unit, and a development unit called Microelectronic Systems Technology. Combining the two units and creating single business culture was one of her greatest challenges.

"The investments that we are making today will provide us with the world's best products at competitive market prices and competent people whose creative ability give us new products and technologies," says Sigrun.

The question is whether Ericsson will be able to realize this vision. Sigrun Hjelmquist believes that the company has a strong foundation for the future.

"Ericsson Components' current customers include Ericsson, Alcatel, Canon, Siemens, Fujitsu, Motorola, Nokia, Lucent Technologies and Advanced Fiber Communications. Component suppliers with whom we compete include GEC Plessey, Texas Instruments, AMD, SGS Thomson Microelectronics, Philips, Mitsubishi Electric, VLSI, Motorola and Harris Semiconductors.

"If we want to be sure that we are the best in the world in our market niches, then we simply have to be attractive to external customers. We also are exposed to external competition, and to prosper, we have to develop components that are crucial to Ericsson's system products and be a world-class supplier in this area. There is simply no other alternative," says Sigrun.

Four product areas

Microelectronics at Ericsson Components can be roughly divided into four



Sigrun Hjelmquist spends much of her free time at her summer house in northern Uppland.

Photo: ANDERS ANJOU

product areas: *components for radio communications, line circuits, optoelectronic components and special circuits*, which may be ASIC (Application Specific Integrated Circuits) and ASSP (Application Specific Standard Products).

A rapidly expanding area in which there are many projects in progress is RF (radio frequency) components for radio communications, which are in demand for radio base stations and mobile terminals of all types.

The line circuits product area includes the SLIC (Subscriber Line Integrated Circuit), for which Ericsson Components is the world's second largest manufacturer, with 25% of the global market.

In optoelectronics, Ericsson Components has built up a world-leading manufacturing operation, with a broad range of receiver and transmitter components for frequencies from the megabit range up to 10 Gigabits.

"The most recent development in our strategy is foundry operations," says Sigrun. "The idea is that we design advanced circuits together with the customer and that Ericsson Components then buys the manufacturing capacity at external foundries. This concept was developed in cooperation with mobile telephone designers at Ericsson Mobile

Communications in Lund," relates Sigrun.

• What will microelectronics be like in 2005?

"Our operations will be much larger, and we will be a broad supplier even in mobile telephones and terminals. We will also have more and bigger external customers. Constant change will be at the root of everything we do," predicts Sigrun.

"We will also have to be more global, if we are to maintain our position as a world-class supplier. The global perspective will also affect production. A large portion, perhaps as much as half of production, will be at external foundries within a few years. We are also investing in increased production capacity at our own facilities, but to meet future demand, we will need external production.

"Ericsson Components has access to the world's best microelectronics production facilities. We also have world-class designers who are unique in their loyalty to Ericsson and their ability to protect Ericsson's systems expertise," concludes Sigrun Hjelmquist.

INGER BJÖRKLIND BENGTSOON

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news briefs

Wireless e-mail

Ericsson has reached an agreement with the Sendit software company on a joint project aimed at providing e-mail services to Ericsson customers. E-mail services on future Ericsson mobile phone models – or, more appropriately perhaps, personal communication devices – will be facilitated by Sendit's communications protocol and server technology. The growing demand for supplementary services for mobile-phone users could be met in this way.

Radio access to Poland

Ericsson has signed an agreement worth SEK 145 million with the Polish Telekomunikacja Polska S A telecom operator. It involves a telecom network delivery in eastern Poland.

The contract includes base stations and access equipment for Ericsson's DRA 1900 digital radio access system. The installation will bring the area's telephone density up to 10 percent.

Telekomunikacja Polska S A is slated to be privatized in 1998, and the company is expected to become Ericsson's most important Polish customer in 1999.

The installation is scheduled to be completely finished in March 1998.

Expansion of Japanese network

The Japanese Digital Tu-Ka Hokkaido telecom operator has ordered an expansion of its digital mobile telephone network, valued at USD 40 million. The expansion is intended to cover increased demand in the Hokkaido region. Japan is one of the fastest growing markets for mobile systems. During the first quarter of 1997, Japanese mobile telephone networks acquired 2.1 million subscribers. There are currently 21 million subscribers in Japan, and forecasts for the year 2000 indicates more than 53 million subscribers.

Executive transfers

In September, Per Bengtsson will become the Vice President of Investor Relations at Ericsson in the US, replacing Lars Jonsteg. Per Bengtsson is currently the Vice President of Corporate Relations at the Mobile Systems business area. Gerhard Weise has been appointed President of Ericsson in Brazil starting in September. He is currently working in Stockholm as the Senior Vice President of Corporate Financial Control and will be replaced by Johan Fant.

Mobile AXE

Ericsson and Volvo have jointly sold seven transportable 1024-line AXE switches to China. The transportable switches, which are mounted on Volvo trucks, are intended to provide service in cases of natural catastrophes and other times when the telecom network must be repaired quickly. Major public events requiring temporary reinforcement are another conceivable area of application.

With this order, previously described in Contact, Ericsson has entered two new provinces. Similar transportable systems for mobile telephony have been sold earlier to other countries, for example Australia.

Given China's 21 provinces and four self-governing cities, it should be possible to sell more mobile units. Ericsson is also the only supplier that is currently capable of producing complete public switches with this kind of mobility. Other prospective customers have already expressed interest.



Bert Sjöberg displayed the mobile AXE switches before they were sent to the customer in China. The idea is that these movable switches will be used in connection with natural catastrophes, to recommission demolished telecom networks quickly.

Photo: PETER NORDAHL



Ericsson's Andreas Wagner, left, presented a gilded circuit board symbolizing the ten-millionth MD110 line to Dr. Gerhard Humbert at Dun & Bradstreet.

Ten-millionth MD110 line delivered

A few days ago the ten-millionth MD110 line was placed in operation at the German office of the Dun & Bradstreet business information company in Frankfurt.

The presentation took place at a ceremony where Dr. Gerhard Humbert, technical engineering manager at Dun & Bradstreet, was given a gilded circuit board as a symbol of the milestone. The circuit board was presented by Ericsson marketing manager Andreas Wagner, who expressed his pleasure in having Dun & Bradstreet as customer for the ten-millionth MD110 line.

"The company is typical of many of our customers and their telecommunications needs: modern, flexible and international," said Andreas.

"We need a partner that operates at the leading edge of technology," Dr. Humbert said. As world-leading telecommunications supplier, Ericsson was able to meet our needs fully. Thanks to Ericsson's excellent way of dealing with its international corporate customers, we can rely on support, not only in Germany but at all our locations throughout the world. Ericsson's strong position as provider of Call Center solutions was another reason why we chose MD110."

MD110 is one of the Consono integrated communications solutions for privately owned networks. With a 20-percent market share in Europe, MD110 is one of the world's most sold PBX systems.

THORD ANDERSSON

Better sound with new digital wireless phone

With the new DT 120 digital wireless telephone for domestic use, Ericsson is making a serious advance into the consumer market. The idea is that children and the elderly – ordinary people in other words – will win the market over to the domestic equivalent of the mobile phone.

"In this campaign, we want to highlight the home environment," says Martin Törnebohm, product manager for wireless DECT telephones for domestic use. The plan is to use elderly ladies and gents, and housewives, to convince people that this is a product for ordinary folks. The campaign will start rolling in Sweden, the Netherlands and Germany, during the spring and summer seasons."

"It is primarily a means of reaching new distribution channels and new customer segments, where mobile

phones still haven't become established," says Martin Törnebohm.

"In this way, we can also clear the way for GSM. It is important to establish our trademark among new customer groups."

The main advantage of the telephone – and that which is highlighted in the ads – is the improved sound quality achieved through DECT technology. This is illustrated by two identical photographs, one well-focused and one blurry. The blurry photograph is meant to suggest the scratchy, tinny sound we normally associate with an analog wireless telephone. The well-focused one is intended to symbolize the first-rate sound quality we get from a digital telephone.

This campaign, like the other spring telephone campaigns, was designed by Hall & Cederquist/Y&R. GISELA ZEIME



Ericsson delivers cable to the Philippines

Ericsson has signed a cable contract worth USD 14 million with the Philippine Long Distance Telephone Company (PLDT). The contract involves the delivery and installation of about 600 kilometers of fiber-optic cable, for the expansion of the PLDT's domestic fiber-optic trunk network in the Philippine province of Luzon. The

project is scheduled to be completed during the first quarter of 1998.

"We have delivered cable equipment to the Philippines before. With this contract, we aim to secure our position as switching supplier even in the long term. The contract is one step toward our goal of establishing ourselves as a complete

system supplier and strategic partner to the PLDT," says Eddie Gavafalk, Vice President and head of Infocom Systems at Ericsson Telecommunications Inc. in the Philippines.

The Philippine telecom market is totally deregulated. It includes five fixed network operators. The PLDT is the largest telecom operator in the coun-

try, with two million operative lines. A telephone density of slightly less than four percent coupled with robust economic growth make this country a promising market for telephones.

Approximately one million lines will be contracted during 1997.

LOTTA MUTH

Brazilian plant in record time

The new mobile-telephone plant in San José Dos Campos in Brazil has been erected in record time: six months – from the decision in August 1996 to begin the project to delivery of the first telephones in February 1997.

The entire project, which involved the renovation of 5,000 square meters of former warehouse space, was conducted in close cooperation with the Lynchburg plant in the U.S. Personnel were on location in

Six months – from the decision to delivery

Brazil, to contribute advice regarding plant design, infrastructure, work routines and training. 30 or so of the total 130 employees of the Brazil plant received training in Lynchburg. The others were trained by Lynchburg personnel in Brazil.

"Pride and soul"

"In our work, we consciously applied the motto 'soul with pride.' The idea behind the project was to utilize all technology, systems and knowledge already amassed at the Lynchburg plant," explains Mats Lindskog, project manager from Lynchburg.

Lynchburg is the only system plant for mobile phones in North America.

The Brazil plant is a so-called market plant – that is, it is intended to produce products that are already functioning commercially in Lynchburg. So there is a clear connection between the two plants. Mats Lindskog explains that the project group took advantage of this connection:

"We felt it was important to get Lynchburg to feel responsible. Get involved. And in fact we did achieve a strong team spirit, in both Lynchburg and Brazil. Thanks to

this spirit, we managed to follow an exacting schedule. As late as Christmas 1996, all production equipment was stuck in customs – but two months later, production was rolling."

U.S. standard

The San José Dos Campos plant manufactures mobile telephones in accordance with standards that apply in the U.S., Canada, Latin America and some parts of South-East Asia. The plant currently produces three models from the analog 600 series and three from the digital 300 series – a production intended for the local Brazilian market and for export, primarily to Argentina.

"To date, we have invested USD 15 million in production equipment, corresponding to a production capacity of 500,000 telephones a year. We are planning to invest a further USD 10 million in production equipment during the current year, to reach a production capacity of a million telephones by year-end," relates Björn Lundgren, in charge of Ericsson Mobile Communications in Brazil.

Modernization

Today, 2.6 million Brazilians have mobile phone subscriptions. By the year 2001, that figure is expected to rise to 15 million. Simultaneously with the increasing use of cellular phones, the Brazilian telephone network is undergoing modernization. According to the schedule, the first digital systems will already be finished by the end of 1997.

Ericsson is well-equipped to meet the increasing demand as a result of its investment in the San José Dos Campos plant. Production of digital terminals is already fully under way and they are ready to be sold on the local Brazilian market as soon as work on the digital mobile telephone network is completed.

EVA GÅRDSMO
PETERSSON



Soon, we will be seeing ads in newspapers, magazines and on billboards showing people in dare-devil situations talking into their telephones.

Ericsson GH 688 launched with humor

The new Ericsson GH 688 will be launched with humor of the tongue-in-cheek variety. It is a matter of ordinary business, from a more human point of view.

We see him whizzing by on the TV screen, hanging from a ceiling lamp, sliding down the escalator. His cellular phone just reminded him of a lunch meeting. When he lands on his feet in the lobby, it's not the business contact who is waiting for him but his attractive lady friend.

That is a description of the story line of an advertising film produced for the launch of the Ericsson GH 688. The campaign message can be summarized in the words "Made for business – Good for life."

"The telephone must be an effective working tool that can help you get things done, and that also fits in with your private life," says Per-Axel Larsson, who works with marketing

communications in Europe.

The campaign includes ad material designed for daily newspapers, magazines and outdoor advertising. Billboards will display pictures of people clinging to building façades or hanging from chandeliers – while simultaneously talking into their telephones.

Both the film and the ads show business people at work, but in a somewhat more human perspective. There is a smile among the pin-stripes. The people simply look like they are having fun. The film is made using the most advanced technology, in which stunts have been used to get results otherwise not possible.

Per-Axel Larsson has strong faith in both the product and the campaign, and he is anxious to see what the reactions will be.

"I believe we will get a lot of attention. Telephones have not been seen in this light before."

GISELA ZEIME

A billion invested in microelectronics

During a three-year period, Ericsson Components in Kista will invest almost a billion kronor in the manufacturing of advanced microelectronics.

"We are already investing a greater portion of our sales than the group average," says Sigrun Hjelmquist, manager of Ericsson Components microelectronics operations.

"We are now continuing to invest in increased production capacity for subscriber line circuits, optical and radio circuits in our plants in Kista (Stockholm), and also Morgan Hill and Shanghai. During 1998, we will also focus intensively on increasing production volumes of radio circuits at our most advanced plant."

The background is that the mobile phone market is growing faster than expected and that the Phones and Terminals business area needs a

stronger internal supply of microelectronics.

"Even though we are increasing production capacity, it won't be enough for the total business growth we are aiming at. For this reason we are signing agreements with external manufacturers – so-called foundries (silicon smelters). Altogether, it means more microelectronics circuits from our own plants, and also increased growth in circuits produced by subcontractors."

INGER BJÖRKLIND
BENGTSSON



The plant that manufactures advanced silicon circuits. Known locally as "the submy factory."

Photo: VICTOR LENSEN BROTT

Industry news

France Telecom invest in Romania

France Telecom is planning to invest USD 300 million in the GSM network which the company operates in Romania. Recently the president of France Telecom and the president of Romania convened with representatives of Romania's national telecom operator, Romtelecom. They discussed a coming privatization of the state-run company. France Telecom controls 51 percent of the Mobil Rom mobile telephony operator, which recently signed a contract with the Romanian state regarding the operation of one of the country's two mobile telecom networks.

Privatization in Russia

The Russian government is offering a quarter of the shares in the national Svyazinvest telecom group to Russian and foreign investors. Further shares will be sold to local stakeholders at a later date. This is a first step towards full privatization of the company.

Giants join forces

American AT&T is planning to combine its resources with SBC, the largest regional telecom operator in the U.S. The deal will be the biggest of its kind ever. If it goes through, it may have a major effect on the global telecommunications market. However, critics forecast that the deal will not come to fruition, because it would give the company an excessively dominant position.

Telephone network in China

The Chinese government has granted permission for yet another fixed telephony network, to facilitate the country's rapidly growing telecom industry. China United Telecommunications, which consists of the American Sprint and Metromedia companies, is behind the operator that will be operating the new telecom network in China.

Radio Access to South Africa

The German telecom company Siemens has sold a radio access system to South Africa. The system is based on the digital DECT technology. According to Siemens, it is the first system of this type to be installed in South Africa.



Infocom Systems business area manager Anders Igel, signing the Philippine cable contract, photographed here with customer Philippine Long Distance Telephone Company's representative Cesar Reyes.

Photo: KURT JOHANSSON

From trademark to brand

The fourth edition of the Corporate Visual Identity (CVI) manual will soon be ready. Much has happened since the logotype came into use in the early 1980s. It has evolved into a brand name that is recognized by many and filled with positive connotations. The company is now taking it one step further.

Trademark management entails more than just the legal aspects, even though this has been the main emphasis. The concept is now being extended to include product design.

The same forces which made it necessary to define the company logotype in the early 1980s – more and smaller customers, tougher competition, increased segmentation – are even stronger today and are behind this logical next step. A network-based project called the Industrial Design Initiative is currently working to find new and effective ways of communicating Ericsson's brand image through design. The purpose is to convey Ericsson's message to customers in a more uniform and defined manner. Consequently, coordination is needed.

The difficulty in a large and relatively decentralized organization such as Ericsson is coordination. Without common guidelines, various forces pull in different directions, something which has happened repeatedly during the early years of the logotype's history. Thanks to the CVI rules, which are sometimes considered too restrictive, the company has succeeded in creating a uniform signature, which in turn paves the way for a conscious brand strategy.

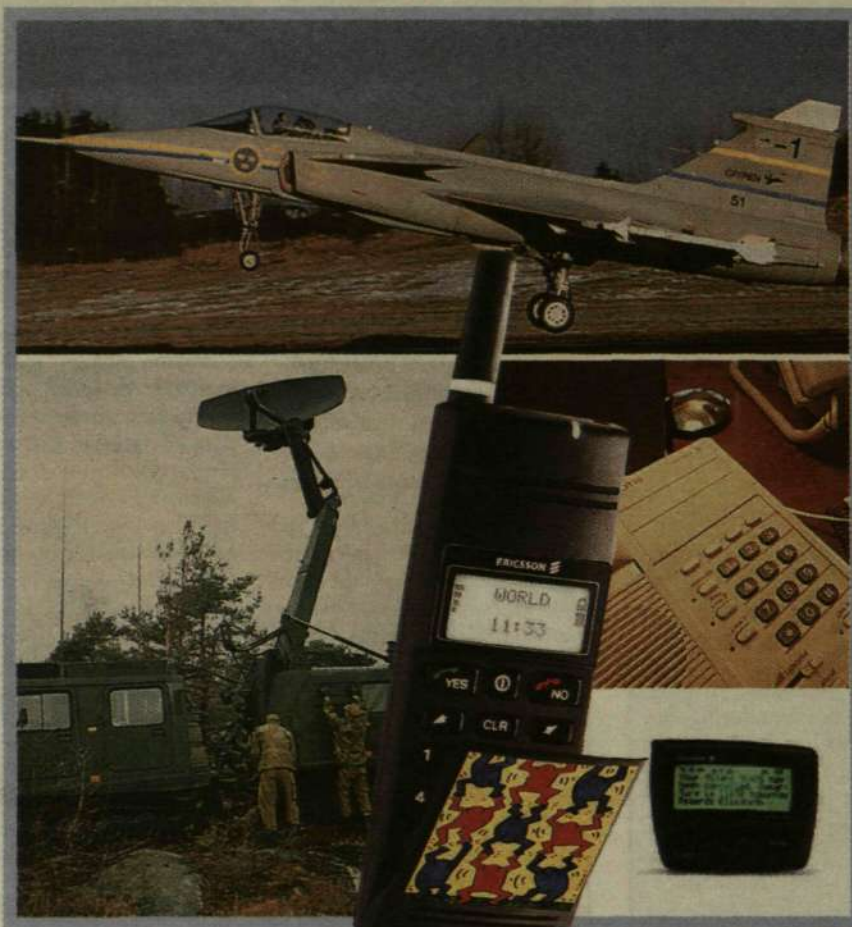
"The battle for markets isn't a struggle between products," says Mats Rönne, Ericsson's manager of marketing communications and one of the network's coordinators. "It's all in the perception of the customer and that's where we have to become more prominent."

Within Ericsson, it's easy to not see the forest for the trees and believe that the battle for customers has already been won. Everyone knows what Ericsson is, right? Actually, continuous market and opinion surveys show that this is not the case. But with mobile phones at the front



The Industrial Design Initiative was started during the end of last year. The idea came from Kaj Juul-Pedersen, marketing director of the former Public Telecommunications business area. He had been pointing out the need for coordination of the company's product design for an extended period of time in order to reinforce Ericsson's trademark/brand, among other reasons.

Foto: PATRIK LINDÉN



It's not always easy to tell if a product comes from Ericsson simply through its appearance. The Industrial Design Initiative is intended to focus attention on a comprehensive view of the company's industrial design.

lines, Ericsson's products reach the hands of an increasing number of users. The product's appearance is an important recognition signal. Consistency and consciousness of product design can strengthen Ericsson's identity and the brand.

Non-bureaucratic network

"The Industrial Design Initiative consists of a number of independent sub-projects that are interrelated," explains Mats Rönne. "We have tried to use ongoing activities in the company as a starting point as much as possible. We are trying to put together design and branding activities that were previously independent of each other, while avoiding hierarchy and bureaucracy as much as possible."

Three work groups; Industrial Design, Trademark and Communication, are currently in the process of identifying current practices and processes. They are examining the design work being done today. What does an Ericsson product look like? Are there any Ericsson characteristics and what are they? They are also taking a closer look at product names. Should individual products have their own names and how should they be determined? Appearance and name should work together as a messenger for the positive associations the Ericsson trademark conveys.

New manuals

The Industrial Design Initiative is run in cooperation with the Danish Design Center.

"Their role is not to design, but to be a uniting force that finds good examples from our very network-based project,"

says Mats. "They are project managers, coordinators and a frame of reference."

Danish Design Center has also mapped out in a comprehensive study, what is being done in the company with regards to design. This was accomplished by interviewing a large number of the designers, both of products and of marketing materials.

This autumn, a manuscript for the revised CVI manual and a new trademark handbook will be presented. The current CVI manual will be updated and expanded. Johan Fischerström at Ericsson communications is managing these sub-projects within the framework of the Industrial Design Initiative.

Compete with design

The final goal of the Industrial Design Initiative is to create a "white book" during 1997 that explains Ericsson's collective thoughts on design. Mats Rönne emphasizes that it is not a question of establishing design rules and regulations, even though some of the issues concerning design will be incorporated into the CVI and trademark books.

"However, no design guides should be expected in the future. Designers still have to design by themselves. What we hope to achieve is an increased awareness of how we can use design as a competitive weapon," Mats continues.

"One has to see this in a long-term perspective. Most likely, we will not design products identically as a result of the Industrial Design Initiative, but that isn't the point, either. This is one of many ways to reinforce Ericsson's marketing focus."

KARI MALMSTRÖM

Values act as door openers

■ The reputation of the mobile phones affects Ericsson's entire image. The values associated with them act as door openers for the entire company. Even before they were made into a separate business area, they were products with a very conscious brand and design strategy, which is now a few years old.

"This issue is an important one for us," says Jan Ahrenbring Vice President, Marketing and Communications within the Mobile Phones and Terminals business area. "Building a brand name can be very abstract, therefore a concise strategy and structure is essential in order to succeed."

The strategy for the brand platform was formed using extensive opinion surveys. Interviews were carried out with employees at both Ericsson and its competitors, operators, suppliers, distributors and everyday users off the street. The results were synthesized into a "perceptual map," which has been the basis for the marketing strategies. How is Ericsson perceived? What are the expectations associated with the name? What distinguishes Ericsson from its competitors?

"We convey values through our telephones. It's all about living up to the customer's expectations and marketing communications are only a small portion," says Jan Ahrenbring. "Treating customers according to their expectations and providing them with first-class products is just as important, maybe even more so. We know that we are associated with quality, for which the customers are prepared to pay. Using this information we are creating a position that will distinguish us from our competitors." KM

Different telephones

■ An activity with close ties to the design initiative is the Terminal Usability Group, with Bruno Von Niman as its coordinator.

Bruno works with user and product design issues for user terminals in the Business Communications area. Within this sphere, the focus on product design is just as intense as with cellular phones. They aren't designated for a consumer target group, rather, a large group of business users – who are nevertheless human!

That Ericsson's cordless office phones and Ericsson's cellular phones should look so different is a mystery to many. That they are handled so differently is an even greater mystery. Now this phenomenon is being examined more closely to determine why, and if they could become more coordinated, both in terms of design and function.



