



Tens of thousands of people died as a result of the earthquake in Turkey. Ericsson was present from day one to restore the mobile network which was damaged in the quake. Communication needs were immense, and Ericsson distributed mobile phones to rescue workers and the communications centers that were set up to enable victims to contact the outside world. Photo: Lars Åström

Ericsson assistance for earthquake area

Ericsson was quick to act after the earthquake in Turkey, cooperating with its customer Turkcell to restore the mobile network. Many base stations were on the roofs of buildings that were completely destroyed. New base stations have been deployed temporarily to manage the immense needs.

6-7



Ericsson's T28 on the market

Now it has arrived. Ericsson's new T28 mobile phone goes on sale at the beginning of September. At the same time, the T28's Japanese twin, the ER 207, is being launched in Japan by the operator NTT DoCoMo. The T28 is Ericsson's smallest, and the world's slimmest, phone and it incorporates completely new battery technology.

4

NEWS

Wireline Systems earns money

The Wireline Systems business unit is now making money again. There has been talk of Wireline Systems having a low level of profitability, or none at all. However, the latest six-month interim report shows positive results for the business unit. According to Einar Lindquist, the manager of the unit, this is a trend that will continue.

5

Ericsson in Öresund

The completion of the new link between Malmö and Copenhagen has brought about the birth of the Öresund Region. Contact has visited Ericsson on both sides of the strait to see how these developments are affecting the work situation. The effects are expected to include an increase in the number of commuters.

12-13

What Ericsson wants to achieve

Ericsson's strategy has now been defined and approved by the Board. Contact's supplement provides a broad outline of the strategy, with particular focus on the product strategy for wireless Internet and the third-generation mobile phone network. The strategy is the result of work initiated by former Ericsson CEO Sven-Christer Nilsson.



Ericsson and MTV

This autumn Ericsson will sponsor the MTV Music Awards. The purpose is to make the name Ericsson better known among young people so called the generation Y.

back page

FROM THE PAST

The Swedish flag was also used in Ericsson ads in the 1940s.

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SERIES

Old bosses resurface.

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Sourcing critical for Ericsson's profitability

"There's a lot to be gained by sharpening our focus on the increasingly significant role of suppliers," says Bo Westerberg, Vice President of Corporate Sourcing.

"Today over 80 percent of the cost of Ericsson products is generated from suppliers, a figure that