Ericsson's cordless office phone.

Ericsson Guest Support found apartments for more than 2,700 employees on assignment in Sweden last year. Taking care of Ericsson employees during their visits to Sweden has become a separate business concept. Since the 1960s, Ericsson Guest Support has helped foreign employees working in Sweden with a broad range of services and assistance, ranging from housing and work permits to day-care placement for their children.

The main reason why foreign employees use our services is to save time," says Kurt Kangas, head of Ericsson Guest Support. "They can also save money by using our guest apartments."

Guest Support does much more than arrange housing for Ericsson's foreign employees during visits to Sweden, however. It also has a separate unit that books hotel rooms at reasonable rates and another department that helps Swedish employees sublet their apartments in Sweden when they are abroad.

Guest Service Center, another department, helps with a broad range of practical services to make the visits of foreign employees to Sweden a little easier. Ser-

Guest Support provides smooth start in Sweden

vices include everything from assistance with work and residence permits to applications for parent allowance benefits or finding the right school or day care center for the children of foreign visitors.

One of the Guest Service Center's major strengths is knowing how to get through the Swedish bureaucracy. The center has good contacts and established routines in working with the authorities. Its personnel know which forms have to be filled out and where to send them.

Strong demand

In addition to arranging residence permits, national registration, schools and other practical details, Guest Support also takes an active part in rendering assistance with social activities. There is strong demand for social contact, and various events and receptions are organized at least once every month.

For people who move to a new country, with different traditions and values, it's easy to become isolated outside the social network, especially if there is a significant language barrier.

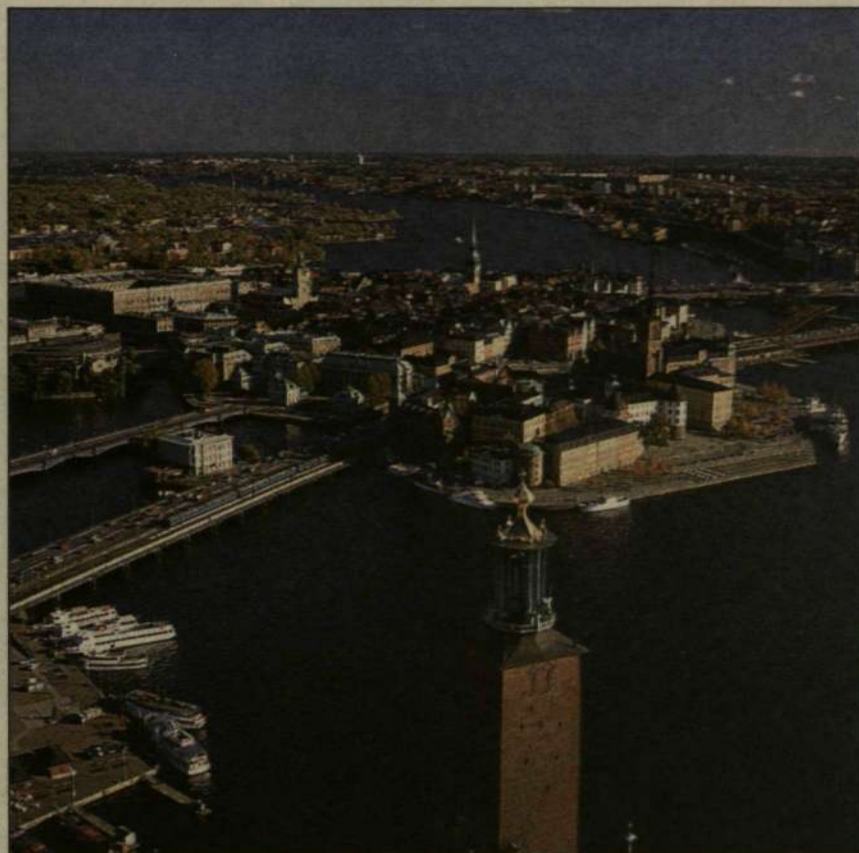
"For employees who stay here for prolonged periods of time, it's very important to establish a network of contacts with friends and colleagues," explains Zuzana Hatas, an employee of the Guest Service Center. Social contacts enhance their general enjoyment of life and strengthen their self-confidence."

Continuous growth

Social activities may include skiing trips, for example, outings and theme parties. Activities for spouses are also arranged.

Nine of Ericsson Guest Support's 30 employees work in the Guest Service Center. All of them speak at least one foreign language other than English. They all also have experience from foreign residency, making it easier for them to understand what type of help provides best assistance to foreign employees working in Sweden.

The activities of Ericsson Guest Support are characterized by continuous growth. Today, the activities are included in Ericsson's property company, which has annual revenues of more than



Guest Support helps foreign employees integrate into Swedish society. Services include help in finding suitable housing, on-the-job assistance and social activities.

Photo: PER-ERIK ADAMSSON/GREAT SHOTS

When a foreign employee comes to Sweden

- Work and resident permit applications should be filed in the home country via the Swedish embassy. A tourist visa does not provide permission to work in Sweden. The only exceptions are trips to participate in training courses or business negotiations, for which a tourist visa is adequate if it extends over the period during the person is in Sweden.
- It takes about 6-8 weeks to process applications for work and residence permits. File your application in ample time before your scheduled departure from your home country.
- It is illegal to work in Sweden without a valid work permit. Violations often lead to unnecessary and time-consuming complications.
- Ericsson does not have any special privileges with Swedish authorities. We must obey Sweden's laws and regulations the same as everybody else.
- For questions or orders, contact Guest Support via memo: REM.REMGUEST.

SEK 115 million. The unit was formerly part of the parent company.

The distribution of foreign guests corresponds largely with Ericsson's business

development. Regions accounting for the most foreign visitors to Sweden today are South America, China and the U.S.

GISELA ZEIME



Two years ago, Yoshio Honda from Nippon Ericsson KK in Tokyo worked for half a year in Kista.

"It gave me experience and changed my way of thinking," says Yoshio, who would not mind a longer stay abroad to work with research and development.

Yoshio began working at Ericsson Toshiba in the autumn of

Yoshio like to work for Ericsson in Sweden

1993 but his department transferred to Nippon Ericsson after six months. The position given on his business card is "Assistant Manager, Telecom Standards and Regulations."

"Together with four colleagues, I work with standardization issues in the telecom industry," says Yoshio. "We work not only with mobile telephony, but all areas, such as public telephony, paging and so on. Our work includes attending standards committee meetings, formulating comments and trying to influence emerging standards. We have many contacts with NTT, the Japanese PTT, but also with other suppliers, such as Motorola and Nokia."

Yoshio enjoys his work. "I get

to use my technical skills in standards discussions, which I find stimulating," he says. About twice a year, his job brings him to Ericsson in Kista.

Before joining Ericsson, Yoshio worked six years at IBM in Tokyo with telecom-related issues. Previously he had studied at one of Tokyo's universities, where his training included telecommunications.

Different cultures

"There are many differences in working for an American and a Swedish company," says Yoshio, who considers that the company culture at Ericsson allows much more freedom than he experienced at IBM.

"I really don't know what it's

like to work in a Japanese company, since I have never been employed by one," admits Yoshio. "But I believe that the Swedish culture is somewhere between the Japanese and the American."

Yoshio adds that the Swedes are more individualistic than the Japanese, who prefer to work in groups.

Two years ago, Yoshio worked at Ericsson Radio Systems in Kista for two three-month periods. His stay in Sweden made a strong impression on him and changed his way of thinking.

One of his visits to Sweden was during the autumn and winter, and Yoshio spent Christmas in Sweden. It was a

pleasant experience, although he gladly refrains from the boiled ling traditionally served at Swedish Christmas dinners.

Asked about the short days and darkness in Sweden, Yoshio replies that it is hard to understand how dark it can get unless you have experienced it personally.

During the months in Sweden, he took the opportunity to travel around the country. This provided him with the inspiration to travel in Japan and learn more about his own country.

"In school, I thought that Japanese history was a boring subject, but I've become much more interested now," he laughs.

GUNILLA TAMM

"It's about communication between people. The rest is technology," was the unmistakable message printed on banners hung across some of Moscow's main streets from May 19 to 23 during the telecom and data exhibit Sviaz-Expocomm 97. Ericsson joined leading industry players and presented its full range of products in a 180 square meters two-story stand.

Telecom in Russia

The Russian telecom market is simmering with activity. Foreign telecom investment will increase to about SEK 6 billion this year from just over SEK 4 billion in 1996. This is the prediction in the official statement made in conjunction with the opening of the 9th Sviaz-Expocomm 97 exhibition in Moscow.

"Telecom is one of the most attractive sectors for foreign investment and economic growth potential," says Alexander Krupnov, Deputy Minister and chairman of the Russian government committee on communications and information systems. This year, Sviaz attracted more than 500 exhibitors from some 30 countries. The Ericsson stand was centrally located among the company's fiercest competitors: Siemens, Alcatel, Lucent and Nokia.

The Ericsson stand featured a complete range of all of Ericsson's principal systems and products displayed in a manner that portrayed Ericsson as a single industrial entity. Marianne Thunberg from Ericsson Events was responsible for the stand and worked more than 300 hours to ensure that everything functioned smoothly and that the international stand crew of 75 persons worked as a team.

Although Ericsson was a late starter in current market boom, Russian operations are now expanding rapidly. In 1996, net sales amounted to well over SEK 1 bil-



Among customers visiting the Ericsson stand were Boris V. Zverev (left), manager of long-distance operator MMT, who was greeted by Yngve Redling, president of Ericsson in Russia, and Margarita Aniskova, sales manager for business networks.

lion, and the figure is expected to exceed SEK 2 billion this year.

"When I was appointed manager of the newly formed company Ericsson Corporata in mid-1994, we had only ten employees," relates Yngve Redling. "Now we are more than 300 and have offices in four locations in Moscow and another in St. Petersburg. We coordinate our operations with the Croatian company Ericsson Nikola Tesla and focus on a half dozen telephone areas, primarily in Siberia."

When the Sviaz show opened, Yngve was at the stand, along with vice president Ken Owen and business development managers Juan Hernandes and Svante Axling. At the stand they met a number of important politicians and customers, including Deputy Prime Minister Bulgak and Deputy Minister Krupnov.

Significant potential

Russia is divided into a total of 89 telephone areas, called oblasts, which are partly privatized but regulated by the state-owned Sviaz Invest, which owns 51% of the shares. Discussions to private Sviaz Invest are in progress.

Russia's teledensity is now 17% in a population of 150 million. This means that there is tremendous future potential in what is the world's largest country, stretching over 11 time zones. The megalopolis Moscow, which celebrates its 850th anniversary this year, with its characteristic broad avenues, long distances, monumental buildings and four million telephones for a population of 10 million, enjoys significantly better communications than the rest of the country. Nearly 70% of all investment capital is controlled from Moscow.

"There has been an enormous increase in the telecom market during the time that I have been here," notes Yngve. "The greatest obstacle for even more rapid expansion is the lack of capital, although political instability is also naturally a factor."

VimpelCom in the lead

Despite its late start, Ericsson is faring well against the competition and already holds a 50% market share in mobile systems. Systems sold in Russia include



"It's about communication between people. The rest is technology." Large banners bearing this message were hung across Moscow's main street Tverskaya. The Kremlin is seen in the background. Photo: THORD ANDERSSON

NMT 450, D-AMPS/AMPS and GSM-based systems on 900 and 1800 Mhz. The dominant standard in Russia is D-AMPS/AMPS, whose customers include VimpelCom, the country's largest mobile operator. During the exhibition, Ericsson signed yet another contract with VimpelCom valued at SEK 410 million.

A look at the Russian map reveals that the AXE system is in wide use throughout the country, as is the MD 110 business exchange. MD 110 installations include several banks in Moscow, large oil companies in Siberia and an installation on Sakhalin island at the far eastern fringe. D-AMPS/AMPS is also installed on Sakhalin. At the far western end of the country in Kaliningrad, there is a mobile system using NMT 450, a standard that is well represented throughout Russia.

"NMT has many technical advantages in a large and sparsely populated country such as Russia," says NMT area manager Gustaf Lagerberg.

Ericsson market share in the fixed public network is currently about 15%, but the goal is to increase this share to about 35% by the year 2000.

"Now we have decided to start manufacturing AXE locally in the Moscow area," says Yngve Redling. "This will support sales, since the local operators should purchase locally to the greatest extent possible."

The best way to rapidly expand the pub-

lic network is to use a radio access solution, such as Ericsson DRA 1900. The Ericsson stand at Sviaz was dominated by a complete movable SweSite system, equipped with Remote Subscriber Switches for both AXE and DRA 1900, including both radio transmitters and masts.

First DRA 1900 order

An interesting first order was received for the DECT-based radio access system DRA 1900 during the exhibition. The buyer is the telephone company OAO Svajzinform from Nizhij Novgorod, some 400 km from Moscow, which purchased two systems for the Vad and Madjana areas.

"I consider this a breakthrough for DECT-based radio access systems, says Svante Axling. "DECT is now approved as a Russian federal standard. Some market analyses indicate that the Russian market for radio access may exceed SEK 700 million as early as 1998," says Svante.

Ericsson's participation at Sviaz was characterized by a great deal of optimism and hopes for the future, not least among local Russian employees. If planned investments are implemented and market growth continues as it has to date, Yngve Redling predicts that Ericsson Corporata will have net sales of more than SEK 7 billion by the end of the century.

THORD ANDERSSON



Marianne Thunberg had overall responsibility for Ericsson's stand at Sviaz-Expocomm 97.

Time for a rest and a barbecue in the woods

"It is important to project the same image of Ericsson, regardless of the product in question or what country you come from," says Marianne Thunberg, who was the stand manager at Sviaz. The entire day before the exhibi-

tion opened, she held a seminar for the international stand crew. In addition to the many Russian members, the crew included people from such countries as Austria, Bulgaria, the Netherlands, Norway, New Zealand, the U.S.,

Serbia, the U.K. and Sweden. Items on the seminar agenda included a product review, marketing issues, Ericsson's corporate message and the "wanted position" for the year 2000. The day ended in a forest

grove outside Moscow, where the Ericsson crew engaged in a game of war with paint-ball weapons as a more relaxing means of creating team spirit. A barbecue at sunset topped off the evening.

More than 100 years in Russia

Ericsson has a long history in Russia. As early as the 1890s, Russia became a major market for Swedish telephones, growing so large that in 1899 the company's largest manufacturing plant at that time was inaugurated in St. Petersburg. The number of employees soon grew to 3,000.

There were plans in the early 1900s to move all of Ericsson's operations to Russia, but fortunately these plans were not implemented. During the 1917 revolution, the plant was nationalized, thus wiping out more than half of Ericsson's total assets.

The plant, which still exists today, continued to make telephone equipment under the name Red Dawn. It is rumored that most of the 25 million existing telephones in Russia came from the plant in St. Petersburg.



Irina Podobedova from Ural Radio, an authorized representative for Edacs, demonstrated an Ericsson telephone manufactured on license, 10,000 of which have been purchased by the Ministry of the Interior.

THE ROUTE TO TELECOM SUCCESS

Controller IC is the first on the market to integrate a switching matrix. It also integrates the GCI controller function, bringing further savings in board space and component costs.

The Complete Offering
The STLC5464 is part of a complete kit of components that also includes the STLC5412 U Interface and the STLC5444 Quad Feeder IC. SGS-THOMSON's STLC5412 is the only U Interface chip that includes the special functions needed for public DECT telephone service.

The Features
ST's new STLC5464 chip controls up to 32 HDLC channels in both directions for up to 16 "U" or "S" type lines and handles two GCI channels. In addition, the STLC5464 has 2Mbits/s data interfaces

Multiple HDLC controller
Aimed at digital line cards and base stations for DECT networks, the STLC5464 Multiple High-Level Data Link Control (MHDLC)

and a 256x256 switching matrix. It also has the capability to broadcast HDLC packets. Though it uses external shared memory the STLC5464 isolates the memory from the micro by using on-chip DMA to transfer data plus internal bus arbitration to improve memory speed.

The Future's Mapped Out
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 is being readied right now, using state of the art 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.

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BIPOLAR - THE NEXT GENERATION

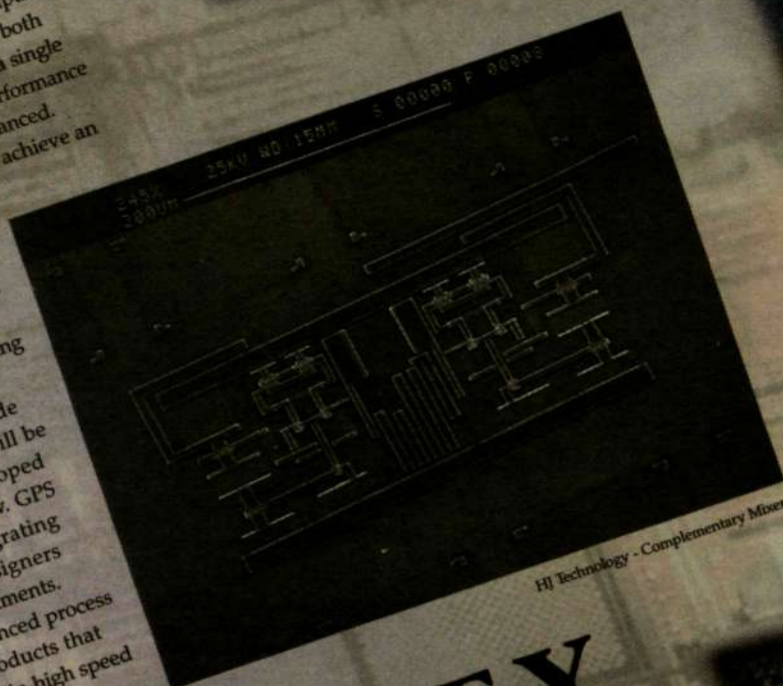
With the introduction of GPS's HJ bipolar process at the company's Swindon, UK, facility, customers have access to products manufactured on a process delivering world class speed and performance with very low power consumption.

A key feature of HJ is that it successfully combines both high speed NPN and high speed PNP transistors in a single core process, with the added advantage that the performance of both transistor types has been considerably enhanced. Typically, the NPN and PNP transistors in HJ achieve an f_{max} in excess of 32GHz and 16GHz respectively.

GPS are exploiting the new process to develop highly integrated transceivers for digital cellular phones and wireless digital data applications. Customers will benefit through longer battery life, system partitioning flexibility and lower costs.

This new process is also being made available for external designs and will be supported with GPS's highly developed Cadence Artist based RF design flow. GPS have enhanced this flow by integrating EEsol Framework 4 so that RF designers can have the best of both environments.

It is this combination of advanced process technology and innovative products that enables GPS to lead the market in high speed bipolar technology and design.



HJ Technology - Complementary Mixer



GEC PLESSEY SEMICONDUCTORS

DIRECT CONVERSION PAGING RECEIVERS

GPS's SL6619 direct conversion receiver IC for POCSAG is the lowest power and most highly integrated direct conversion pager receiver IC available.

The SL6619 design builds on GPS's experience and market leadership in direct conversion receiver products for paging. It is fabricated on the company's WP bipolar process - a process providing very competitive capacitor component capability. Indeed, a key feature of the SL6619 is that it includes all on-chip channel filtering. GPS provides full applications support to assist customer design

The 323MHz miniature pager reference design



and prototype development. A 323MHz reference design for a miniature pager receiver is available to reduce design cycle time and to demonstrate the SL6619's performance in a realistic application. This reference pager receiver includes an antenna and typically achieves -88dBm sensitivity in a TEM cell for a 15 character message.

GPS are experts in direct conversion technology. Our capability and service will be enhanced during 1997 with the launch of ZIF100 and ZIF600 - the world's first open market direct conversion solution for the new 4FSK paging protocols.

NEW CHIPSET FOR GLOBAL POSITIONING SYSTEMS

The GP2000 is a two-chip chipset for global positioning systems. Benefiting from our world class RF design and system integration capabilities, the chipset includes the GP2015 RF front end and the GP2021 12-channel correlator - both optimised to offer designers a highly integrated, cost effective solution to global positioning systems.

The chipset is offered with customisable software and a non-embedded processor, so ensuring maximum design flexibility for applications such as in-car navigation systems, automatic vehicle location (AVL), asset management and location/tracking systems, marine navigation products and telephone emergency response location.

With this chipset, system designers enjoy increased flexibility in both hardware and software design as all global positioning acquisition and tracking software is supplied for customisation, in C source. Customers can take advantage of all 12 channels for all-in-view satellites to save processor loading if the processor is required to perform tasks ancillary to the global positioning. Use of the GP2000 chipset makes the hardware design of a complete global positioning receiver easier than before. The majority of the key functions are now integrated into just two ICs - the GP2000 chipset.

This is the third in a series of features aiming to give all Ericsson staff an overview of GEC Plessey Semiconductors' capabilities so that we can better work together. Check out our WWW site for more details of the products and services we offer:
www.gpsemi.com

Prestigious order from Telecom Finland

Telecom Finland is purchasing products from Ericsson's transport network program based on Wavelength Division Multiplexing (WDM) technology. This order is one of the first of its kind in Europe and puts Ericsson in a leading position in the field of transport network technology.

Wavelength Division Multiplexing is a technology that packs a lot of traffic on a single fiber, thus significantly increasing network capacity.

Ericsson won the Finnish contract in competition with several leading companies, including Ciena Corporation of the U.S., which was the first company to offer WDM products and has taken significant market shares in its niche.

The fact that Telecom Finland selected Ericsson for this order is an important breakthrough for us and for the European market in general with respect to WDM technology," says Magnus Grenfeldt, product manager for the Erion concept at the Transport and Cable Networks business unit. WDM technology has been in commercial operation in the U.S. for some time and is now coming to Europe.

WDM is an efficient method for operators to increase capacity in transport networks. The technology is based on optical methods which, simply put, transfers several signals at different wavelengths over the same fiber. Traditional transport technologies are based on time-division multiplexing (TDM), which means that multiplexing is done in the time domain. WDM, on the other hand, multiplexes light with different wavelengths and can thus increase the bandwidth

WDM is an effective method for operators to increase capacity in transport networks

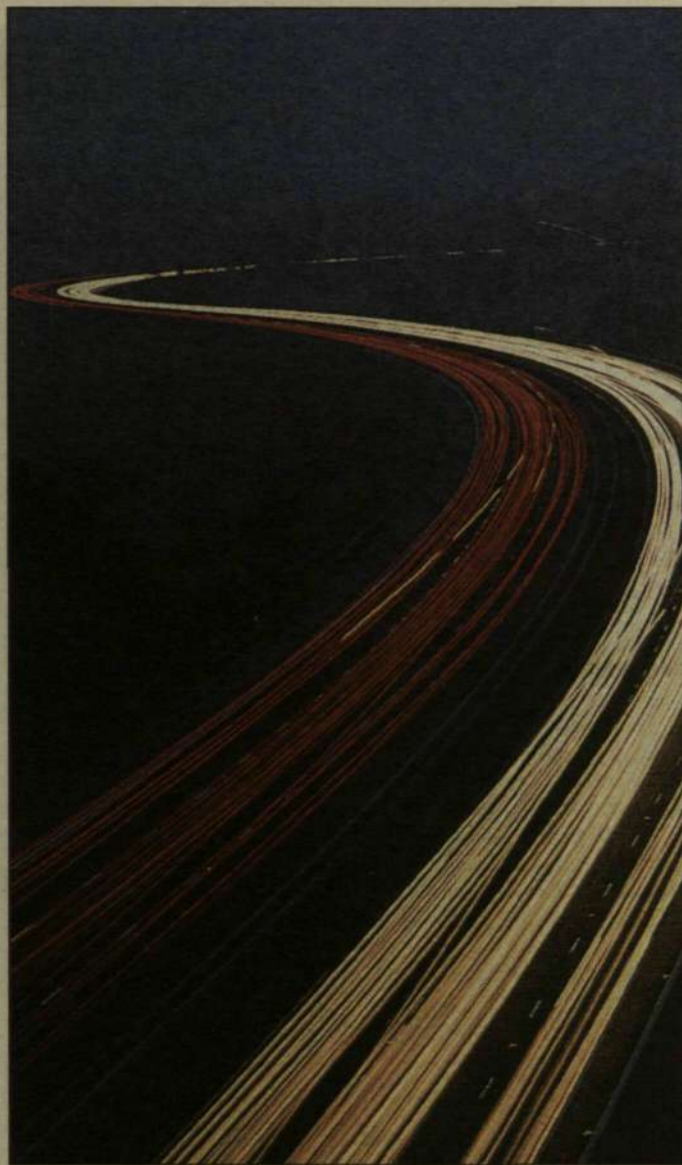
without increasing the speed of individual signals.

Greater simplicity

Comparisons between classic TDM technology and WDM show that the latter has greater potential and is economically more advantageous for operators. With WDM products installed in the network, a single fiber pair, for example, can handle 500,000 calls, which normally requires 16 fiber pairs. Using WDM is also less expensive than investing in more fiber, and it is much quicker to install.

The Ericsson product family for integrating WDM in transport networks is called Erion. According to Magnus Grenfeldt, Erion has several advantages that make it unique.

"We have taken a comprehensive approach to transport net-



WDM can be used for transmission of traffic from classical network equipment, such as PDH, SDH and Sonet, which is the American equivalent of SDH, as well as ATM. WDM technology creates more lanes on the information highway.

Photo: SJÖBERG BILDBYRÅ

work design, which means that the products make use of all the capacity the WDM offers. The objective with the Erion concept is to offer operators simplicity, relatively low costs, high availability and the ability to use exist-

ing infrastructure, including both fiber and switching and transmission equipment, in an efficient manner," notes Magnus.

The concept also includes solutions that ensure high availability in the network through the built-in traffic protection mechanism. Magnus describes these as self-repairing optical rings or autonomous optical subnets.

"Optical technology adds a new dimension to traditional network design. In ten years' time, networks are expected to handle 20 times as much traffic," says Magnus.

Lead in the U.S.

WDM technology has been used in the U.S. since the mid-1990s. The fact that the Americans have taken the lead has to do with the demands on U.S. networks. About 70% of the

country's fiber-optic networks are already operating at full capacity, and on segments where traffic is heavy, there is little fiber available. In the U.S., operators were thus forced to use WDM to shoehorn more traffic on to existing networks.

Ericsson will soon be performing a pilot installation of the first products in the Erion family in Telecom Finland's network.

"Telecom Finland is very advanced with respect to data communication and also far ahead in the Internet arena. Now we have achieved a breakthrough in the ATM and datacom market with a product that everyone up until now saw as simply a means of increasing capacity in SDH networks," says Magnus.

"WDM technology will be used extensively throughout the infocom industry. Ericsson is now increasing its efforts to penetrate the U.S. transport network market," notes Magnus.

The Erion concept is being launched at SuperCom in New Orleans in the U.S. and will also be presented as part of Ericsson's product offering at the Telecom Asia exhibition in Singapore in mid-June.

LENA WIDEGREN

diary



Hiromi Hiraide works as a secretary at Ericsson in Japan. She recently visited Sweden for one week to lecture on Japanese culture for employees at the plant in Kumla.

Photo: GUNILLA TAMM

Hiromi teaches Swedes Japanese culture

Hiromi Hiraide works as a secretary at Ericsson in Japan. She recently visited Sweden to teach her Swedish colleagues at Ericsson Mobile Communications in Kumla about Japanese culture and society. Her lectures were primarily intended for employees responsible for manufacturing mobile phones for the Japanese market. Hiromi let Contact read her diary.

Sunday Arrived in Örebro around noon. For the next week, I will stay at a nice, small hotel near a beautiful castle. The Japan Education Program starts tomorrow. I will make presentations on Japanese society and culture for colleagues in production, service and repairs. People in this Swedish town are very polite and friendly. Tomato juice and potatoes are very tasty. It is amazing that the daylight lasts so long.

Monday The Japan Education Program started at 7:45 a.m. The participants arrived very punctually. They seemed to be very interested in the Japanese tax system, pensions and housing conditions. I was very glad that there were many questions.

Tuesday The weather was lovely today. The audience was very attentive, and I was very happy. The traditional Japanese Tatami room seems to be very interesting for them.

In the afternoon I joined 25 school children and enjoyed a picnic at a lake. The children were in the 3rd grade. They were innocent young things, who seemed very excited to meet someone from so far away.

Wednesday Today there were more women in the audience than on other days. They showed an interest in Japanese women and careers. They also asked about the traditional Japanese dress called the kimono and the Japanese language. I look forward to eating lunch each day with the participants. The potatoes are delicious, and I enjoy talking with the people.

Thursday In the evening, we were taken up the river Svartån on a small boat. The river was beautiful, and there were many green forests and nice summer houses in the traditional Swedish style. On the banks of the river, there were many people enjoying the sun on this beautiful May evening.

Friday This was the last day of my presentation. I told about my personal character by explaining the Oriental zodiac. One of the girls in the audience said to me, "This is really true for my boyfriend." I was glad that we had become so friendly.

After finishing my presentation, I left Kumla by train. It was a wonderful week for me, and the response from the audience was good. We live in different cultures, but we are working for the same thing.

Even though Africa is not yet a major market for cellular telephony, with the exception of South Africa, Ericsson has sold systems to several countries. NMT 450, TACS, D-AMPS and especially GSM are among the systems delivered to South Africa and Ghana.

Ericsson conquers the gold coast

Making inroads in Africa

The operator in Ghana that has purchased its GSM equipment from Ericsson, Mobile Telephone Networks (MTN), has a market share of about 45 percent. Its competitor Vodacom has chosen equipment from Siemens, Motorola, and a small portion from Alcatel.

In South Africa, Siemens has a company with thousands of employees and local manufacturing, thereby reinforcing its strong foothold. This means that countries bordering South Africa are interesting markets for Siemens. Namibia and Kenya are two of Siemens' GSM customers.

NMT and TACS

Similarly, Alcatel dominates the markets in the French-speaking Arab nations of North Africa. However, Ericsson has broken into the Libyan market and delivered a GSM system, which has not yet been put into commercial use. Alcatel recently sold a GSM system to Egypt's capital, Cairo.

Even though the NMT 450 systems in Tunisia

and Morocco, which were installed back in 1985 and 1987 respectively, are still in use, they will soon have run their course. Evaluations are currently taking place in both of these countries.

Several years ago, Ericsson received a TACS order from Nigeria. This market is handled by LM Ericsson Ltd. of Ireland. Oy LM Ericsson Ab in Finland recently received a GSM order from Madagascar.

"We have several GSM assignments in western Africa," according to Henrik Moberg, but at this point in time he does not want to disclose which countries.

D-AMPS

About a year and a half ago, Ericsson received its first order for a D-AMPS system to Congo.

"Africa is an interesting market and we are trying to introduce D-AMPS to several African nations," says Eddie Åhman, head of marketing for Europe, the Middle East, Central Asia and Africa at the Mobile Phone Systems American Standards business unit.

TEXT AND PHOTO: GUNILLA TAMM



"The South African GSM system delivered by Ericsson became operational during the summer of 1994 and today has 450,000 subscribers. The market is growing rapidly," says Henrik Moberg, head of marketing for Africa in the Mobile Phone System GSM, NMT, TACS business unit at Ericsson Radio Systems.

A growing market with massive needs

■ About 12 percent of the world's population lives in Africa, but the continent has only two percent of the world's telephones. This means that there are as many telephones in Africa as in the Tokyo area - in other words, an amazing potential for growth.

The world's attention is increasingly focusing on Africa's rich natural resources. When these resources are harnessed, telecommunications play a very important role.

A positive sign is that over 30 of Africa's 53 countries have held their first political elections, which is bringing forth a new generation of politicians who recognize the importance of telecom.

Many of the existing fixed networks are from the days of colonialism and are in great need of modernization. But lack of capital prevents this need from becoming a significant market.

In the area of public telecom, Ericsson has nearly a fourth of the African market, with offices in ten countries and agents and distributors in many more.

Ericsson anticipates sales of just over SEK 2.5 billion throughout Africa in 1997. It may seem like a small figure, but Africa is actually a part of the world where Ericsson is experiencing growth. Before 1993, Ericsson reported sales of only SEK 0.5 billion.

AXE can be found in several countries. Today, Ericsson has roughly 90 percent of the market in Ethiopia after a recent order worth SEK 200 million.

Ericsson's largest operations are in South Africa, with 300 employees and a small amount of manufacturing.

PATRIK LINDÉN

Stronger position - when GSM was installed in Ghana

When the operator, Scancom, put its GSM system in Ghana into commercial use a while ago, it gave Ericsson a strong position in western Africa.

"Earlier this year, we opened a local office in Accra, which we plan to use as a base for our marketing efforts in western Africa," says Robert Rudin, head of marketing for northern and western Africa in the GSM, NMT, and TACS business unit at Ericsson Radio Systems.

The contract with Scancom was signed in July 1996, and in November, the system was put into commercial operation. The first phase covers the networks in the capital city Accra and the port city of Tema, which is one of the largest in West Africa. Today, the GSM system has the capacity for 8,000 subscribers.

The assignment in Ghana is a turnkey project, which means that Ericsson performs all the work, such as cell planning, installation and operation start-up.

Mustapha Hourri, technical manager of Scancom, says, "Cooperation with Ericsson has worked splendidly. No other supplier has as much experience with GSM systems and it shows."

Mats Ohlsson, Ericsson Radio Systems' project manager of the GSM assignment in Ghana, agrees that the project has gone smoothly. All equipment was loaded into Swesite containers at Ericsson Central Installations in Flemingsberg, just south of Stockholm. From there, the equipment was shipped by boat to Accra.

Tested on fishing boats

The cell planning was relatively easy since the areas surrounding Accra and Tema are very flat. The GSM network also has coverage quite a way out to sea. The use of cellular phones is being tested on fishing boats.

Phase two is rapidly approaching. It will involve Ghana's next largest city, Kumasi in the Ashanti province, where an important gold mine is located.

"I'm pleased that Ericsson has opened an office in Ghana. Other large Swedish companies, such as ABB, Vol-

vo, Skanska and SKF are already here," says Amarkai Amarteyfio, who has been Sweden's consul in Ghana for the past six years.

Mostly British companies

Most of the foreign companies in Ghana are British and there is a growing interest among South African companies to establish themselves there.

Amarteyfio believes Ericsson has a bright future in Ghana. The political situation is stable and the economy is developing the right direction, even if there is a long way to go before Ghana reaches the same growth levels as Asia.

The fixed telephone network in Ghana is very limited, so the need for mobile telephony is great among businessmen. The country's two operators, each with its own analog system, both have capacity problems and the wait is long for a subscription.

Ghassan Oueida, managing director of Scancom Ltd., is optimistic about the future for GSM, not only in Ghana, but also in other west African countries. The Lebanese company Investcom Holding owns a 67 percent share

of Scancom. Other owners include two Norwegian companies, Tele2 Norner and Scan Construction.

Oueida states, "GSM is a system that can offer many advantages over the two existing analog systems. It is most important for businessmen in Ghana to have access to a new telecommunications technology. The countries that will first establish roaming agreement are South Africa, the U.K. and Germany."

Telephone density is low

Telephone density in Ghana is low and today there are 75,000 fixed lines. When Ghana Telecom was privatized and Telecom Malaysia became partner, expansion plans were presented for an additional 225,000 lines within the next five years.

In order to quickly expand telecom services, Ghassan Oueida mentions fixed cellular solutions, which is cellular telephony on the fixed network, an interesting option.

Scancom markets its mobile system under the name Spacefon. Slightly more than half of the subscribers are

businessmen and other important subscriber groups are top government officials and foreign citizens.

"During the elections at the end of last year, we loaned telephones to various key persons," says marketing manager Gregory Mansour. The company has also advertised on television and billboards, and has arranged seminars for specially chosen individuals.

When it comes to telephones both he and Ghassan Oueida are surprised over the scant interest Ericsson has shown in Spacefon's request to purchase cellular phones.

"We have purchased equipment for our GSM system from Ericsson, so we would also like to display Ericsson's GSM telephone in our marketing campaigns. It has become a symbol for the system," Oueida points out.

Ghassan Oueida and Gregory Mansour are very satisfied with Ericsson's personnel and the work they've done so far.

"They are professionals who know how to do their jobs and are very cooperative, both agree."

GUNILLA TAMM



Mats Ohlsson, Ericsson Radio Systems' project manager. Standing next to him is Robert Rudin, head of marketing for northern and western Africa for the Mobile Systems GSM, NMT and TACS business unit.



Ghassan Oueida is the managing director of Scancom Ltd.



Total solutions piece puzzle together

"Why didn't you do this a long time ago?" is the most common question asked by customers when Ericsson sales personnel present their new and simplified sales model. The creation of finished sales objects will speed up procedures enormously and reduce lead times to a fraction of what they've been until now.

Reports about changing market conditions and rapid growth are starting to become more than slightly repetitive. Nevertheless, it's true, conditions have changed dramatically. Nothing is the same as a few years ago. Old well-established telephone companies face tough competition from new operators who virtually ignore the details of technical solutions and concentrate instead on setting up functional systems as quickly as possible. A policy that generates revenues.

As a result, established operators have also modernized their systems and stepped up the pace of development. The new trends, in turn, have forced market suppliers, including Ericsson, to radically change their routines. The cycle has been started.

Approaching absolute world-class
Ericsson's business unit for mobile telephone systems for European standards (GSM, NMT and TACS) has taken note of ongoing changes and, for the past six months, conducted a program called

World Class Supply provides customers complete solutions

World Class Supply. In simplified terms, it is designed to make Ericsson an absolute world-class supplier in all categories.

World Class Supply (WCS) has focused primarily on theories and models until now, but the philosophy has started to gain a foothold throughout the organization.

Two critical tools in WCS are sales objects and order objects, concepts that are linked closely with each other. The tools are designed to make it as easy as possible for customers and sales personnel to select a system that meets customer needs and desires. Customers and sales



"The situation here is somewhat complicated," explains M. A. Rojas, who works with sales in Spain. "Customers are used to doing everything themselves, and the telecom companies have large numbers of engineers, but they also recognize the obvious advantages of shorter lead-times and faster network growth."



Finished and pre-defined products instead of putting the puzzles for every system together piece by piece is a new concept for saving time and offering significant product supply improvements, explain (l-r) Per-Evert Sjödin, Kjell Carlsson and Erik Hagman, members of Ericsson's business unit for European standard mobile telephony.

Photo: KURT JOHANSSON

personnel should not have to put pieces of the puzzle together themselves, and examine every nut and bolt.

Customers will now specify the systems they want based on simple and fundamental requirements. Ericsson will then choose a suitable order object that will be shipped finished and ready – in one package – directly from the factory.

Telecom development trends may be compared with today's automotive industry. Car buyers have a few models to choose from, but they may also select from a range of special accessories. Telecom customers, similarly, can now purchase a GSM system, for example, by specifying a handful of parameters that will determine price and the sales object they want.

The basic parameters for radio base stations are frequencies, the type of base station, type of cabinet and maximum configuration. Additional features may include power feed, coding, cabinet color, the number of transceiver units and other choices that are combined to form a so-called order object.

"We have identified about 50 sales objects and entered 400 order objects in Prim," says Erik Hagman, head of sales objects for base stations.

"Today, a growing number of Major Local Companies (MLC) in Europe place direct orders for newly established Customer Configuration & Logistics units (CCL) that serve as the hubs of networks. The objective within the next few years is to receive orders directly from the operators.

Slowly but surely

Although the new concept is immediately perceived as self-evident and highly progressive, it has encountered some resistance, both internally and from customers.

"Naturally, WCS will change many job definitions, otherwise it wouldn't represent a rationalization measure," says Kjell Carlsson, who is coordinating four projects focused on mobile switching centers. "We want to market pre-defined packages that will eliminate discussions of various details, and our efforts will af-



"We have started pilot projects in the U.S., where we have identified sales objects for seven customers, both old and new," says Kenny Ungarelli, who coordinates Ericsson's marketing activities in the U.S.

fect both Ericsson and our customers."

The advantages, however, are so obvious that customers are expected to gradually accept the new mode of operations. Following long discussions, Vodafone in the U.K., for example, has endorsed WCS, says Alan Jones of Ericsson in the U.K.

"We still haven't made any complete sales based on WCS," explains Kjell Carlsson, referring to switching centers. "But we have tested defining various sales objects in the marketing chain without full coverage backwards in the form of pre-defined order objects. It will be exciting, therefore, to see what sort of progress we make toward mid-June, when we plan to initiate a more focused project under the stopwatch. From top to bottom, throughout the entire process from customer negotiations to finished systems installed on site. That's when we'll see if we can reach the short lead-times we're striving to achieve. Eventually, our objective is to offer completely finished and tested cabinets in stock to further reduce lead times at the CCL level."

In closing, a little paradox to illustrate that simplification is not the solution for all things. The more you focus on standardization, the easier it becomes, in terms of logistics; in parallel. It's all a matter of flexibility and balance!

LARS CEDERQUIST

Japanese etiquette at Kumla plant

With the Japanese market looming larger on the horizon, employees at Ericsson's factory in Kumla, Sweden are going back to school. Japanese business culture and etiquette are some of the points in the curriculum.

"If we're going to take part in such an exciting project – and the Japanese market is definitely such a project – it will be interesting for us to learn more about Japan's culture," says Görel Stenfelt, head of the Japanese training program at Ericsson's production plant in Kumla.

During the spring, production personnel, instructors and other workers have been taking part in the project designed to increase their knowledge of Japanese business culture, quality philosophies, etiquette as well as some history, social studies and other subjects.

"We believe it's important that all persons involved should realize they are producing something for the Japanese market," continues Ms. Stenfelt.

There are considerable differences between Japanese people and Swedes, and it's important to know them in order to avoid misunderstandings in business transactions.

Some of the differences may include the hierarchy of placements at a conference table, knowing not to enter certain rooms without removing your shoes and treating the acceptance of business cards with respect. These are important rules to remember.

Görel Stenfelt knows what she's talking about, having spent part of her youth in Japan. Nearly one year working in the country and a burning interest in Japan and its culture have also contributed to her understanding of Japanese working life and how it functions. Normally, Görel Stenfelt doesn't work at all in education or training pursuits. She is an IT coordinator at the purchasing department in Kumla.

Quality demands are also much different in Japan. According to Ms. Stenfelt, therefore, it's extremely important to realize that quality is essential and that we must do everything to maintain high quality standards.

"I believe we can solve many conflicts and avoid a host of problems by learning more about the cultures of countries in which Ericsson conducts business operations," concludes Görel Stenfelt.

GISELA ZEIME



Görel Stenfelt is responsible for a special training program focused on Japanese business culture now being conducted at Ericsson's factory in Kumla, Sweden.



■ The formal inauguration of Ericsson's cooperative partner, the Shanghai Ericsson Simtek Electronics Company Ltd., took place on November 6. BSI has already awarded the company ISO 9001 certification, as a result of a review of the company carried out on April 28 and 29.

"This is a big day for us, and

Quick certificate to Shanghai

we consider it a milestone that gives us a solid foundation for continued operations. The domestic organization has been deeply involved and we have succeeded beyond our expectations," relates president Hans-Erik Carlsson.

Manufacturing of electronics components, subscriber-line circuits, power modules and resistance networks is already well under way at the new plant, which is located in the most modern, high-tech industrial area of Shanghai. The company is owned by Ericsson and Simtek, and is a subsidiary of Ericsson Components AB.

Visitors from Japan at Ericsson Microwave

Some time ago, Morgan Bengtsson, president of **möndal** Nippon Ericsson KK, visited Ericsson Microwave in Möndal, Sweden, to talk about the demanding Japanese mobile-telephony market.

The Japanese market for digital mobile telephony is the world's largest. Ericsson sells base stations developed at Ericsson Microwave in Möndal to the largest Japanese operator, NTT DoCoMo.

Contacts with NTT DoCoMo are handled through the Nippon Ericsson KK, whose president, Morgan Bengtsson, visited Ericsson Microwave some time ago to talk about the demanding Japanese mobile telephony market.

During the visit, Morgan Bengtsson stressed the impor-



Nippon Ericsson KK president Morgan Bengtsson is guided around the development section of the MDE Base Stations Division. Here, standing with Bjarne Lindström, Erik Löwenadler and Pär Mattisson.

Photo: MARIE ULLNERT/KAMERAREPORTAGE

tance of the favorable contacts with NTT DoCoMo.

Sale of the MDE

"Our cooperation with NTT DoCoMo, which began with the sale of the MDE base stations from Ericsson Microwave

Systems, has played an important strategic role in the establishment of Ericsson in Japan. You might say that MDE was the 'open sesame' to the entire Japanese mobile telephone market."

NICLAS HENNINGSSON



No choice now

"The World Class Supply program is not something we can adopt if we feel like it. On the contrary, it is absolutely essential if we are to maintain our leading position," explains Nils Grimsmo, head of Ericsson Ltd. in Guildford, UK.

The WCS program - which is aimed at developing Ericsson's GSM business unit and other mobile-telephony systems into a top-ranking world-class supplier - is becoming increasingly well-established. Recently, a meeting took place in the UK to discuss the program.

Key profiles in Ericsson's WCS campaign in the UK: WCS project manager for the UK David Shaw; Ericsson Ltd. board of directors chairman Anthony Booth; Telephones and Terminals manager Dave Colbeck; WCS communications coordinator Eva Bardvall; WCS program manager Christer Jungstrand; Ericsson Ltd. corporate communications manager Paula Wagstaff; Telephones and Terminals corporate communications manager Christopher Mosley.

Photo: RICHARD BOOTH

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Orienteering – a spectator sport

Suddenly, orienteering has become a major spectator sport. Ericsson is the main sponsor of the Park World Tour, the orienteering competition that takes place in an urban environment and attracts top-ranking international competitors to semi-final contests throughout Europe.

From forests and marshes, the sport of orienteering has moved to parks and zoos, where spectators can easily follow the competitors' progress. The first Park World Tour last year proved a major success for the sport, attracting considerable attention from the media, and many spectators.

Final in Venice

The routes are only three or four kilometers long – and winners are often determined by differences of seconds.

"This is an extremely intensive form of competition. Compared with traditional orienteering, it demands more, physically and mentally," says multiple world champion Jörgen Mårtensson who won the 1996 men's Park World Tour and also captured first prize in this year's first semi-final contest held in the Eskilstuna

Zoo on the first weekend in May.

Seven semi-finals remain before the final in Venice in early October. The starting line-up includes 25 women and an equal number of men, all members of the international orienteering elite. The new form of the sport has also acquired local cup championships – for example, in Stockholm.

"The Park World Tour is a fantastic shot in the arm for orienteering. It wouldn't have worked without help from Ericsson," says Jörgen Mårtensson, also one of the visionaries behind the new cup championship.

Many academics

Like last year, Ericsson is the main sponsor. The arrangement will take place "at a moderate cost," relates Anders Larsson from Ericsson Mobile Communications. And the sponsorship has paid off.

"It's not simply a matter of getting TV photo-ops for Ericsson signage – it's also about making contacts. That's the way to see what effect the sponsorship has," Anders Larsson stresses. The Park World Tour has resulted in favorable contacts with local sponsors, and a foot in the door at high levels. It is not unusual to see ambassadors or mayors awarding the prizes.

Ericsson also sponsors the Swedish national orienteering team. Several world champions in the sport work at Ericsson and are members of the top national team. At the Kumla plant, we have Marlena Jansson; at Ericsson Radio Access in Kista we have Anna Bogen; at Ericsson Radio Systems in Kista, Karin Craig, and at Ericsson Radio Messaging in Sundsvall, Lars Holmqvist.

Recruitment officers

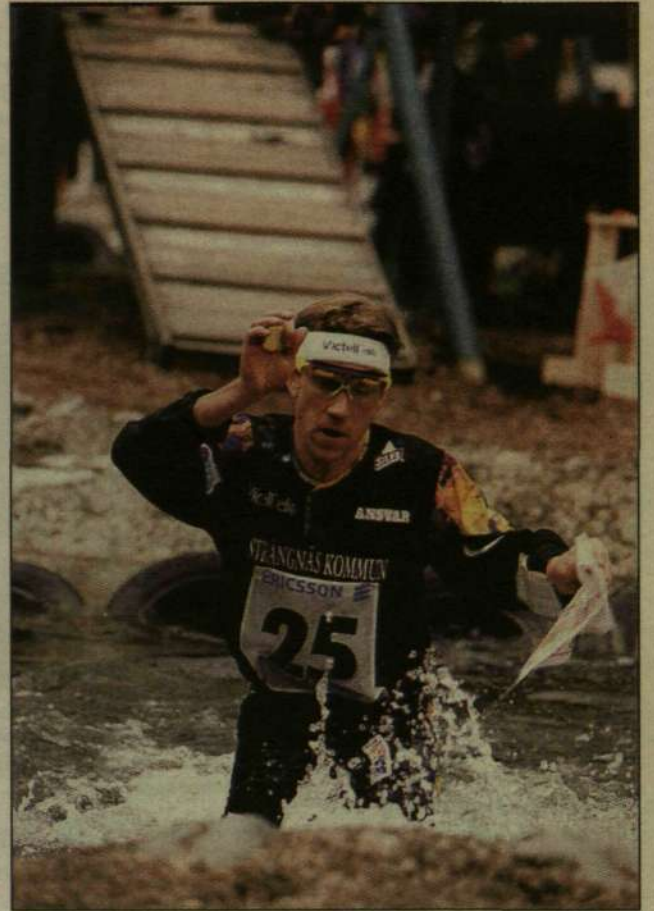
Ericsson has sent personnel recruitment officers to several major orienteering competitions, including the five-day competition.

"It's not so strange, actually. We conducted a lifestyle survey of orienteers. Many of them are university-educated, and naturally Ericsson is interested in them," says Knut Nord of the Swedish orienteering association.

Sweden has a total of 75,000 active competition orienteers. There are more than twice that number in it for the sake of physical activity.

The international orienteering association currently has 46 member countries, and interest is growing steadily. Next year, the Park World Tour is scheduled to take place in both Asia and Europe.

NILS SUNDSTRÖM



Multiple world champion Jörgen Mårtensson won the year's first semi-final round of the Park World Tour, for which Ericsson is the main sponsor. Five thousand spectators lined the route, which led past tigers' cages and other animal pens inside the Eskilstuna Zoo. Photo: KJELL LARSSON

It's all about communication

The Ericsson Communication Excellence Award is a newly instituted prize for achievement in communication within Ericsson. The prizes – divided into four categories; for internal, external, marketing and integrated communication – were presented for the first time at the communication conference in Amsterdam.

The prize in each case is a golden cast-metal E for Excellence. The Golden E for internal communication was awarded to Ericsson Canada for a successful information campaign.

The Golden E awards for marketing communication and external communication were both won by Ericsson Thailand – the former for a successful advertising film, and the latter for increasing general public awareness of Ericsson.

The integrated-communication category, which rewards efforts encompassing all the other categories, was won by Ericsson U.S. for launching a new telephone model. This category was not included in the original plans but was added after the jury had considered the results.



Proud winners of Ericsson's Communication Excellence Awards pose with their diplomas and cast-metal E-for-Excellence prizes. Pornphan Sithikornkul from Thailand, who headed home with two prizes, is flanked by Gina Cobetto from Ericsson Canada and Sarah O'Malley, from the U.S., who accepted the award in the integrated-communication category on behalf of Mike Parker.

Photo: THORD ANDERSSON

Expansion in Raleigh

Ericsson Mobile Communications is expanding its research and development center in Raleigh, North Carolina. The decision has been taken giving the go-ahead for an additional building with space for 800 people. The decision will enable the sales and marketing organization and product management, currently distributed throughout Research Triangle Park, to be more closely integrated with R&D activities. The first ground will be broken for the new building in September this year, with construction scheduled for completion in March/April 1999.

"Having all the functional areas gathered in one place will substantially increase efficiency, with the added spin-off benefit that overheads will decrease in the long term," comments Hans Davidsson, who is in charge of research and development at Ericsson Mobile Communications.

The IN Touch conference on Network Intelligence took place in Dublin, Ireland, on May 20-22. Some 250 participants from a total of 38 Ericsson companies assembled in Dublin to discuss trends in Network Intelligence and disseminate information about new products.

IN Touch is a regular event that aims to bring together IN specialists from all parts of the

Six years in a row for IN Touch conference

world in a forum where they can establish new contacts and have the opportunity to meet the IN product managers.

This year's conference was organized in cooperation with Mobile Systems – a clear sign that fixed and mobile networks are in the process of merging.

The sixth anniversary of the

conference was held in Dublin, in light of IN's long development history in Ireland.

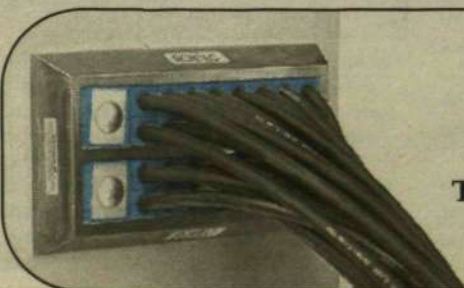
Ericsson Ireland arranged a study visit to SD&D, the development unit for IN services, where the product line's IN services were demonstrated to conference delegates.

Three customers had been invited as guest speakers at the

conference: Concert from the U.S., ACC from the UK, and TIM from Italy. Their contributions were greatly appreciated by conference participants.

All the materials shown during the three days of the conference, including the results of eight workshops, will soon be available on web site:

<http://www.ni.ericsson.se>.



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Photo: JOSEPHINE EDWALL BJÖRKLUND

Telia employees on a visit to Telefonplan. Left to right, Jörg Bland, Bengt-Olof Johansson, Ulik Lindström, Christer Mikaelsson, Willis Fältén and Rolf Johansson.

Learning from the customer

Ericsson must listen to customers more carefully, more rapidly and more effectively. When there are too many intermediaries, the Ericsson bureaucracy becomes cumbersome and handling of product fault reports slows down.

This was one of the views expressed at a recent seminar, at which the Swedish operator company Telia and Ericsson Telecom discussed routines for dealing with customers and suppliers and how they could be improved.

"Telia's special expertise as an operator makes it an important benchmark company for Ericsson," notes Sven Rydell, who is responsible for visitor relations at Ericsson Telecom. "When Telia is pleased, it's a sure sign that Ericsson has done a good job. For fruitful collaboration, it is essential to have an effective forum for sharing experience, so that we can familiarize ourselves

with customer requirements and ensure that Ericsson quality is maintained."

The initiative for the seminar was prompted by an inquiry from one of Ericsson's project managers for product testing, Christer Lundhal, who was aware of the need for closer collaboration with Telia.

"It is vital for people involved in testing to be able to base their work on the right assumptions and get feedback on the job they are doing," says Christer, who took the initiative for arranging the meeting.

The seminar, which took place at Ericsson Telecom Studios in the head office building at Telefonplan, south of Stockholm, sparked discussion of several important topics.

"We are very pleased with the meeting," comments Sven Rydell, who hopes to organize more meetings of this type with Telia in response to requests from a number of participants in the seminar.

LENA WIDEGREN

Inspection system for circuit boards

New equipment has been installed at Ericsson's Visby plant to perform inspections of circuit boards for radio base stations and other applications. The equipment is part of a pilot project to evaluate ways of using the new technology.

Two operators are currently learning to program and operate the equipment, produced by Schuh, which will eventually be integrated with the production line and a computerized quality system.

When the entire production line is fully equipped, the system will inspect the boards, sort the right boards from the wrong ones in different cassettes, and report the results in the quality system.

The automatic inspections also give an immediate indication of any faults in the process and can be programmed to shut down assembly equipment in critical situations.

Daniel Svensson and Jan Johansson have trained themselves to operate the machine and report that it was extremely easy to learn. The most difficult task was defining the various types of capsules on the components, in order to tell the machine what they look like and how the soldering points should look. Since the equipment can distinguish 256 different criteria, the operator must be able to handle a large number of settings.

This could prove necessary,



Irene Boman uses a laser probe to repair faults on a circuit board.

Photo: BERTIL OLSSON

since the environment around a component on a circuit board largely determines how the machine can and should evaluate the situation.

The new inspection system is intended to lighten the workload for personnel performing surface mounting, so that they can focus on the process itself instead of checking the end result. The operator is also helped by having an objectively composed picture of every circuit board.

Studies in the U.S. have shown that manual inspection only detects 30-60 percent of faults. The corresponding figure will now be better than 99 percent. The new automatic inspection system also gives a far clearer picture of the real yield level (the number of approved components) in the surface mounting process. As a result, process workers have more reliable facts at their disposal.

Telephonist wins prize

A local radio station in Dallas recently held a competition to find the best receptionist in the station's coverage area. The first prize was won by Faye Calhoun of Ericsson in Dallas. One of the listeners who nominated Faye for the prize related how, despite the fact that she has 5,000 people to keep track of, she always tried to help waiting callers by tracking down the person they wanted to talk to.

Winning customer

On May 12, Ericsson hosted an invitational soccer match at the Young Pioneers Stadium in Moscow between Ericsson and

mobile-telephony customer Vimpelcom. Despite their initial fierce resistance, resulting in a half-time standing of 1-1, the Ericsson team was forced in the second half to concede a 6-1 defeat to Vimpelcom. An impressive performance!

Vimpelcom is Russia's largest mobile telephone operator, conducting its business under the Bee-Line brand name. The company uses the D-AMPS standard, the most widespread standard in Russia. In Moscow alone, Bee-Line has 65,000 subscribers. Vimpelcom is the only Russian company listed on the New York stock exchange. Within the past few days, Ericsson received a supplementary order from Vimpelcom - the seventh so far - worth SEK 410 million. Vimpelcom, which began its cooperation with Ericsson in January 1994, has conformed its leading position with this order.

Now possible to visit components on the web

Ericsson Component Companies has opened a news channel on the intranet, consisting of five Web publications - one for each business unit and one for Ericsson Component Companies as a whole.

"We now have an excellent tool for communicating and disseminating our news within our area of operation, from Shanghai, South Africa and Morgan Hill, to Stockholm and Hudiksvall," says corporate communications manager Bengt Callmer.

The working model has created web publications that are eminently simple to produce. The model re-

sulted in a working template that is surprisingly easy to use.

With an electronic form, available on the web in the same format as the publications, everyone who has received a password can enter articles and news items. The template includes pre-determined styles for headings, introduction, body copy and picture captions. By pressing the "preview" button, you can see what the article will look like when published. An editor, who has the legal publishing responsibility, then edits the article/news item and subsequently publishes it. The technology opens up possibilities for all those in management positions in corporate communications to dis-

seminate information about their particular area in an easy way. The web publication package includes a template for cables, energy systems, microelectronics, distribution, and one for the entire Ericsson Component Companies. The publications have the common name of NewsWeb.

The address is: http://www.eka.ericsson.se/ek_news.

INGER BJÖRKLIND BENGTSOON

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Props in writing

■ Props has become a significant chapter in Ericsson's industrial history – as described in the booklet, "Historien om Props" **Karlstad** (The history of Props) published by Ericsson Infocom AB in Karlstad, Sweden.

The booklet was produced by the Projectivity Support Group and it provides background explaining why the need for group-wide project-management routines arose within Ericsson. Emphasis is placed on the art of winning acceptance for a method and having it put into practice, in a multinational project culture.

Props was developed in the late 1980s for the use of the technical-development operations of the Public Telecommunications business area – that is, the AXE world.

Today, Props has developed further into a general method for all projects conducted within the group. Ericsson's successful project operations have attracted attention outside the group, and the method is being adopted by several major Swedish companies.

The booklet is available in Swedish, but will also shortly be published in English.

Ericsson's extensive offering of leisure activity clubs has gained a new addition with the founding of Ericsson Riders, Ericsson's very own motorcycle club. The **Stockholm** initiative came from Linda Kene and Kent Jälsbo, who were both surprised that Ericsson did not already have a motorcycle club.

Without even advertising, the club rapidly grew to 50 members. Inquiries were even received from the UK, China and Indonesia. To begin with, the club is focusing its activities on the Greater Stockholm area, but plans are afoot to explore further afield. The club plans to organize joint excursions and serve as a contact center for members seeking riding companions and for buying and selling motorcycles and accessories among the membership. The club also intends to eradicate the poor image acquired even by "nice" motorcycle clubs.



Ericsson Riders, Ericsson's very own motorcycle club.

Photo: BERT BJÖRKLING

■ If you would like to know more about the club or are interested in joining, you can find more information on the club's home page: <http://eriride.ericsson.se>. E-mail address: ericsson_riders@lme.ericsson.se.

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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. 9 1997

Updated June 2

international

Ericsson Inc, Richardson, Texas

INTELLIGENT NETWORK ENGINEER

● The UNIX Design Group of the Network Systems Division, located in Richardson, Texas, is looking for someone to work on a two year contract to develop, integrate and test products for the Intelligent Network. Duties of the position will include participation in functional specification, design, implementation and testing of UNIX based IN products. Must have a good knowledge of IN concepts, CS1 protocol and protocol extensions. Requires the ability to apply IN knowledge to products based on general purpose computers and a BS level degree in computer science, electrical, or computer engineering.

Contact: Barna Youngs, phone 972-583-5670, memoid: EUS.EUSBAYO, fax 972-669-6861

Compañía Anónima Ericsson, Caracas, Venezuela

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This is an opportunity for a Network Intelligence product professional with solid product expertise to join a dynamic, successful group. The role encompasses product evaluation; strategic product planning; determining NI total product solutions suitable for Telstra's network; liaising and negotiating at all levels with customers, suppliers and other Ericsson organisations; leading and educating others and building their technical knowledge; presenting; building business cases; project/contract management.

Applicants must have tertiary qualifications, strong NI product knowledge (Platforms and IP), a good understanding of total NI product solutions and have customer contact abilities, with a minimum 5 years experience.

Application not later than June 6th: Liz Hunter, People and Organisation Services Manager, EPA/O/M Memo id: EPA.EPALIZ or to discuss the position further, call Jacqueline Hey on 61 3 9301 4267 (EPA.EPAJHE).

Ericsson Taiwan Ltd. - ERT

SYSTEM EXPERTS, TAIWAN

With a recently deregulated telecom market, Taiwan is a fast moving and highly potential market for telecommunication. Ericsson is very successful in Taiwan and is today installing an

islandwide system including both GSM 900 and GSM 1800. This system will go into service later this year.

● To support the system, Ericsson has successfully sold the System Services to the customer. We are now building the support organisation for this. The FSC - Field Support Centre will be responsible for the System Support where Ericsson also need to assist the customer when building up their operations organisation.

In order to implement this and to transfer knowledge to ERTs staff we need experience within the areas SS, BSS and OSS. We also need to provide O&M Consultancy Services to the customer for at least one year.

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Ericsson Telecom AB - Business Unit Switching

SYSTEMS/PLATFORM MANAGEMENT, GLOBAL CONTACT

In Service Performance is an area that has increased in importance over the last 2-3 years. Our highly motivated unit, GAS Performance, has during this period grown 300 % and we are looking at expanding with yet another three persons. This growth has been driven by upper management's high attention on the area.

● YOU are a person with some AXE knowledge that now wants to take on an exciting job where you become much broader in experience and at the same time want to meet customers and develop a contact network within the Ericsson organisations world-wide. You will join a team of ISP co-ordinators.

Being an ISP co-ordinator includes a lot of things. Basically we help our customers to get the most and the best out of our systems. Main activities include, being an interface towards the MLC's, distributing knowledge about solutions (standard or market), building ISP awareness in the Ericsson organisation. The job requires travelling.

Contact: Stefan Schultz, Phone 08-719 1913 or Susanne Borg, Human Resources, Phone 08-719 6575. Mobile phone 070-519 1913 Memo ETXT.ETXSUBO Memo ETXT.ETXSTS

Ericsson (China) Company Ltd., Region Central & East

PROJECT MANAGER - MOBILE TELEPHONE SYSTEM

We are rapidly expanding our market shares in Region Central & East in GSM and DCS 1800. We are therefore in an urgent need of an experienced Project Manager. The job opportunity is located in one of our provincial offices in the region. The employment contract is for one year.

● REQUIREMENTS: Bachelor of Science degree in electrical engineering with specialization in telecommunications, or equivalent. Four years work experience in the technical aspects of telecommunications. Three years proven experience in management of customer projects. Good knowledge of PROPS, project planning, budgeting and management methods. Good technical knowledge of mobile telephone systems. Good knowledge of Ericsson's business practices, supply organization and standards.

Result orientation, flexibility and patience are important personal qualities. Traveling is a natural part of the job.

Previous experience from Asian business culture is an advantage.

MAIN TASKS: Lead a large mobile tele-

phone system project with full responsibility for fulfillment of Ericsson's commitments to our customer. In your team, you will have experienced sub-project managers in the areas of logistics, switch, radio and system integration. You have financial responsibility for the project within the scope of the project budget. Our project method is a PROPS based application tailored for our needs in China.

Take active part in negotiations for new contracts in close co-operation with our marketing and technical sales department.

Train and coach new staff in assistant project management positions to become skilled and professional project managers.

Contact: Project Management and Logistics, Manager: Peter Holmertz (ETC.ETCPETZ), Project Management Mobile Systems, Manager: Enneth Frohman (ETC.ETCENFR) or Human Resources, Manager: Huang Yanyan (ETC.ETCSHY). Telephone: +86-21-6375 3399, Fax: +86-21-6350 9140 Application not later than 970630: ERA/LDH Hans Falk (fax +46 8 404 5311),

Ericsson AS, Arendal, Norway

SUPPORT ENGINEER FOR MOBILE SYSTEM'S

Mobile telecommunication is an expanding area in Norway and the number of customer/operators are expected to increase in the near future. We want to increase our staff (today: 9 people) at the FSC working with SW deliveries and customer support for NMT and GSM. Our section, OIFIM, is one of 4 sections in the department for technical support, located in the most southern country side of Norway. We also foresee an integration and closer co-operation between the networks through e.g. CTM, IN and UMTS.

● The work area will include: SW-package test/demo on STP and implementation on customer sites. Participation in projects at other Ericsson plants. TR- and AC-handling. Customer support.

We are looking for a college who: have experience from AXE and mobile telephony, is service minded, Knowledge in Norwegian is an advantage.

Contact: Gunnar Sjolander, phone +47 370 51 711, memo/mail: etogs Application: Ericsson AS, Inga Rosland, P.O. Box 44, N-4817 His, Norway

Ericsson Data UK Ltd,

IT/DEPARTMENT MANAGER FOR NETWORK DEVELOPMENT

Ericsson Data UK Limited was formed in 1993 to provide IS/IT support to Ericsson Telecom UK. Ericsson Data UK Ltd is part of the Ericsson Data group within the Ericsson group.

The company is responsible for providing strategic direction, development and support for IT services within its customer. This service encompasses a UK wide voice and data network, all LAN facilities, UNIX workstations, and PC based systems and software and Business Applications.

The company is based at three main sites, Burgess Hill, Guildford and Scunthorpe. There are other subsidiary sites at Horsham, Haslemere and Warrington.

● To continue to improve the levels of service provided to this customer, our client is seeking a proactive IT/Department Manager for Network Development reporting to MD. Based south of London the role involves understanding the strategic plans, the business plans and direction of the client and, through effective team management, ensure that the IT infrastructure supports and enhances these initiatives.

Through the development of a close working relationship with Senior Management

within the client, you will also move the organisation toward providing business solutions through IT services. Key to success, is the ability to provide measurable results.

As a department manager you have the Business and profit loss responsibility for the Network Development department. The department is responsible for the development strategy of the IT environment and acts as design authority for: Network (Local site cabling, inter-site links, for both Voice & Data), Servers (Servers providing Office Software, File Storage and Print Services.), Desktop (Workstations and standard software), A robust platform for applications, Software Distribution and Technology Inventory Management and Processes and tools to support the operations, based on technology changes, customer demands, productivity and quality demands.

The responsibility also covers the programme management of company wide IT development projects such as setting up new customer sites or major strategic moves to new technology.

You must have broad experience in the IT (Telecom) area and long experience in designing and implementing network solutions (HW, SW, processes) in large multi-site LAN, at least 10 years experience in the industry. You must also have a strong business understanding, ideally of the telecommunications industry combined with the ability to translate these requirements into IS/IT solutions. You need to have strong strategic capabilities and be able to convert customers strategic plans to network solutions.

You must also have people management skills gained within a wide ranging IT/IS management role, be result oriented and have excellent communication skills both internally and externally. You must also be a team player and have the ability to create effective and efficient teamwork.

This highly visible role offers the opportunity to take real responsibility and influence the development of a forward looking and dynamic organisation and to develop your com-

Ericsson Telecom AB, Telefonplan

GLOBAL HARDWARE SERVICES MANAGEMENT

Within the department Global customer support services we are offering you the opportunity to work in the fast growing area of services, close together with our MLC/LC and customers in an international environment. Our business as product management is focused on developing new hardware services products and initiating supply of services, with both service logistics and commercial focus.

The unit is in a build-up phase which gives you opportunities to further develop and influence the operation. You will work independently in a global environment and therefore you must have an outgoing personality, good communication and cooperation skills. You have experiences within services logistics, procurement or product management. We think you have a Master degree, preferably in logistics, or equivalent experience. To meet the challenges you will also need the confidence to accept and initiate changes and be prepared to work within a wide field of tasks.

You will work with the following type of tasks:

- Development of new hardware services, including processes, methods and tools
- Manage and implement the global hardware strategy
- Plan, initiate and support the implementation of Multivendor HW support and sparepart management services
- 3rd party vendor contracts
- Development of support arrangements for specific customers

TAKE THIS CHALLENGE AND CALL US!

Michael Humer, tel.: +46 (0)8 719 3904, memoid: ETXT.ETXHUME, Manager, Provisioning and Supply HW Services or Jan Giese, Human Resources, tel. +46 (0)8 719 9357, memoid. ETXT.ETXJG

Applications to:
Jan Giese, TB/ETX/PN/CS, SE-126 25
STOCKHOLM

mercial and business skills within an environment which demands professionalism and speed of response.

Contact/Application: MD Ulf Larsson e-mail: edl.edluffe@memo.ericsson.se or to HR manager Lise-Lotte Bergenholtz e-mail: edl.edluffe@mesmtpse.ericsson.se. Ericsson Data UK Limited, Woodlands Court, Albert Drive, Burgess Hill, West Sussex RH15 9TP.

Ericsson Ltd, Guildford

SNR PRODUCT MANAGER - CUSTOMER NETWORKS

● We require experienced BSS (BSC and BTS) engineers to work in a challenging environment facing our DCS 1800 customer one zone. Additionally you will provide support towards the cable and wireless global account and other international customers.

The Product Management team plays a critical role in maintaining and enhancing the division's business success through the strategic management and development of Ericsson's products. The Product Manager is responsible for contributing to the definition of the product programme (current development activities) for a specific product area and on behalf of Product Management. The engineer actively seeks advice and support in order to resolve technical issues and develop his/her own competence.

QUALIFICATIONS AND EXPERIENCE: 3 - 5 years' experience of one or more product lines within Ericsson. Qualified to degree level in engineering Thorough knowledge of the network environment and the application of the relevant products to that environment

KEY RESPONSIBILITIES: Contribute to the preparation of product programmes for current development activities on behalf of customers. Maintain knowledge of developments in the telecommunications industry and marketplace (particularly UK). Maintain up-to-date knowledge base for assigned products. Participate where required in standard product planning. Maintain close contact with and influence the strategic product management function to consider UK requirements for standard development. Represent the UK

market and its requirements for standard development. Represent the UK market and its requirements to Ericsson's development organisations worldwide. Maintain product requirement specifications in accordance with customer requirements and Ericsson's product evolution strategies. Provide technical support to the market and operations organisations in their business activities relating to a specific customer. Maintain customer product plans and customer product programmes as required. Present technical information to customers as required. Analyse contracts. Follow development of market adaptations through to completion and ensure it fulfils requirements. Order required development work. Advise and report progress and status of all activities being undertaken. Maintain quality standards.

Contact: RICHARD CARTER

MANAGER, PROJECT MANAGEMENT - CUSTOMER NETWORKS

● As a member of the Sector Management team, the Manager, Project Management is responsible for making a direct contribution to the business development and profitability of the sector. The manager works with his/her colleagues to develop and implement business strategy, objectives and improvement processes for the sector.

The manager is responsible for the effective project management of the delivery of each customer solution to meet specification, time, cost and quality targets. This involves the coordination of interdependencies across product line and organisational boundaries.

The manager liaises closely with the Marketing and Product Management Managers to identify and prepare for future projects. The manager is responsible for the management of risks and development and management of commercially viable and achievable delivery time plans.

The Project Management team is also responsible for processing internal and external orders and for project change control.

QUALIFICATIONS AND EXPERIENCE: ESSENTIAL: Educated to degree level in a technical/business discipline 2/3 years' experi-

ence at department manager level within a project management environment Exposure to and awareness of commercial issues

DESIRABLE: Knowledge of Ericsson culture Knowledge of Ericsson project management methodology **CUSTOMER INTERFACE:** all department of Mercury Personal Communications and Mercury Communications **SCOPE OF PEOPLE MANAGEMENT RESPONSIBILITIES:** 15 - 20 staff

Contact: RICHARD CARTER

Ericsson Telecomunicazioni - Roma - Italy

ACCOUNT MANAGER

● We are looking for Account Managers for our Export Business Unit, within Business Area Infocom System. The Export Business Unit is responsible for marketing and sales, project management and order handling in export markets all over the world, with the mission to consolidate our presence through a growing attention on customer needs mainly in the emerging telecommunications fields.

The Account Manager is responsible for marketing and sales on consolidated markets, with a focus on profitability, business development and customer satisfaction, being the internal and external interface.

Qualifications: a professional experience of international marketing and sales within the telecommunications fields. Knowledge of Ericsson portfolio, belonging to Infocom Systems is required. Fluency in English is essential. This position requires result-oriented, managerial skills and independent attitude in a matrix organisation.

Location: TEI Rome, Italy

PROJECT MANAGER EXPORT MARKETS

● We are looking for Project Managers for our Export Business Unit, within Area Infocom System. The Export Business Unit is responsible for marketing and sales, project management and order handling in export markets all over the world, with the mission to consolidate our presence through a growing attention on customer needs, mainly in the emerging telecommunication fields.

He/she will be responsible for the realization of one or more telecommunication projects, coordinating and supervising all activities related with its implementation. He/she will monitor the development of the project, in order to guarantee the implementation in accordance with the contractual time schedule and the budgeted costs.

He/she will guarantee the necessary technical and logistic support, being the interface with the different departments involved and the link with the site manager for the field activities.

The candidates should have the following qualifications: Good knowledge of the Ericsson products. Good knowledge of Project Management technique. Experience of working in an international environment. Fluency in English. The knowledge of a second foreign language will be appreciated.

Location: TEI Rome, Italy

Contact: Human Resources and Organization MEMOID: EITA.TEIDONI

Nippon Ericsson K.K.

MANAGER OF CUSTOMER SUPPORT

● Manager, Customer Support Office, CSO. REPORTING TO General Manager for Infocom Systems at Nippon Ericsson K.K. **OBJECTIVES OF THE JOB** To establish a customer support organisation for Infocom Systems, Japan. To manage and develop said support organisation. To recruit train and maintain staff for the need of the unit.

RESPONSIBILITIES To monitor and implement procedures and processes necessary to fulfil customer service agreements. To participate in the technical specification and implementation of future Customer Service agreements. To act as the interface in support matters between NRJ and other Ericsson entities. To act as the interface in support matters between NRJ and local third party vendors. To ensure the efficient service of supported object. To establish and document necessary procedures to perform the tasks at hand by following guidance and procedures existing within Ericsson. To prepare and to follow up the budget for the unit. To develop and implement Human Resources programs to cover needs and aspects particular to the unit. To maintain staff levels according to resource budget and actual workload To perform monthly reporting according to document NRJ/X-96:743. To manage ERJ employed staff assigned to Infocom System. To ensure the quality of all activities within customer sup-

port. To keep staff updated on developments within NRJ/ERJ. To plan required competence development programs To delegate to, agree, the division of responsibilities with the subordinates. To build own competence in the telecommunications field, the Japanese market leadership and management. To represent System Support in internal and external meetings To transfer knowledge to assistant support manager. To motivate staff, build a team spirit and encourage the ERICSSON values.

AUTHORITY Separately described for the management level.

REQUIREMENTS FOR THE JOB A team manager with the following skills: Technically competent on Ericsson products Stress tolerant Cooperative and communicative Professional

Contact: Kjell Persson + 81 3 3221 8203, NRJ.NRJKN or Peter Dicksson, EUS.EUSDCKN. Application: Helena Sandberg, ETXT.ETXHESA, Ericsson Telecom AB, Customer Services, 126 25 Stockholm, Sweden

Ericsson Radio Systems AB, Kista

ACCOUNT / AREA SALES MANAGERS - STATIONED ABROAD

Our markets in Asia and Far East are growing rapidly and we need to expand our sales and marketing departments at several LC/MLC with a number of experienced Area Managers and Account Managers who see the challenge and advantage of working with sales and marketing abroad for a few years.

● Your tasks is to be responsible for sales and marketing of cellular systems based on D-AMPS/AMPS towards a specific customer or market. The job involves every aspect of marketing and sales like; identifying customer needs and business opportunities, frequent customer visits, preparing proposals and arranging seminars, contract negotiations etc.

You have an M.Sc. degree and a minimum of three years working experience from international sales and marketing of cellular systems. The positions require excellent sales skills, negotiation skills and inter personal skills as well as flexibility and an ability to function under stress. Your English need to be excellent.

After a period in Stockholm you will be stationed in Singapore or Manila

Contact: Rolf Olsson, +46 8 757 2189 memo-id: ERA.ERAROLL Application: Ericsson Radio Systems AB, AH Birgitta Stavenow, 164 80 Stockholm

Nippon Ericsson K.K.

ENGINEER OF CUSTOM SUPPORT OFFICE

● Support engineer, Customer Support Office. REPORTING TO Manager for Customer Support Office Infocom Systems at Nippon Ericsson K.K.

OBJECTIVES OF THE JOB To achieve customer satisfaction within directives given. To transfer knowledge to colleagues.

The responsibilities of the engineer are: To be fully knowledgeable with the purpose, procedures and processes of the group. To know and understand the purpose and interfaces of the unit. To be able to use all within the department available tools in an optimal way. To promote good O&M routines. To act as a teacher to less experienced colleagues.

Depending on specialisation and experience one or several of the following: To be able to write a correction package implementation instruction. To know the handling of each type of Software package in his/her system. To implement updates of products delivered by Ericsson. To analyse and correct troubles reported by end user. To be familiar with correction numbering conventions. To be able to read and understand the program language used for assigned products. To be able to handle a Trouble Report from reception to conclusion. To be able to transfer and desk check corrections. To be able to write technically accurate descriptions in the English language to the designer. To be able to write well phrased Trouble report answers to the customer. To be familiar with emergency service routines and escalation procedures. To be able to carry out on sit trouble investigations. To be able to correct exchange data. To be able to locate and replace faulty hardware on board level for Ericsson products. To be able to locate and order replacement of faulty third party hardware. To be able to initiate routine tests on subscriber and trunk circuits. To be able to guide and direct the customer to use by Ericsson recommended O&M routines and procedures. To be able to introduce changes in exchange data. To be able to initiate routine tests on subscriber and trunk circuits. To be able to take proper action on ALARMS. To

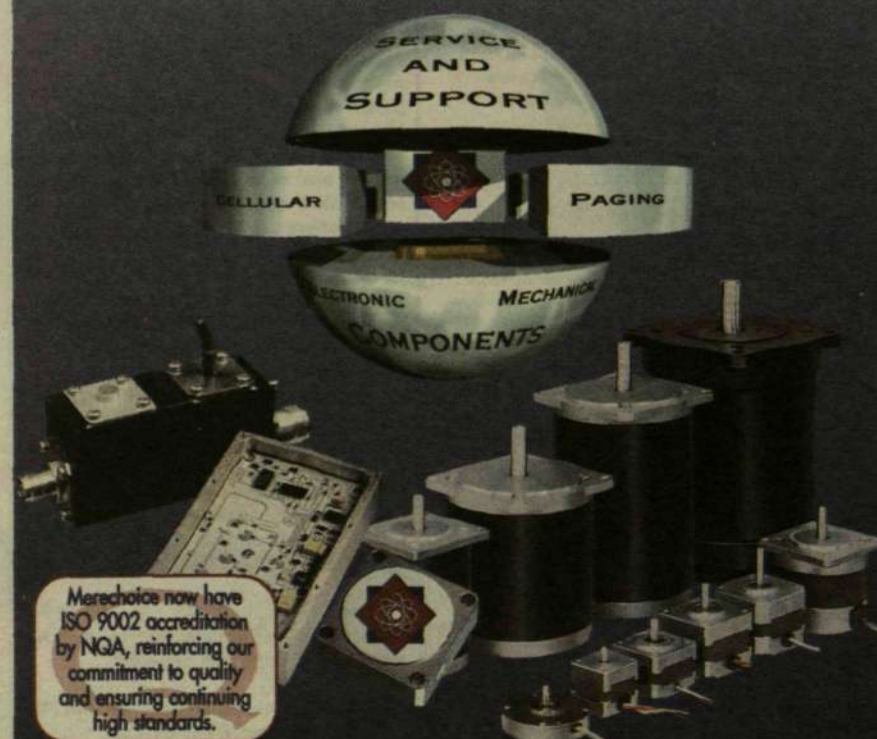
Merechoice

COMPONENTS AND COMMUNICATIONS

limited



AN APPROVED ERICSSON STRATEGIC SUPPLIER OF STEPPER MOTORS, ISOLATORS, CIRCULATORS AND COMPONENTS FROM AROUND THE WORLD



Merechoice now have ISO 9002 accreditation by NQA, reinforcing our commitment to quality and ensuring continuing high standards.

Merechoice is a Gap 96 partner and supplier

MERECHOICE LIMITED, 22 LIVERPOOL GARDENS, WORTHING, WEST SUSSEX, BN11 1RY, ENGLAND. TEL: +44 (0) 1903 233101 FAX: +44 (0) 1903 200944 EMAIL: SALES@MERECHOICE.CO.UK

be sufficient knowledge about Ericsson and customer routines to at all times be a good example to the customer. **AUTHORITY**

Within limitations set by manager of Customer Support to carry out responsibilities outlined under paragraph 4.

REQUIREMENTS FOR THE JOB Minimum a Bachelor of Science certificate in Electronic Engineering/ Telecommunications or equivalent. A for his principal tasks adequate training on Ericsson products. Level 6 in English (on a scale of 1 - 10)

Contact: Kjell Persson + 81 33221 8203, NRJ.NRJKPN or Peter Dicksson, EUS.EUSDCKN. Application: Helena Sandberg, ETXT.ETXHE-SA, Ericsson Telecom AB, Customer Services, 126 25 Stockholm, Sweden

Ericsson Ltd, UK

INSTALLATION ENGINEERING MANAGER

● To manage the planning and production of all installation engineering activities within the section, ensuring that all performance criteria and quality standards are met. The role holder will be expected to develop processes and procedures to meet section needs with up to 10 staff.

QUALIFICATIONS AND EXPERIENCE: Min HNC or equivalent in Engineering/Computer Technology or similar field. Minimum 3 years experience in Telecommunications Installation Engineering or similar field in a management position. Previous project or management experience. Experienced in AXE IE, PLEASE and TSO systems.

Contact: John Lancaster

BUSINESS DEVELOPMENT MANAGER - C&W

● A creative and lateral thinker, we'll look to you to utilise your technical expertise to create and deliver solutions for the Cable &

Wireless World-wide operations, liaising with specialist teams in support of the implementation of telecommunications solutions.

In addition to excellent technical knowledge (including Broadband, mobile, switching, signalling and network architectures), you should have a solutions-orientated background, commercial awareness and the ability to develop and maintain excellent client relationships.

The crucial requirement, however, is an inquisitive and innovative mind.

The Business Development Manager is responsible for making a direct contribution to the development and successful operation of the department, including involvement in strategy, objectives and improvement processes.

The overall purpose of the role is to develop business strategy and opportunities for both Ericsson and Cable & Wireless local and international operations, beginning at a strategic and conceptual level as opposed to working at the sales stage. Working with a team of Business Development executives, the role holder develops Ericsson business with Cable & Wireless is specified parts of the globe where C&W has business interests and/or potential.

In addition, the Business Development Manager ensures increasing levels of customer satisfaction with existing Ericsson products operated by Cable and Wireless in its networks.

Contact: Fred Christmas

Ericsson Ltd, Guildford, UK.

SENIOR ACCOUNT MANAGERS / ACCOUNT MANAGERS

The Marketing Department residing within the ETLG division is responsible for sales of cellular infrastructure and services towards our customer Vodafone. Vodafone is the leading UK cellular operator with international cellular operations in a further twelve countries. Vodafone currently runs both digital (GSM) and Analogue (ETACS) networks in the UK with over 2.8 million customers.

● These roles offer suitable individuals the opportunity to work in a demanding and challenging environment towards a very strong technical and commercially driven customer. Applicants should have extensive Marketing/commercial experience of Ericsson GSM products as well as other associated network products. A very good technical competence along with a strong contact network within Sweden is required.

If you have a strong and enthusiastic personality and are looking for an ambitious role within a dynamic marketing team please send a memo to:

Contact: Ian Huddle, Marketing Manager, Cellular Systems, Memo ID ETL.ETLIHE

Ericsson Data UK Ltd.

IT/DEPARTMENT MANAGER FOR NETWORK OPERATIONS

Ericsson Data UK Limited was formed in 1993 to provide IS/IT support to Ericsson Telecom UK. Ericsson Data UK Ltd is part of the Ericsson Data group within the Ericsson group.

The company is responsible for providing strategic direction, development and support for IT services within its customer. This service encompasses a UK wide voice and data network, all LAN facilities, UNIX workstations, and PC based systems and software and Business Applications.

The company is based at three main sites, Burgess Hill, Guildford and Scunthorpe. There are other subsidiary sites at Horsham, Haslemere and Warrington.

● To continue to improve the levels of service provided to this customer, our client is seeking a proactive IT/Department Manager for Network Operations reporting to MD. Based south of London, the role involves understanding the business plans and direction of the client and, through effective team management, ensure that the IT infrastructure supports and enhances these initiatives.

Through the development of a close working relationship with Senior Management within the client, you will also move the organisation toward providing business solutions through IT services. Key to success, is the ability to provide measurable results.

As department manager you have the business and operation responsibility for all IT services and you shall also develop the marketing and sales strategy for the department.

The department is responsible for the network operations including: Network (Local site cabling, inter-site links, for both Voice & Data), Servers (Servers providing Office Software, File Storage and Print Services.), Desktop (Workstations and standard software), A robust platform for applications, Software Distribution and Technology Inventory Management and Processes and tools to support the operations.

You must have broad experience in the IT (or Telecom) area and long experience in operating large multi site network, at least 10 years experience in the industry.

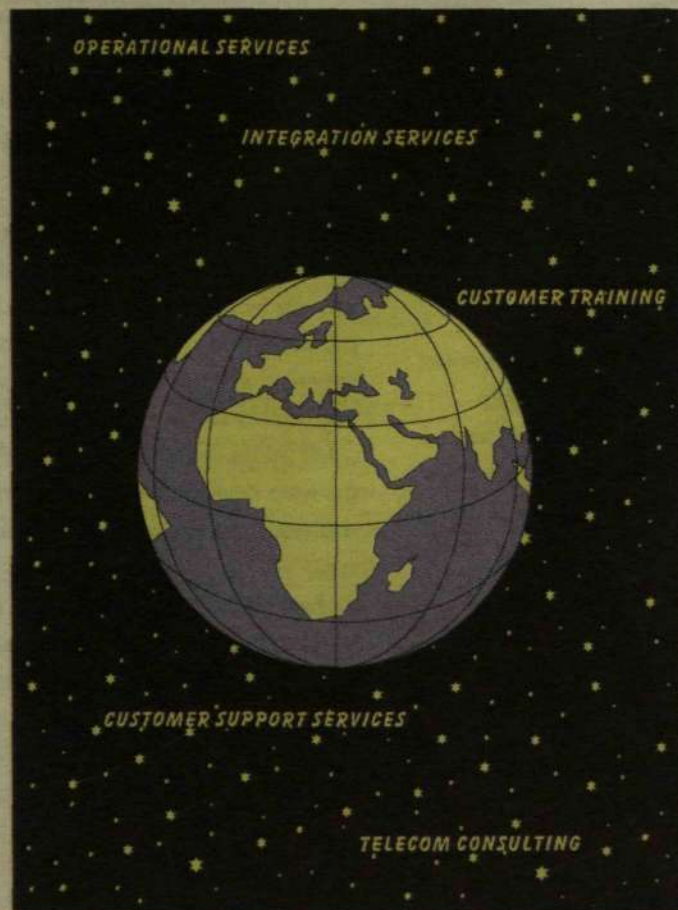
You must also have a strong business understanding, ideally of the telecommunications industry combined with the ability to translate these requirements into IS/IT solutions.

You must also have people management skills gained with within a wide ranging IT/IS management role, be result oriented and have excellent communication skills both internally and externally.

You must also be a team player and have the ability to create effective and efficient teamwork.

This highly visible role offers the opportunity to take real responsibility and influence the development of a forward looking and dynamic organisation and to develop your commercial and business skills within an environment which demands professionalism and speed of response.

Application: MD Ulf Larsson e-mail: edl.edluffe@memo.ericsson.se or to HR manager Lise-Lotte Bergenholm e-mail: edl.edluffe@mesmtpse.ericsson.se. Ericsson Data UK Limited, Woodlands Court, Albert Drive, Burgess Hill, West Sussex RH15 9TP.



Customer Services are striving for the market leader position as a service provider.

Continued deregulation of the telecommunications market, is leading to the appearance of new operators and to changed working methods for the already established operators. This will rapidly increase the demand for services on all levels, from network planning, integration, to a total responsibility of a customer network.

Ericsson's co-operation with telecom operators in more than 100 countries, has given us experience and competence that will form the base in our effort to become the leading service supplier globally.

CUSTOMER SERVICES

Project Manager, HW Services Implementation

Global Customer Support Services is a unit within Ericsson Telecom-Public Networks, globally responsible for the development and supply of software and hardware services.

The telecom market is changing rapidly, customer service expectations will continue to rise and the expectation of quick response and low cost service operations will force suppliers, like Ericsson, to leaner and speedier operations. As a result, we are due to implement a global service infrastructure to best fulfil our customers future service requirement.

We are seeking YOU, who as the project manager will have full responsibility for the implementation of new Hardware Service supply methods across the Public Networks global business. The project is very challenging and requires substantial travel to assist local companies through their implementation programmes.

The skills and competence we believe you possess are:

- Educational level: University or equivalent
- Good knowledge of the English language, both written and spoken
- Experience of working within Ericsson at a technical level, with an emphasis on the development of operations
- Familiar with hardware services repair centre or field operations
- International experience is an advantage
- A good team player and self starter

TAKE ON THIS CHALLENGE - CALL US NOW!

Michael Humer, ETXT.ETXHUME, +46 8 719 3904 or +46 70 519 3904
Manager, Provisioning and Supply Hardware Services

or
Jan Giese, ETXT.ETXJG, +46 8 719 9357
Human Resources

Applications to
Jan Giese, TB/ETX/PN/CS, SE-126 25 STOCKHOLM

"Join us to define the next generation of wireless systems"

Ericsson Radio Systems are looking for people with qualified systems competence.

All over the world, intense work is going on to specify the third generation mobile telephone system, called Universal Mobile Telephone System, UMTS. The new system will be ready at the beginning of the next century. Ericsson believes that it should be built on the worldwide success enjoyed by GSM and we want to be the world leader also for the new generation. Our work will very much be to decide what functions the new network should perform. We will do this based on our views concerning the needs that a future communication system must satisfy; mobile multi-media services for data, images and speech. To address these issues has been the reason for the business area to create a unit within RMOG, called New Systems. We work with business development and technology at a system level, as well as standardization and IPR-activities for the entire business unit.

We are the ones that will lead RMOG into the future.

Systems development – New systems

We are a newly formed department with responsibility for the overall system design of the wideband system that will bring wireless technology into the next generation, providing us a wireless wideband world wide web, "www". We will provide the basic standards (UMTS) for this new system. The goal is to have a first system in operation around year 2000. In order to meet this goal we will build our department with members having a competence profile covering one or more of the following areas, and with personal experience and capabilities as presented below.

Competence Areas of Interest

ATM Network, Transport and Switching

Understanding of both higher and lower

layer aspects of ATM Networks, Transport and Switching, to be able to provide an overall system view on the implementation and integration of ATM into new and existing systems.

GSM Interfaces, Specifications and Protocols

In depth knowledge about GSM Interfaces, Specifications and protocols, both from a standards as well as a CME20/CMS40 point of view.

TCP/IP and Internet Protocols and Interfaces

Knowledge about TCP/IP and Internet in order to understand the demands that will be put on a system providing wireless wideband services in connection to Internet, and find solutions to related challenges.

Wideband BSS at System Level

Basic knowledge about the protocol and node architecture within BSS as well as the Radio network algorithms in order to understand its implications on the switching network in terms of transport and switching capabilities.

Open Platforms

Understanding of the industry development and standardisation in the area of open computer and software platforms, as well as the related development in languages in support of application development on these platforms.

General Radio Access Network

In depth knowledge about the Generic Radio Access network (GRAN) concept currently under standardisation within ETSI, in order to understand its implications on the switching network in terms of transport and switching capabilities as well as its interface characteristics.

System Architecture

Highly recognized competence and experience in the design and development of mobile and wireless systems, in all its aspects from terminals to HLRs as well as from low to high levels in the protocols.

Terminals

Basic understanding of the system aspects of the terminals as an integral yet separate part of the system, as well as an understanding of the challenges that will meet the terminal industry in the development to support this upcoming new wideband standard.

For further information, please contact Håkan Eriksson, Director Systems Development as of Aug 1, -97, currently General Manager CMS8800 Systems Design and management, at +1 514 738 8300 or LMC.LMCHAER.

Business development – New Systems

We are a newly formed department with the responsibility for understanding the driving factors for business development of the wideband system that will bring us into the third generation of cellular systems. The goal is to have these systems in commercial operation in the early years of the next century and to ensure that Ericsson will maintain the leading position in this area.

In order to meet these goals we will build our department with members having a competence profile covering one or more of the following areas and with personal experience and capabilities as presented below.

Competence Areas of Interest

Mobile Communication Business

Understanding the requirements of mobile communications business in order to correctly identify driving forces for commercial success for UMTS. Ability to perform the analysis of business opportunities both from the perspective of an end-user as well as from the view of an operator and a manufacturer.

User Requirements and Multi-Media

Ability to understand the demands and specify capabilities for multimedia applications and services in UMTS, e.g. TCP/IP and Intranet/Internet.

GSM Systems and Products

Good knowledge about product programs and plans for Ericsson GSM products in order to connect them to plans and requirements for UMTS.

To learn more about these opportunities, please contact Gunnar Blockmar, Director Business Development, New Systems, at +46 8 757 2569 or e-mail gunnar.blockmar@era.ericsson.se

IPR-activity within GSM System development

Within New Systems, a new patent group has been formed to provide support and expertise for both New Systems as well as for RMOG worldwide. The goal is to protect our new ideas, inventions, system solutions, and designs.

In order to meet this goal we must expand our patent activity and seek two new patent project leaders/patent engineers who are interested in these responsibilities and have the personal experience and capabilities outlined below.

To work with Intellectual Property Rights (IPR) means that you will work on the leading edge of system development and in close cooperation with system developers. As a patent project leader/patent engineer you will have the unique opportunity to receive very broad experience in all aspects of cellular radio technology. Because of the close and broad exposure to all areas of technology it is the perfect place to begin, or to expand, a career in radio telecommunications.

Responsibilities

Your responsibility as a patent project leader/patent engineer will be to give support in all types of patent questions, including helping to identify important areas and inventions to protect and working with the process from idea to approved patent.

International Work Environment

We offer an international environment where you will have contact with Design Centers in, among other places, Sweden, USA, Spain, Germany, UK, and Norway. Some travel will thus be required, but not extensive. The position requires a command of English and Swedish; proficiency in German is also a bonus.

Requirements

You should have a technical degree in electronics or electrical engineering. Patent experience is naturally a benefit, but not required; you will receive the necessary training and support while on the job. We seek a outgoing personalities with the ability to work closely with others in a multidisciplinary environment. The most important requirement is that you are interested in learning and capable of working in diverse areas of technology.

To learn more about these opportunities, please contact Eric Stasik, Manager, RMOG IPR Activities, at +46 8 757 13 36 or via e-mail eric.stasik@era.ericsson.se.

General personal background and capabilities for systems and business development

Deep experience within the field of competence, combined with a good contact network with manufacturers and/operators of cellular telephone systems or IS/IT. Outgoing personality with a keen interest in meeting other people and exchanging views and opinions.

Ability to work in cross functional teams both within and outside of the department as well as within and outside the business unit. Ability to communicate well in order to express ones views in a clear and concise manner but also to understand how the ideas and experiences of others could help in meeting our goals.

Please send your application and CV to the following address referring to the position or area of interest:

Ericsson Radio Systems AB
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Japan has the world's most rapid growth today in terms of mobile telephone subscribers, and the island of Hokkaido has the most rapid increase relative to the population. Nippon Ericsson's office in Sapporo, on Hokkaido, is continuing to work on expansion of the PDC system operated by DTD to stay abreast of the

growth rate.

bo Sjunnesson came to Sapporo in August 1995 to head the negotiations with Digital TU-KA (DTD), the mobile operator on the island of Hokkaido. He left Ericsson Toshiba's office in Nagoya, where he had arrived three years earlier to develop operations in conjunction with a mobile system order booked by Central Japan Digital Phone (CDP), another Japanese operator.

"When we received the order from DTD in November 1995, the system was scheduled to be taken into operation in July 1997, but the customer was anxious to begin operations and the starting date was moved up several times," Bo Sjunnesson says. "When the system was placed in commercial operation in December 1996, even that was a few weeks ahead of schedule. It also marked the fifth PDC system taken into operation in Japan."

"Half rate"

"We were all a little nervous since it was the first time we installed so-called half-rate voice and channel coding," he adds. "Half-rate means the system can process twice as many calls as most other mobile systems in Japan, which use full-rate coding."

When DTD opened its system for commercial traffic, the Japanese operator had a waiting list of 35,000 subscribers. By the end of March, the number of subscribers had grown to 105,200.



Japan has the world's most rapid growth today in terms of mobile telephone subscribers

Assignment in Sapporo

In addition to metropolitan areas, the network also provides coverage for highways, coastal areas and tourist resorts. As much as 95 percent of Hokkaido's population will be served. DTD also offers its subscribers nationwide service in all parts of Japan through roaming agreements with other regional operators.

Good support from Sweden

"The number of subscribers has grown faster than Ericsson and DTD, the customer, originally anticipated. Naturally, it's very gratifying, but the rapid growth has also placed greater demands on Ericsson to deliver on time," says Bengt Jonsson, Marketing Manager of Nippon Ericsson in Sapporo.

Another mobile exchange is scheduled to begin operations in the early autumn.

"We have received good support from the plant in Gävle and from Kista," Bengt Jonsson continues.

DTD is taking care of its own cell planning and arranging all the sites where base stations will be placed. One of the owners of DTD is Hokkaido Railways, and it's only natural that many sites are situated at railway stations.

Nippon Ericsson in Sapporo now has 38 employees from seven different countries. During the most hectic in-

stallation period, as many as 50 people worked on the project, many of them under short-term contracts. The company plans to make a modest increase in its labor force during 1997, concentrating mainly on recruitment of Japanese employees.

"As opposed to Tokyo, we haven't had any trouble finding skilled Japanese personnel. Many people with technical training have not been able to find suitable jobs in Sapporo and moved away, but most of them want to come back," explains Bo Sjunnesson.

MDE to Hokkaido

Nippon Ericsson also has a department in Sapporo with three employees who work with MDE deliveries to NTT DoCoMo, another Japanese operator. MDE is part of the base station for NTT DoCoMo's digital mobile telephone system, the largest of its kind in Japan.

"There are three of us whose responsibilities include order processing from Sweden and administrative service," says Kazumi Nabeno. "We deal mainly with the Gävle plant and a large part of the work is handled via memo, a very practical solution considering the large time difference between Japan and Sweden."

TEXT AND PHOTO:
GUNILLA TAMM

end line

A multifarious gathering

A few weeks ago, I spent several days mingling with Ericsson communicators at the conference now known as the Ericsson Communications Conference. Confined to a hotel in Amsterdam together with almost 250 colleagues, I felt as if I were hurtling at the speed of light among various countries, cultures and ages.

The most prominent languages in the hum of conversation were Swedish and English, but an enormous number of different nationalities were represented.

One of the exhibition areas at the conference featured a display showing many excellent examples of the contribution made in the communications area by people in various countries. It is impossible not to be impressed by the sheer quantity of material produced globally by Ericsson's communicators. The most striking fact is that virtually no two advertising campaigns, sales videos or product presentations look alike. Were it not for the degree of control imposed by the CVI guidelines, the displays might all have come from entirely different companies. We are still a long way from presenting ourselves as ONE Ericsson.

An important conclusion reached during an exercise such as this is that we need to get better at sharing our experience with each other. Much of what our colleagues produce can be appropriated with pride for our own use. This is already happening to an increasing extent, but as always, the problem is providing information about what is available to the cost-conscious "information thief." One idea worth pursuing would be to establish some kind of electronic marketplace on the network, where successful campaigns, high-quality brochures or punchy advertising videos could be presented.

As an example of the contribution that this type of give-and-take can make to the cash-box, Art McCabe from Canada described how hundreds of thousands of dollars have been saved in his market by filching other people's video productions and simply adapting them for the home market.

Given the multifarious origins of the conference delegates, it was only natural that the speakers should turn out to be an equally multifaceted brigade. For that matter, you would be hard pressed to find two presentations in the whole of Ericsson that resembled each other! And this is leaving aside the issue of how poor many of us are at giving a public presentation. I consider this to be an area that should be given high priority in competence development, particularly now that technology offers such a wealth of possibilities for spicing up a presentation with features guaranteed to rekindle the interest of a drowsy audience. Having to watch yet again while one representative after another from this world-leading IT company fiddles around with crudely prepared overhead transparencies is really hard to bear. At Ericsson conferences, it usually comes as a much-needed breath of fresh air when a presenter from outside Ericsson takes over the stage.



LARS-GÖRAN HEDIN

■ Hokkaido is Japan's northernmost island, constituting 22 percent of the country's surface area. The island is about the same size as Austria. Sapporo is Hokkaido's most important city and the fifth largest city in Japan. It is situated on about the

Hokkaido in brief

same latitude as Madrid. ■ Hokkaido is Japan's most important region for forestry, fishing and mining. The island also has a thriving tourist industry, with many tall mountains and

warm springs. The island has heavy snowfalls during the winter months, and one of the world's three Vasalopp cross-country ski races is held on Hokkaido every year. In addition to Dalecarlia in Sweden, there is a race in the U.S.



contact
in depth

THEME SUPPLEMENT
TO CONTACT
NUMBER 9 1997

**IT – the road to a
better environment**

Photo: KURT JOHANSSON

Theme: Future big business for Ericsson

"One of our most important missions"

One of the most important issues humanity must address is how all of us living on this planet will be able to ensure an acceptable standard of living without overtaxing the environment. Contributing to solving these problems must be one of the most important missions for every individual, organization or company.

At Ericsson, we know that we play an important role in this context. The development of telecom and information technology, of which we are a part, will be a pillar in the resource-efficient society of the future. Our technology is in itself environmentally friendly and furthermore enables the establishment of more flexible work forms that make more efficient use of office space while decreasing energy used for heating, and cutting back on transportation, travel, etc. Telecommunications is simply the most resource-efficient form of communications there is – both for short and long distances.

In concrete terms, we are working within the company to create environmentally compatible work forms, products and packaging. We are in the process of implementing an environmental management system at our various operations to ensure that environmental issues are handled properly throughout Ericsson. The process of obtaining environmental certification is under way and several of our companies in the UK, the Netherlands, Spain and India have already been certified. This is a good start. The experience gained at these companies is now being transferred to other units in the process of becoming certified.

I am convinced that the environmental certification process according to ISO 14001 will be just as successful as the ISO 9001 quality certification, where we are a world leader! As we now intensify our emphasis on quality to include "environmental quality," the evidence is clear that Ericsson is a company that assumes its share of the responsibility for the future and the world around us.

LARS RAMQVIST
PRESIDENT AND CEO

contact in depth

A Supplement of

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The environment is one of the most important issues humanity must address, states Lars Ramqvist in the adjoining column. Ericsson and other IT companies can actively contribute to the outcome of this critical issue. IT is namely an important element in a more environmentally compatible society. This supplement describes where Ericsson stands on environmental issues today and what is being done in the company to meet consumers' increasing environmental demands. All companies must learn to comply with these demands if they are to ensure their future success.

An issue that could mean big business



What does the environment mean to Ericsson? It must mean that we shouldn't emit fluorocarbons into the atmosphere, that our products should not contain so many toxic components that they can't be recycled, that we should sort and recycle paper, batteries and so on in the office. Right?

Well, the above isn't wrong, but environmental issues contain so many more dimensions. It could actually be asserted that Ericsson plays a significant role in the earth's survival according to the following reasoning:

PREMISE:

Environmental issues have decisive importance for the future of humanity.

IT can solve several of today's most urgent problems.

Ericsson is a leader in IT.

CONCLUSION:

Ericsson plays a key role in the creation of a future society.

This is not what is generally considered an environmental issue. Previously, environmental problems were equated with factory emissions, but that situation has changed radically. Ericsson and industry as a whole has, in most cases, their processes and emissions under control. Today, the focus is mainly on the disposal and recycling

aspects of the environmental chain. An additional factor is energy use during operation.

In concrete terms, Ericsson defines environmental work as a kaleidoscope of different projects, improvement measures, plans, and so on. This includes everything from constructing "green" and energy-efficient products to having clean factories and sorting stations for paper and cartons in offices.

BUT LET US DEVELOP THE IDEA OF IT AND THE earth's survival somewhat. That the world population is faced with major environmental problems is a known fact. The greatest environmental threat could, as previously mentioned, be identified as energy consumption and its consequences. That IT can provide the solution to many of these problems is agreed upon by most people.

By using advanced IT systems, one can decrease the amount of travel, transportation and office space needed, to name a few examples. It's possible to work in from home, from "satellite offices" in one's hometown, during travel and in virtual projects (which comprise geographically and organizationally separated parties that are temporarily united due to their specific skills). These types of work eliminate the need for major movements of people and large buildings.

IT can replace the need for business travel, education can take place by satellite, and telephone and satellite conferences can save both time and money. IT's obvious advantages, aside



Illustration: JAN OLSSON

from the environmental ones, are major gains in time, money and efficiency.

This is starting to sound like a sermon for IT, which wasn't intended. However, IT is closely associated with the environment. There is no more environmentally friendly work method or means of communication than IT, which has the advantage of being both environmentally compatible and makes it possible to conserve the global environment.

WHEN IT COMES TO INDIVIDUAL PRODUCTS AND systems solutions, and production at the factories, major environmental efforts are underway within Ericsson. It may seem as though we haven't come a very long way yet, however, the explanation is that a turnaround requires a great psychological shift and this is partly a generation-gap issue.

Many still think that "all that environmental stuff just costs a lot of time and money" – a logic that's not difficult to understand. Ericsson is working under historically unprecedented time pressure. Customer demands are increasing, delivery times are down from months to weeks, factories must spew forth telephones, base stations, switches, cables and so on.

But from a business point of view, can one afford not to consider the environment? Hardly. Step by step, new requirements are emerging for environmentally compatible products, requirements which are coming from the market, that is,

the customers themselves. The environment is a competitive factor today. Products and systems can be evaluated from an environmental standpoint and given an environmental label. It won't be good enough to wake up in a few years and start thinking about developing environmentally compatible products that are easy to disassemble for recycling or reusing.

THE RACE IS ALREADY ON AND AWARENESS IS RISING. Of course there are generational differences, as previously mentioned, and certain areas of the world are more "green-minded" than others. Nevertheless, it is a global movement.

All factors indicate that Ericsson, like everyone else, can't afford to NOT consider the environment.

It all becomes clear in Ericsson's environmental policy from April 1997. The policy establishes that Ericsson should contribute to a sustainable, environmentally sound world by offering customers products and services that are environmentally efficient.

In order for this to happen, the internal environmental work must be fully integrated in everyday operations. Environmental knowledge should be based on scientific methods (Life-cycle Assessments) and all units should obtain environmental certification. Furthermore, suppliers must be involved in these efforts and the international standardization process should be intensified.

A widespread network in the company

Ericsson's environmental efforts are based on a central unit with a widespread network of contact persons, or environmental coordinators, in each business area, local company and plant.

In addition, there are several experts and environmental engineers leading and participating in specific projects.

The central environmental unit is located at the head office in Stockholm. The unit, which reports to the company's technical director Håkan Jansson, is manned by environmental manager Dr. Mats-Olov Hedblom and environmental auditor Barbro Pettersson. At Ericsson Quality Institute, Hans Bundgaard is developing models that will facilitate the implementation of an environmental management system.

In 1996, a central advisory unit was formed, the Ericsson Environmental Board. It comprises representatives from each business unit as well as the major local companies in the US and Australia.

(These facts and much more can be found in Ericsson's Environmental Report, just published in Swedish and English.)

Do only Northern Europe and California care about environmental issues? Are people just as conscious of the environment in other parts of the world? Contact In Depth has taken a trip around the world and stopped in six places to find out how things are looking on the environmental awareness front.

Around the world with six stops

BY LARS CEDERQUIST

Are we on the way to a greener world? Many factors indicate that environmental awareness is increasing worldwide, but that the pace varies, especially when it comes to laws and regulations.

When speaking of "green" areas, references are often made to Northern Europe with Germany in the forefront, plus California in North America and Japan in Southeast Asia.

Germany is placing heavy emphasis on environmental certification of companies and has, at this point, about 600 firms registered according to the European standard EMAS. Japan is also ahead of the game, with 400 certificates issued according to the ISO 14001 standard. However, the United States has not experienced any breakthroughs in environmental management systems.

Most of the large international business groups plan to have implemented some type of environmental management system by the year 2000. Ericsson is completely in line with this development and has decided that each company, organization, etc. having an activity with an obvious environmental effect, must have a certifiable environmental management system in place by 2000.

OK, those are the objectives and the plans. But what is the status today? We have targeted six important Ericsson markets and posed a few questions to the environmental coordinator in each country.

Brazil

Our first stop is Brazil, the massive country in South America and host of the Rio Conference in 1992, which gave birth to Agenda 21 – an environmental plan for the world in the 21st century.

"Environmental problems are a central issue in Brazil, where in particular the sewage systems in the large cities require emergency solutions," according to Luiz Antonio Pereira. He works at Ericsson's Brazilian company, which has some 2,000 employees that work with both fixed network and mobile telephony, among other areas.

Within the company, efforts are now focused on management of disposal and recycling. Environmental work is centered around a group that plans activities and meets every second month. A current problem is finding a party that can safely handle the disposal of lamps containing mercury and batteries from cellular telephones. Certification is not on the agenda, but the new cellular phone plant in São José dos Campos is planning to obtain an environmental management system with its sights set on an ISO 14001 certification.

Mexico

We travel north to Mexico, where the capital Mexico City suffers from huge air pollution problems. This is due to an over-population combined with poor public transportation and three million cars using 18 million liters of gasoline every day. Garbage disposal is also a problem, but efforts are being made to solve it by teaching children early in school to sort waste, according to Antonio Garcia at Ericsson in Mexico.

The main problem at Ericsson's plant is hazardous emissions, which the company is trying to manage by creating closed-cycle systems and recycling routines. Preparations for the implementation of an environmental management system and the training of all personnel at the plant are under way. In the area of source-sorting, office paper and, to some extent, plastic, metal and glass is sorted. ISO-certification is on the agenda, and a total revision of the entire plant will be completed during 1997.

Spain

We cross the Atlantic Ocean to Spain, which is traditionally a large market for Ericsson with 3,000 employees.

"Interest in the environment is constantly on the rise. For example, our largest customer, Telefonica, is in the process of implementing environmental criteria when evaluating suppliers," says Luis Gil Alcazar at Ericsson S.A. in Madrid. "The general problem in our country is the attitude of the public, employees, customers, etc. And the main issue for us is to decrease our energy consumption and industrial waste, even though both of these are below average in Spain," he continues.

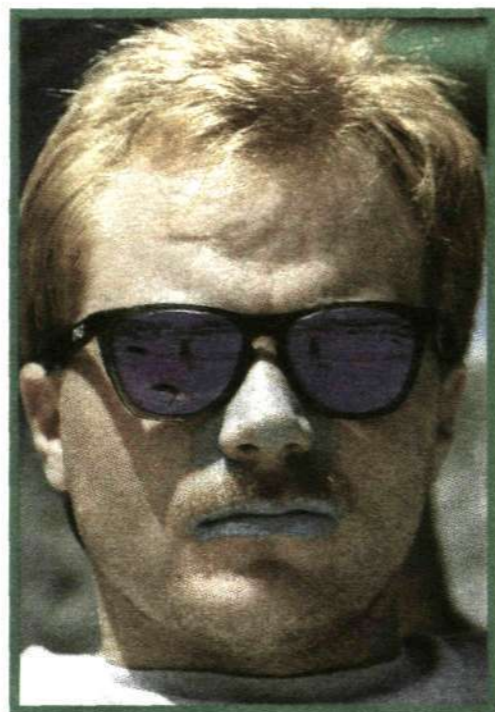
Last year, an environmental management system was integrated in the company's quality system, and this year plans are in the works to increase collection of scrap paper and use of recycled paper, as well as decrease paper use by using electronic media. They also plan to offer the customer removal and recycling of worn-out switchboards. With regards to certification, the work is basically complete and approved.

India

Next stop India. A country with enormous potential.

"Environmental issues are a vital concern here in India, but unfortunately, public awareness is very weak," says Nilotpaul Bose at Ericsson's local company, which employs a growing number of people.

Knowledge about laws and regulations is poor



Australia – will the hole in the ozone layer increase?



China – lack of clean water is a major problem.

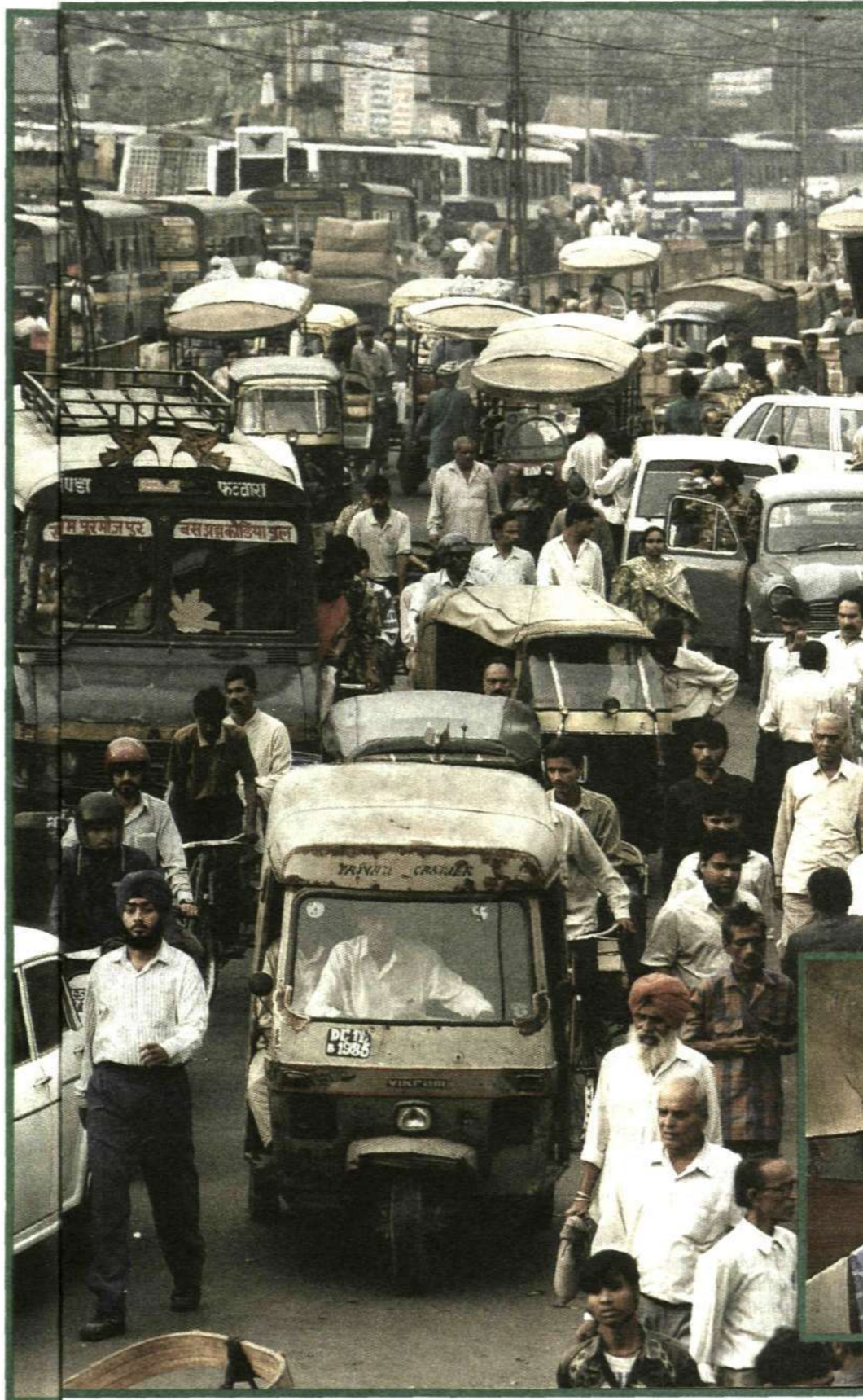
and there is a lack of good systems for waste management and recycling.

Nonetheless, environmental work is under way at Ericsson's operations in India. The plant in Jaipur has succeeded in implementing an environmental management system according to ISO 14001 in record time, and on April 24 this year, they were certified by BSI.

The certification entailed evaluation of all environmental aspects, from suppliers to waste water emissions, wave soldering machines, cleaning and worn-out fluorescent lamps.

China

China, one of Ericsson's key markets, is a country facing serious environmental problems, which has led to the government's classification of envi-



India – there is a lack of adequate systems for waste management and recycling.

ronmental problems as one of the country's two key issues. There is a scarcity of water, both for drinking and industrial use, and air pollution is a major problem. Two of the reasons for many of these problems are outdated technology and local conflicts of interest.

"For us at Ericsson, having some 2,000 employees working with both production and marketing, the key questions are saving energy and paper, as well as recycling packaging material," says Bengt Holm, quality manager at the company.

An environmental audit was performed in February 1997 and revealed that Ericsson's China office did not have any major environmental problems. They are planning to become ISO-certified next year and are preparing for this in several ways. An environmental seminar will be

held in June, an environmental organization is being formed and all personnel will undergo environmental training.

Australia

The last stop on our little round-the-world journey will be Ericsson Australia, where more than 2,000 employees work in half a dozen locations with the entire spectrum of Ericsson's business operations.

"Our everyday activities create the greatest environmental problems," explains Robert Jurman. "Driving, pesticides in gardens, the way we build our homes and street-cleaning methods are just a few examples of environmental hazards. This doesn't mean that industry has solved all of its own problems, but it nonetheless has good control over current emissions."



Mexico City's three million cars create heavy pollution problems.



Spain – Ericsson's largest customer, Telefonica, is considering environmental aspects when choosing suppliers.



Brazil – waste water systems in the large cities require emergency solutions. Photos: PICA PRESSFOTO

Ericsson Australia is aiming for ISO-certification towards the end of 1997. Environmental awareness is great and the company is gradually shifting from merely fulfilling applicable regulations to taking the initiative itself and identifying future problems. Since the 1980s, Ericsson Australia has been working actively with environmental issues. Among measures taken is the elimination of ozone-depleting substances, such as fluorocarbons, from the production process. The hole in the ozone layer is considered to be alarming over Australia, and that Ericsson Australia became a "non-ozone-depleting" operation in 1995 is of great significance.

This concludes our environmental odyssey. Nowhere in the world can you hide from environmental problems.

Environmental compatibility has become an increasingly important element in social development. Its growing significance is reflected in greater environmental demands from consumers, new legislation and the large amounts of money now being invested in environmental control systems by companies in all parts of the world. "The telecom and infocom industry can only benefit from the trend toward increased environmental awareness," says Dr. Mats-Olov Hedblom, Ericsson's Manager of environmental issues. "No other industry in the world today has greater potential to help create improvements in the world's environmental profile."

A better world — and better business

BY NILS SUNDSTRÖM

Ever since the world's political wing first coined the term "sustainable development" during the World Congress in Rio de Janeiro in 1992, environmental awareness has gained growing importance among consumers and industry.

The subject matter encompasses important and complex issues. In parallel with assuming control over society's total environmental impact, human life quality parameters must be given their due consideration.

"I believe we all instinctively realize we cannot continue to travel and communicate along the same paths for all eternity. In my opinion, the IT industry, including Ericsson, should be a leader in recognizing the business potential in this development," continues Mats-Olov Hedblom.

He also believes all major industries will be environmentally certified by the year 2000.

"A large number of companies have already chosen environmentally motivated marketing themes. Siemens in Europe is a prime example in the IT industry. Other companies, including many Japanese corporations, have opted quite simply for stronger focus on environmental awareness to prepare themselves for the future battle over customers.

"I don't believe any company wants to run the business risk of maintaining a low profile and by not working internally on environmental issues," Dr. Hedblom continues.

Before the close of the year 2000, all Ericsson companies and business units will have introduced certifiable eco-management systems. The objective is one of the major points in Ericsson's new environmental policy.

The ISO 14000 series, or European EMAS, are the recommended international environmental standards.

"Environmental pressure varies from one country to another and, consequently, progress achieved by different Ericsson companies varies in different parts of the world. The introduction of a certifiable eco-management system is the first step we must take to continue a more long-

term approach to structured environmental work," explains Mats-Olov Hedblom.

The groundwork calls for all units to conduct careful studies to identify environmental aspects of particular importance to their individual operations.

"Our approach will enable us to gain insights into every employee's opinions about the environment. Every organizational unit will then be required to develop a few important environmental aspects to form the basis of their eco-management objectives and, eventually, for the entire process of change to be supported by Ericsson's eco-management system.

"The primary requirement is obey laws and regulations governing environmental concerns, regardless of which country is involved; this should not prevent us, however, from taking the lead in environmental awareness for marketing purposes," Dr. Hedblom continues.

Certification work includes a large amount of environmental training and education. Training programs were completed recently at the Gävle factory, for example, which is now awaiting certification in accordance with the ISO 14001 standard.

"Knowledge is the foundation of all commitment. In addition to planned training programs, we have created a web site on the Intranet where we report regularly on the progress of our eco-management system," says Dr. Hedblom.

Environmental efforts are focused largely on a holistic approach that applies not only to the production process and emissions into the air and water supplies. The products themselves are equally important, how they are used and how they will eventually be recycled or scrapped.

"Ericsson has made substantial progress in discussions of how to describe a product's total environmental impact. Working in cooperation with the Chalmers Institute of Technology in Gothenburg, we have created an analysis method for the entire life cycle of a product. The method comprises an important scientific foundation for our long-term environmental work.

"I am very confident that all Ericsson products will eventually be environmentally compatible,



Environmental compatibility is becoming a strong and important sales argument. And our efforts have to start at home, internally.

thereby reducing their overall environmental impact, in parallel with unchanged or expanded functionality," Dr. Hedblom says.

Environmental awareness also applies to work performed on a daily basis at all work sites, including everything from paper consumption to the use of disposable coffee containers.

"The utilization of resources through materials consumption can be summarized in monetary terms, but environmentally aware office routines are also important to the credibility of our entire focus on environmental compatibility.

says Mats-Olov Hedblom, head of Ericsson's environmental program and a Doctor of Chemistry.

"Our first 14001 system in Rijen, in the Netherlands, includes several important environmental aspects for the company, in addition to others adapted on a purely individual level. For some employees, this includes cycling to work at least three days a week.

"It's often a matter of self-examination. That's how we have to operate. If we are not prepared to do things internally, how can we expect to convince customers to buy our environmentally compatible products and systems?" Dr. Hedblom concludes.

Telia's environmental program places new demands on suppliers

Svenska Telia, a Swedish telecom company with more than 30,000 employees, has implemented a new program focused on determined efforts to improve internal and external environmental conditions and to develop new services to reduce the environmental impact on its customers. The program places strong demands on Telia's suppliers.

"Environmental awareness is the first step toward consumer demands for products and services with higher ethical values," says Christina Schnell, Environmental Manager of Telia.

The Swedish operator has started to replace materials, methods and suppliers based on environmental concerns. Lars Berg, President and CEO of Telia, has also defined environmental awareness as one of the three cornerstones in Telia's business concept.

Training programs for all employees who work directly with customers comprise a major element in the new program.

"Education is vital to the creation of our target demands at an early stage. Between now and year-end 1998, 10,000 employees — sales personnel, service technicians and others — will attend environmental training courses," Ms. Schnell continues.

"Despite the inherent power-efficiency of telecom operations, our infrastructure consumes large amounts of energy. Consumption is attributed in part to Ericsson's designs of energy consumption in AXE exchanges, for example, and the mileage we get in Telia's company cars. We must improve our ability to place demands on suppliers so that Ericsson, for example, will produce components in which energy is load dependent."

Eco-management requires comprehensive knowledge of products several steps backward and forward, from their proverbial cradle to grave.

"Manufacturers should begin to consider how products will eventually be scrapped and disposed of in the early stages of product development, and plan material recovery and recycling options," says Christina Schnell.

ETNO, the European association of telecommunications operators, offers an important forum that can put more pressure on suppliers. In November 1996, 18 major operators endorsed a principle document to work more actively with the environment and increase their awareness of environmental issues. The efforts will be monitored annually through reports on progress in various areas.

"We have been contacted several times by international ethical mutual funds since Telia signed the document. They didn't know Telia is not listed on the stock market, but it was interesting to note they wanted to invest in Telia based on our environmental outlook," Ms. Schnell explains.

Telia is working internally to reduce its paper work, the number of miles driven by the company's fleet of cars and business trips by company employees, concentrating instead on electronic media alternatives such as e-mail, remote supervision, video conferences and other forms of remote control.

"We want to set standards and identify with our business operations in order to sell our service products," Telia's environmental manager continues.

"Information Technology (IT) per se is neither favorable nor detrimental to the environment. It's all a matter of behavioral patterns and how we use the technology."



Christina Schnell, Telia

Hidden environmental potential of IT

IT can improve the operating efficiency of various processes, reduce the consumption of resources and save energy. The environmental potential of today's information technology, however, is still used poorly, according to a recent report on "IT and the Environment" by Sweden's IT Commission.

The IT Commission, an advisory governmental agency, wants to use good examples to spread information and knowledge that will show how IT can improve environmental aspects of various business operations. Its report contains a variety of proposals ranging from specially equipped harvesting machines that gauge harvested crops and fertilizers based on requirements to driver education students who are taught how to drive a car without creating exhaust emissions. Doctors in southern Sweden are able to transfer x-ray pictures via the telecom network to colleagues in Lund, 150 kilometers away, while a daily newspaper can transmit an entire edition in the search mode via satellite or ISDN to companies and other subscribers.

The IT Commission summarized the potential environmental gains in three main areas.

■ Reduced transports, which lead to lower gas consumption and exhaust emissions. The

Commission cites e-mail, telephony, remote operations and video conferences as examples of various alternatives.

■ Energy savings and subsequent reduced emissions. The main energy saving opportunities are found in control and regulatory systems for industrial processes and real estate management, but they also apply to micro-processors and the storage memories of various IT products.

■ Reduced consumption of natural resources, for example trees for the production of paper. E-mail and storage in electronic media can contribute to reduced paper consumption.

The Commission also makes reference to the Wuppertal Institute of Germany, which has developed an ecological calculation model that estimates natural resources used in the form of raw materials and energy during the life cycle of a product.

According to the institute, a business trip by air from Europe to the U.S. represents a material investment of approximately one ton per person. A six-hour video conference requires only one-hundredth of the same material consumption. Electronic mail, in turn, is reportedly 100 times more environmentally compatible than conventional mail via the postal service.



The exam paper involved a bromated flame-retardant in radio base stations and, when the studies were completed, Susanna Bävertoft was named the first environmental engineer ever appointed by the GSM, NMT, TACS Mobile Telephone Systems unit of Ericsson Radio Systems.

"Getting everybody to take an active part in making our products as environmentally safe and compatible as possible is a very important aspect of my job," she says. "We need the complete range of skills."



The environment is her sphere of activity

BY GUNILLA TAMM



Susanna Bävertoft is a chemical engineer who joined Ericsson about a year ago. She was graduated from the Technical College of Dalarna, where she studied chemical technology. Her

choice of professional pursuit was not as straightforward as others. She considered a career in teaching at first, and attended a teacher's college. She supplemented her college studies with natural sciences and eventually focused on chemical engineering.

The most natural job venue for a chemical engineer working with environmental issues would seem to be a laboratory filled with test tubes.

"No, not all," says Susanna with a laugh, explaining she has a regular office job.

"Like everybody else, I attend a large number of meetings and conferences. I also spend a lot of time gathering information about environmental issues from various sources. During my first year on the job, I have learned a great deal about Ericsson's organization and developed a network of contacts.

According to Susanna, Ericsson employees are interested in, and aware of, environmental issues.

"It seems like the longer I'm here, the more questions I get," she continues, citing as one example a question she received recently concerning the procurement of more environmentally compatible material for certain cables in radio base stations.

As an environmental engineer, Susanna Bävertoft must be familiar with base station products and make pro-environmental proposals. She also has to show where Ericsson can reap economic benefits from various changes.

Although the environment and eco-management comprise a relatively new area for Ericsson, Susanna Bävertoft would like to see more clearly defined signals from management, which should identify areas of special interest. In her opinion, the PDC Mobile Systems business unit offers a good example. The unit's environmental objec-

tives are documented in its ESP (Ericsson Strategic Planning).

Ms. Bävertoft also believes product management has an important role in environmental questions when efforts are initiated to develop new products.

"Everybody who works with development is able to influence the environmental compatibility of our products. Eventually, our customers will demand it. Operators in such countries as Germany, the U.K and the Netherlands are becoming increasingly conscious of environmental issues. I am also convinced that environmentally compatible base stations will eventually become a competitive advantage," she continues.

Today, customers who buy Ericsson's business exchanges place the most stringent demands on environmental features. New legislation will also place more stringent demands on suppliers of telecom equipment.

We asked Susanna Bävertoft her opinion of general environmental awareness among Ericsson employees.

"There is a fairly strong awareness, especially among the younger generations who have grown up with focus on the environment," she says. "A lot of our work is a matter of changing behavioral patterns and habits, such as learning to sort paper, and we have made considerable progress in this area. Another thing we can do is stop printing all the memos we receive or all 20 pages of a document when we only want to read two or three."

Susanna is not an environmental activist, but she enjoys being in the great outdoors.

"It's probably because I grew up close to nature in Dalarna, and my mother is a biologist. It makes me happy to see a flower, like the first snowdrops in the spring. But it's also nice to see a lone tree in the middle of a big city; it's a confirmation that our world is a living planet, and that's important to me," she concludes.

To Susanna Bävertoft, it's also important to have a meaningful job, and she definitely thinks her position as an Ericsson environmental engineer is a worthwhile endeavor.

"The success of a company's environmental work is dependent on the participation and commitment of its employees. The commitment is nurtured by knowledge of the importance of environmental issues to the company's future." Frits van Loon is the environmental chief of Ericsson Telecommunicatie in the Netherlands, the first Ericsson company certified in accordance with the international ISO 14001 environmental standard.



A pioneer in environmental work

BY NICLAS HENNINGSSON

Ericsson Telecommunicatie, Ericsson's Dutch subsidiary, is situated in Rijen, about 100 kilometers south of Amsterdam.

Operations are concentrated on sales, installations and maintenance of Ericsson products in the Dutch telecommunications market. The company also conducts in-house research and product development and serves as a so-called European Customer Center, with responsibility for assembly and installation of Ericsson products for customers in all parts of western Europe. In the beginning of 1997, Ericsson Telecommunicatie became the first Ericsson company certified in accordance with ISO 14001, the international standard for eco-management systems.

"Today, the environmental awareness of a company is a demand placed by society, its customers and, not least of all, its own employees," says Frits van Loon, environmental manager and the man behind the Dutch company's recent certification. "An environmental policy is a prerequisite for competitive strength, and certification under ISO 14001 provides a guarantee for outsiders and employees that we take responsibility for our operations."

Efforts leading up to certification were started in the beginning of 1996. One representative from every division was appointed to serve as his/her unit's environmental coordinator. Work was then started on the first basic audit to survey and study the total environmental impact of the company's operations.

Every division worked independently on their individual surveys, which resulted in a list of nearly 200 areas in which the Dutch company and its employee activities caused some form of environmental impact. The list covered a broad range of subjects from the utilization of plastic mugs in coffee machines to the total energy consumption.

"We didn't really understand at the time, but eventually we recognized the importance of our initial environmental audit," Frits van Loon explains. "At first we had our doubts about the benefits of an audit, but I am not exaggerating when I say it formed the foundation for virtually everything we accomplished later."

The list of nearly 200 areas in operations were separated and categorized. The gravity of envi-

ronmental impact was an important parameter in categorizing the various areas and subjects, if current legislation governed the areas and studies of whether certain areas were outside the realm of the company's authority and/or control.

The first environmental objectives emerged from compilations of the lists. Every division formulated its own plan of action to guide efforts toward the achievement of its environmental objectives, thereby laying the groundwork for the overall environmental policy. In February of this year, Ericsson Telecommunicatie's eco-management system was duly certified in accordance with ISO 14001 by Kema, the Dutch certification institute.

Today, the company has assumed complete control of material flows through its operations. In less than one year, the Dutch company's total refuse tonnage has been reduced by 50 percent.

Frits van Loon believes one of the most important elements in the entire process of ISO certification was the participation and personal commitment of the employees. A basic condition was information and knowledge, but instead of putting the employees in classrooms, Frits van Loon chose another path.

"I chose to establish our eco-management philosophies and objectives in the environmental coordinators at division level. These key persons were then appointed to spread the knowledge and commitment down through the organization."

Frits van Loon believes the environmental coordinators made valuable and strong contributions to the success of the certification process. They not only formed a platform for the spread of information from persons responsible for certification to employees, but also in the reverse direction.

"One of the main reasons for our success, in my opinion, was that we capitalized on people's natural interest and their commitment to environmental improvement," concludes Frits van Loon.

The first Ericsson company to receive environmental certification was the Ericsson Ltd in Scunthorpe. The plant was certified in the autumn of 1996. Certification was awarded under the British standard which was later converted to ISO 14001.



In less than one year, Ericsson Telecommunicatie has reduced its amount of waste by half. The material that can't be recycled or taken care of in any other way is compressed to about 70 percent of its original volume before it is deposited in a landfill near Rijen.



All chemical waste, such as batteries, paint and overhead film, is collected before it is distributed to a destruction plant.



Ericsson in the Netherlands has committed itself to handle all discarded Ericsson-produced material. Used telephones, terminals and circuits are transported to Rijen from all over the Netherlands. The materials are then transported to a company specialized in recovering metals from electronic components and circuits.



Material that can be reused is sorted and collected in large containers. Ericsson has a contract with a company that resells metals, pallets, cable drums, etc. Each year, the company must report what has happened to the materials after leaving Ericsson.

Photo: NICO DE BIR

A "green" telephone exchange? Sure, why not! The MD110 from Ericsson is well on its way toward becoming a green exchange. The Business Networks unit of Infocom Systems is conducting five projects within the framework of an environmentally compatible design concept called "Design for Environment." More than 50 persons are working on the projects, mainly technicians and design personnel, including two full-time employees.

A "green" telephone exchange

BY KARI MALMSTRÖM

"We started to work with environmentally compatible product development about two or three years ago," says Lars Lenell of Ericsson Business Networks at Nacka Strand. Mr. Lenell is responsible for the MD110 environmental design project.

"We have recognized the need to develop our own abilities to meet future customer demands, public opinions on environmental issues and the possibility of new and more stringent legislation. Pressure from the market is still only marginal, but we have to be prepared. With the BC 10 version of MD110, which will be introduced on the market in 1998, we are making a determined effort to focus on environmentally compatible design features."

One of the ongoing projects was initiated by Prolab, which selected a line interface board in MD110 as a pilot project for Ericsson's concentration on environmentally compatible product development. The objective of the project is to develop methods, checklists and instructions for ecologically adapted design, as well as for scrapping and/or recycling. But what does the project actually entail in concrete terms?

"Everything is being questioned! Today, the entire electronics industry uses printed circuits that contain bromated flame-retardants, but for purely technical purposes, other solutions are available," explains Lars Lenell. "The questions we need to answer concern the financial and technical consequences of their application, which we are now analyzing. We are also studying various opportunities to phase out PVC in contacts, connectors and cables. Alternatives are available that do not contain PVC."

Today's MD110, however, is definitely not an environmentally harmful product. Ericsson has not encountered any difficulty in meeting all legislative stipulations. In fact, the environmental impact of the IT industry is very limited, since the products offered have a favorable ecological impact at all levels, exemplified best perhaps by the elimination of unnecessary travel. The case of MD110 is the same as most other Ericsson products. Its greatest environmental impact is caused by power consumption during operations.

"We are looking into various ways to minimize the effect. The key is to integrate wherever possible, to introduce energy conservation modes for processors and circuits. Eventually, we might also

consider a conversion to three-volt techniques instead of today's five-volt power supplies. The conversion, however, would cause certain consequences in terms of upgrading and recycling opportunities, so we're not sure which path we'll choose."

"A great deal of work has been devoted during recent years to design rationalization measures that have also yielded environmental gains," Mr. Lenell continues. "In the past, for example, we were forced to maintain more than 100 different line and trunk circuit variations for MD110 to meet signaling and transmission requirements in different markets."

"We have reduced that number to 20 variations today, mainly through technical innovations and more flexible hardware. Most market adaptations today are controlled by software; they are no longer hardware-dependent. The resources we are now able to save also represent an important environmental gain."

Lars Lenell is impartial in his arguments, but he is also committed to increased applications of environmental philosophies in marketing operations. The recent flare-up of public debate over bromated flame-retardants and their eventual dangers may become a regular feature on the public agenda. As a supplier, it's important that Ericsson is able to answer questions that may arise over delicate issues. The company should preferably remain one step ahead, already having noted the current environmental aspects of the debate. Design is step one; marketing and sales organizations then formulate their arguments in an effort to persuade the market to choose Ericsson products because they are environmentally compatible.

"Many customers ask about the contents of our products. The truth is we haven't always been 100 percent sure," Lars Lenell says. "One of our current projects, which is almost completed, has focused on material declarations for the BC 8 version of MD110."

The first time is always the worst time, an old adage that held true for material declarations. The BC 8 exchange comprises approximately 1,800 parts and components. And it's never easy to find out what each one is made of, or where it came from. Anders Andrae has worked full-time on the project since last September. Many of his own calculations and analyses have been supplemented by previously available materials information.

The new material declarations provide a springboard for another project: a complete environmental contents declaration for MD110.



Lars Lenell of Ericsson Business Networks at Nacka Strand, is responsible for the MD110 environmental design project. Here

together with Anna Boström, responsible for the construction
Photo: THORD ANDERSSON

The project involves the formulation of an environmental enclosure that will eventually be included with every system sold by Ericsson. SITO, an organization of Swedish IT companies, has produced several models for environmental labeling for copying machines, fax machines and PCs, and Ericsson is now working on the design of similar models for business exchanges.

Life Cycle Assessment (LCA) is the theme of two other projects. The first will be completed in a matter of days, and may be regarded as a "live-fire exercise." Life cycle assessments have been made on the documentation for MD110, BC 8, and is available in digital format on CD-ROM and a paper-based version consisting of 60 well-filled folders.

A carefully formulated support system is need-

ed for implementation and documentation of life cycle analyses. The fifth project is focused on development of methods and tools for LCA. Design engineers at Ericsson Business Networks are now testing a support system developed in its initial phase for 12 users, from Ericsson Lund in the south to Ericsson Cables in Hudiksvall. The advantage and objective of the project is that all users can enter material information in a common database.

"It's the rule rather than exception, at least in Sweden, for customers today to request environmental documentation in the offer stage. We simply must succeed in our efforts so that Ericsson can demonstrate how its ecological philosophies make our products worth more," Lars Lenell says. "It's extremely important to our future competitiveness."

How to meet pressure from the market

"Environmental work is obviously controlled by customer and market demand," says Göran Mälhammar, manager of an environmental platform project being conducted by Infocom Systems. "Environmental demands are heard and seen much more clearly as a company closes the gap between its business operations and the general public."

In its operations directed toward public operators, large sections of Infocom Systems operate relatively far from end-consumers. Public opinions on environmental issues are gathered first by the operators who, in turn, convert them into demands on Ericsson, their supplier.

"Although market pressure is still rather diffuse, we cannot afford to wait until it becomes stronger," says Göran Mälhammar. "It takes time to develop environmental documentation, labeling, material declarations, analyses of various consequences and other factors. Right now, we are probably lagging slightly behind the competition, particularly in terms of using environmental arguments in our marketing campaigns."

"Eventually, we should build up a system of material declarations for all Ericsson products, both old and new," he continues.

"Unfortunately, the telecommunications industry still does not have any common guidelines for material declarations. It's frustrating for subcontractors, since most of the companies they serve all ask for something different. The International Electronics Commission (IEC) is now working on the formulation of guidelines that all companies will follow, and we are anxiously awaiting their completion."

Göran Mälhammar cites two projects in particular in his review of ecological activities now being planned by Infocom Systems. One of the projects is focused on reducing energy consumption levels of products during operations.

"Although the complex of problems applies to virtually all products made by Ericsson, we suggested that the work be conducted as a separate project," Mr. Mälhammar explains. "Most product development projects are conducted under tight schedules, since the emphasis is usually on developing a new solution as quickly as possible. In most cases, there is precious little

time to introduce a new technique for energy conservation.

"The other project we are planning is concentrated on the disposal of products at the end of their life cycles. Should we invest in the development of products that can be source separated for materials recovery, or should we focus on products that can simply be crushed and destroyed? Right now, we're leaning toward material separation and recovery, which will necessitate the formulation of design regulations to facilitate manual disassembly," Mr. Mälhammar says.

Infocom Systems is characterized today by comprehensive changes in both production and design. Restructuring of circuit board supplies for AXE, for example, is having a significant environmental impact. Purchasing functions must be strengthened considerably, with particular emphasis on ecologically related skills, according to Göran Mälhammar.

"It's essential that we become very accomplished in placing strong and clearly defined demands. We cannot expect more from our suppliers than we are able to provide ourselves," he says.

"Environmental considerations should be discussed in the early phases of contract negotiations, especially now when we are outsourcing large parts of production operations to subcontractors," says Örjan Hallberg, environmental coordinator for the Public Networks unit. "Ericsson is the ultimate supplier and thereby assumes product liability."

"The ecological aspects of business operations go hand-in-hand with its financial aspects. Environmental considerations are not a cost item, and should not be regarded as such. It's our job to show management the benefits of improvement. It's easier to make quantifications in the field of quality assurance, but it can also be accomplished for ecological considerations. One obvious example would be if we started to lose business due to our neglect of environmental issues and their importance.

"Just a few years ago, people who worked with environmental issues were generally regarded as a sort of activist wing," continues Mr. Hallberg.

KARI MALMSTRÖM

"We are not an ecological monster"

Ericsson's production plants are not a band of ecological monsters. The company maintains excellent control over emissions of harmful substances. Large investments have also been made to phase out various aspects of Ericsson operations that involved unnecessary environmental impact.

The factories have the main responsibility for making sure we comply with all pertinent legislation governing emissions, for example, and they all do a very good job," says Jörgen Svensson, an environmental advisor for Infocom Systems and Ericsson in general.

"Measuring emissions is the bottom line, since the measurements provide concrete proof that our efforts are yielding results," he continues.

Jörgen Svensson directed Ericsson's program to phase out freon in the late 1980s. The program yielded particularly good results in a relatively short period of time. Freon emissions have been completely eliminated. Ericsson is now concentrating on emissions of organic solvents and metal ions, with a steady decline as the result.

"A growing part of our environmental efforts are now focused in the design phase," says Mr. Svensson, who is also involved in the MD110 project within the framework of "Design for Environment."

As for heavy metals such as lead and cadmium, or the hot topic of bromated flame-retardants, Ericsson is studying alternative techniques to reduce their use in products. This area is extremely important for scrapping and recycling purposes. Any reduction in the introduction of such heavy metal substances into the ecological cycle represents a major contribution.

Scrapping and recycling also have assumed certain importance in production. Jörgen cites aluminum as the classic example of a material that is expensive and difficult to extract, but relatively easy and inexpensive to recycle.

"The environment is an important symbolic question for all of us. Our industry can make significant contributions to reducing total energy consumption. We are also a relatively 'clean' industry. With continuous improvements, we can also reduce our overall impact."

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Life-cycle assessments provide the complete picture

A life-cycle assessment traces the environmental effects of a product throughout its entire life cycle, from cradle to grave. The assessments illustrate clearly the importance of an holistic approach. Not only what happens after the product goes to the junkyard.

BY PATRIK LINDÉN

The concept of life-cycle assessments first emerged during the energy crisis of the 1970s. Packaging was the first focal point, with special concentration on energy savings, of course. It was not until the 1990s, however, that various analytical methods used in the assessments and large collections of data gained widespread acceptance.

A life-cycle assessment starts with a product definition. Exactly what is to be analyzed? A product inventory is the second step. For practical purposes, the product is taken apart, for example a mobile telephone. The parts and components are separated and weighed based on their material content. The most time-consuming work then begins - finding and assembling data on constituent materials.

The inventory traces the course of every material from its origin. Step by step through its inclusion in the finished product and, subsequently, to scrapping and final disposal.

Let us assume that a product contains 30 grams of steel. The analysis will trace the path of those 30 grams all the way back to extraction from the mine. It will also chart and measure emissions from mining machinery, for example. Standard values per kilo of steel are used for this type of information. Calculations also include energy consumption during the ore refinement process. Was oil used as the source of energy, coal or hydroelectric power? The answer reflects the type and amounts of emissions created.

Life-cycle assessments also study transports at various stages of a product's life. Standard values are used to calculate various emissions per ton/kilometer for railway and truck transports.

Step by step, the path of every material in the product is traced, including emissions generated along the way. Attention turns later to production and amounts of energy expended in factories and their environmental impact.

Effects and production of the various materials are usually well-documented. It's much more difficult to calculate the environmental impact of the product's application.

The economic lives of products are often estimated in terms of what is considered normal utilization for a given application. If the study is focused on a mobile telephone, special interest may be directed to the number of times its batteries are recharged and how many extra batteries are used during the telephone's useful life. Studies may also concentrate on the charger and its constituent parts.

Ultimately, the product is scrapped, and the life-cycle assessment examines its recycling ratio as opposed to how much of the product is disposed of as waste. And what happens later in the junkyard? Heavy metals leak out and make their way into groundwater. Iron becomes rusty, dissolves in rain water and runs off. And so on.

When everything and all effects have finally been examined, the emission values of every material are summarized at every stage and presented in

a single table. At this point, the analysis is a scientific study that can be verified.

The next phase calls for interpretations. The assessments usually summarize all acidic emissions and grade them based on their degree of ecological impact. Carbon monoxide and other substances that contribute to the greenhouse effect are also weighted and accounted for, as well as substances that generate excessive fertilization, nitrogen compounds, for example.

In the final stage, the life-cycle assessment

has also shown that general technical development toward the miniaturization of components to reduce the size of products also yields favorable environmental effects. According to rough estimates, performance standards improve 100 percent about every 18 months, calculated in relation to material and environmental impact. Ecological effects of most products are noted in the user phase, primarily in the form of energy consumption during operations.

Today, a handful of Ericsson employees are working actively with life-cycle assessments, but their number is growing in parallel with the formalization of methods and increased knowledge.

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Life-cycle assessments at Ericsson

lished, and the business area is examining everything from equipment and systems operations to telephone catalogues and the operator's office structure. The analysis, surprisingly, has shown that nearly half of all energy consumption is attributable to the operator's office. The study has also shown that office heating requirements account for a very large part of overall energy consumption, a finding that has strengthened arguments for remote job conditions. The LCA



Illustration: JAN OLSSON

ed on a chemical/biological plane. Little emphasis is placed on "tangible" environmental effects, such as noise and odor. Other methods must be employed to measure the effects of these phenomena.

Interpretations of LCA results are naturally subjective and depend largely on who conducts the analysis. Due to limited resources, an analysis might be concentrated on a certain phase in the process. Focus may be placed, for example, on the greatest and/or most harmful environmental impact caused by a product's utilization or production, a natural choice for the most attention.

A LCA may be further complicated in another step concentrated on real local conditions. If emissions from a certain phase in the process occur in an area already exposed to considerable environmental effects, for example, special attention should be focused on corrective measures. Weighting can also be adapted, for example.

Threshold values have been established for the amounts of nitrogen compounds that can be absorbed by a lake, for example, without causing ecological damage or imbalance. As long as emissions remain under the threshold values, environmental impact remains minimal but, as soon as the limits are exceeded, every subsequent emission is extremely harmful. This type of reasoning is not accepted in the evaluation methods used today in life-cycle assessments, but it remains relevant in the overall concept of environmental protection.

Swedish companies in cooperation on life-cycle assessments

Ericsson and 11 other Swedish companies are working in cooperation with Nutek and Chalmers Institute of Technology at Centre for Environmental Assessment of Product and Material Systems. It is one of 28 expertise centers operated by the Swedish National Board for Industrial and Technical Development (Nutek) in cooperation with industry and technical colleges and universities in all parts of Sweden.

"Most of our efforts are focused on life-cycle assessments," says Göran Svensson, director of the center at Chalmers. "But, as our name indicates, we also use other methods."

Ericsson and the other Swedish companies, which include ABB, Stora and Electrolux, contribute SEK 500,000 annually to the project. Cash allocations amount to only SEK 70,000, with the remainder comprising time and resources.

"We have structured allocations to encourage the companies to assume a more active role, but this field is so new that we also need the knowledge of several sources in our work," explains Göran Svensson.

The center was inaugurated a little more than a year ago, and today comprises 10 persons working on site in Gothenburg, but a host of other people are also involved in the network. In the initial phase of operations, efforts have been focused on gathering information for a database that will be used by participating companies for their life-cycle assessments.

"The database structure has been completed. We are now starting to produce the information to be contained in the base. We hope a large amount of its contents will come from the companies involved and various trade associations," Mr. Svensson continues. "Their input will also enable us to remain updated."

Databases for life-cycle assessments are already available today, but it's difficult to verify all the information. Data may also vary from one geographical region to another. Electrical supplies in central Europe, for example, are based on fossil fuel that generates a certain type of emissions, while Norwegian power supplies are based almost exclusively on hydroelectricity, which has no emissions. It's important, therefore, to have comprehensive knowledge of the source of values and how they are calculated. Identical products, accordingly, do not necessarily have the same environmental impact.

"The database we are developing must be very clearly defined and verifiable. It should be easy for users to find out how the information was gathered so its credibility is unquestionable," says Göran Svensson.

The program of cooperation between Nutek, Swedish industry and Chalmers has functioned very well. Other companies have expressed interest in joining the center, but growth has to be carefully controlled.

"We simply don't have enough research leaders in this field. Since LCA represents an interdisciplinary field of study, it will take time to develop skilled personnel. I have noted a growing number of graduate studies on the subject, however, and even a few doctoral theses. We see a bright future for our operations here," Göran Svensson concludes.

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Photo: ANDERS ANJOU

Production of microelectronic circuits puts extremely stringent demands on the purity of materials and production processes, as well as extremely dust-free environments. The entire production building, accordingly, is designed as a clean room.

Microelectronics production puts focus on environmental demands

Ericsson Components in Kista has one of the world's most modern plants for production of integrated microelectronic circuit boards. The complicated process for production of sophisticated silicon chips uses purified water and various types of gases and chemicals. The production premises are classified as clean rooms. Intake and exhaust air and water are purified. What's involved in maintaining environmental standards at Ericsson's purified plant?

Microelectronics represent an industrial sector exposed to extremely tough competition and demands on rapid production development of increasingly complex products. As a result, companies are forced to constantly develop new production methods in parallel with careful attention

to environmental considerations. In March of this year, Ericsson Components in Kista was granted a renewal of its permit from the Stockholm County Council to increase production of microelectronic components.

PRODUCTION OF MICROELECTRONIC INTEGRATED circuits places stringent demands on the purity of materials and manufacturing processes, as well as virtually dust-free environments. The entire production process, accordingly, is housed in a building that is classified as a sanitary structure. The various production processes use highly purified chemicals, gases and water. Municipal supplies of fresh water are filtered through a water purification plant to produce virtually pure water. The purified water, gases and chemicals are stored in

separate containers in an adjacent building. They are brought into the production process through a sealed, sensor-controlled system of pipelines. The gases are stored in double-sealed sensor-controlled cabinets. The entire mechanical system is supervised by a computerized regulation system.

Outside air is filtered through an air purification system with a pressure chamber and 1,500 filter plates. After filtration, the air contains less than one particle per cubic foot. (The air in standard office environments has about one

million particles per cubic foot.) During the course of one hour, 1.3 million cubic meters of air is circulated in the air treatment system and is replaced 400 times.

WHAT ABOUT EMISSIONS FROM THE PLANT?

"We have a number of purification systems for various types of contaminated air, for example, water scrubbers, which are used to clean acidic air, acid residues from acid beds and corrosive gases in process equipment before the air is released into the atmosphere. A bioscrubber is used for low concentrations of organic solvents, and we have a special purification plant for cleaning process waste water," says Monika Forsman, an environmental engineer at Ericsson Components in Kista.

"THE PURIFICATION PLANT IS HIGHLY EFFECTIVE IN neutralizing acids and deposits, including fluorides, phosphates and sulfates. The municipal waste water treatment plant later takes over to purify other residual substances such as nitrogen and phosphorous."

Emissions into the environment from Ericsson's highly complicated production unit in Kista are regulated through permission granted by the Stockholm County Council. But there are also other environmental considerations related to the operations.

"If we study the entire life cycle analysis of integrated silicon chips, we find many indications that it's their application areas – not production – that cause the greatest environmental impact," says Lena Granath, Environmental Manager of the Microelectronics Division.

One of the division's environmental objectives is to gain certification in accordance with the ISO 14001 international environmental standard by the beginning of January 1999.

INGER BJÖRKLIND BENGSSON



Photo: VICTOR LENSEN BROTT

Silicon circuits are produced from a silicon substrate in the form of a wafer: 100 to 150 mm in diameter. Some 100 to 1,000 circuits can be produced at the same time and each chip (smaller than a thumbnail) can contain several hundred thousand components, for example up to three million transistors.

TV recycled – cellular phone ends up in the trash

In February, Operation TakeBack was started, which is an EU project run by Ericsson together with its competitors Alcatel, Motorola, Nokia and Panasonic. The purpose of the project is to investigate methods for effective and environmentally friendly recovery of used cellular phones.

"Mobile telephones are not more environmentally hazardous than any other electronic device. But as opposed to a television, a used mobile phone usually ends up in the trash can. We hope to put an end to this problem through Operation TakeBack," says Mats Pellbäck Scharp, who is responsible for the environmental management system at Mobile Phones and Terminals.

The project is based on the idea that consumers should return their old mobile telephones to the retailers. In turn, the retailers will leave the phones with a logistics unit that further transfers them for recycling.

A goal of the project is to determine if there is an interest among consumers to recycle cellular phones. Another objective is to find out if the producers' recovery of small electronic products is the best solution for the future, both environmentally and economically.

"The sights are set on the entire industrial

chain participating and taking responsibility. Consumers must also assume responsibility if it is to work. Telephones should go back the same way they came – from consumer to retailer via distributor to recycling," says Mats.

Mobile telephones differ from other types of electronic equipment in that they are small and contain no parts worth recovering for reuse.

Mats Pellbäck Scharp explains that the TV electronics industry has a similar problem. "Television retailers receive many broken and worn-out TVs but not one remote control. They, like mobile phones, are small and usually end up in the trash or in a desk drawer. In this case, it's question of increasing environmental awareness with consumers."

But Mats emphasizes that environmental awareness is everyone's responsibility, regardless which end of the process one belongs. Manufacturers, in this case Ericsson, have favorable chances of influencing development.

"We have just finished evaluating our design regulations and adapted them to new environmental standards. We are taking a look at the product's entire life's cycle, including suppliers, manufacturing processes, packaging, transportation, etc. It's vital that the environment not become an isolated factor, rather that it exists as

1,500 phones collected in three months

"I seldom get questions asking if a mobile phone is environmentally friendly. On the other hand, many people want to know where they should dispose of their batteries and what they should do with broken phones," says Mikael Runnkvist, salesman at a Euro-politan retail shop in Stockholm. The store has gathered no less than 1,500 used mobile phones since February.

The Euro-politan store is one of about 1,000 Swedish retailers that are members of the TakeBack project. There are recycling containers in the store that are slowly but surely filled with old cellular phones. When a carton is full, it is shipped to a recovery center that sorts the phones and distributes them to the manufacturers' recycling stations.

"We have almost exclusively received NMT telephones. I'm assuming that consumers are reusing their GSM phones. When they buy a new one, the old one is used as a spare," says Mikael Runnkvist.

Lately, the media has been filled with speculations as to whether cellular phones are environmental hazards or not. However, Mikael Runnkvist maintains that the debate has not affected consumers in the form of inquiries regarding environmentally friendly manufacturing processes and such.

"I think it's because we mostly get corporate customers. They aren't as environmentally aware as private consumers. Those who are conscious about purchasing environmentally labeled goods are usually interested in the environmental aspects of buying a mobile phone."

Mikael Runnkvist believes that corporate customers will place greater emphasis on the environmental aspects in the future.

"If the general public demands environmentally labeled telephones, then I'm certain companies would be interested. But for the time being, it isn't obvious to consider the environment on all levels. There must be another aspect involved, such as a PR angle."

Euro-politan is participating in Operation

The mobile phone more environmentally compatible

Sweden is a world leader when it comes to mobile telephones. Since their introduction in 1981, over three million phones have been sold. Development has progressed from a not-so-portable giant weighing 40 kg to a tiny pocket-size phone weighing barely 150 g. Their shrinking size has automatically made them more environmentally compatible.

"This is a natural development. Fewer components leads to less waste," says Mats Pellbäck Scharp, who is responsible for environmental management systems at Mobile Phones and Terminals.

Today's mobile telephones generally contain

about 100 components, depending on how they are composed and how they are counted. In the consumer's view, the phone consists of mainly the larger components such as the battery, the phone itself and the battery charger. The environmentally conscious mobile phone user disposes of the used battery in a proper recycling receptacle found at retailers' across the country. The question is, what happens next? Are mobile phones hazardous to the environment?

"No more so than any other electronic equipment," says Mats Pellbäck Scharp. "Of course, they contain certain elements that should not come in contact with the environment, such as flame retardants."

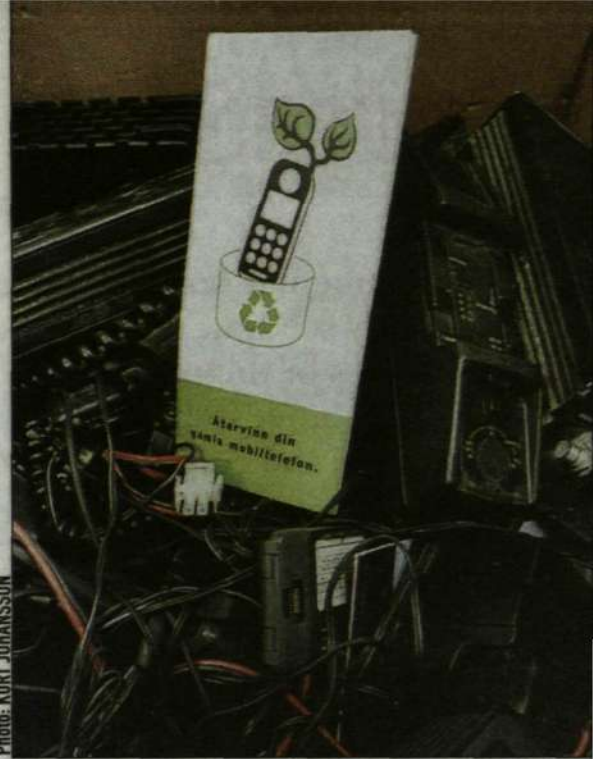


Photo: KURT JOHANSSON

No one could imagine throwing an old TV in the garbage. The objective of the Operation TakeBack is to increase environmental awareness among consumers so that more mobile phones are recycled.

an integral component in all we do. It's not good enough to simply make spot efforts in sections of the ecocycle. In order to give suppliers the possibility of living up to the requirements Ericsson is placing on them, they will be offered a training program in which environmental requirements are a part."

ANETTE BODINGER



"No one asks what they should do with their old mobile telephones," says salesman Mikael Runnkvist.

TakeBack, which was initiated by Ectel, the European suppliers' organization for telecom and electronics equipment. The project will be evaluated after six months and will serve as an example for all of Europe.

AB

Ericsson is actively keeping up with research in the electronics area and its findings concerning health and the environment. Recent studies have shown that flame retardants found in mobile telephones' printed circuits may be health hazardous.

"The flame retardant is ingrained in the material and cannot be removed for recycling unless the product is handled properly. We have been in contact with suppliers of printed boards in order to develop material that doesn't contain bromated flame retardants. It's essential that consumers dispose of all electronic equipment at proper recycling centers so that they don't end up in the garbage."

AB

Environmental work can take place on many levels and it can be difficult for individuals to clearly see how they can participate. It may seem unnecessary to make photocopies on both sides of the page, when landfill sites are growing by the tons each day. It's not just industry, but also private households that contribute to the world's environmental problems. And the core of the problem is energy consumption.

Here how you can help



Every effort to decrease energy consumption is a step towards a better environment. There are no shortcuts, rather, the effects are the sum of many small measures. Here are a few examples of what you can do personally. We're not trying to lecture, just give you a few ideas to think about.

At home, you can buy environmentally friendly groceries and other products, sort your garbage and use public transportation, just to name a few suggestions. At work, you can do even more.

For example, do electronic messages always need to be printed out on paper? Paper consumption is high and in a five-year period, an office uses as much paper equivalent to forest twice the area of the office space. Perhaps it doesn't sound like much, but if the forest was next door, the vast expanse of tree stumps would give a very different impression.

Another measure is to turn off your computer when not in use. There is no chance of your computer wearing out from turning it on and off. Computers are replaced today for other reasons long before they have run their course. Turning off the lights when you leave the room also saves energy. Choosing energy-efficient equipment when purchasing should also be obvious.



Ride your bike or take public transportation instead of driving.



A computer isn't harmed by turning it off when not in use. A screen saver doesn't save energy.



Photo: KURT JOHANSSON

At the distribution center in Huddinge, an electronically controlled lighting shaft was installed to let in daylight, which creates a better working environment and saves 70 percent in lighting costs.



Sorting and recycling office materials is one of the keys to a resource-efficient environment.

In five years, an office uses paper equivalent to twice its size.

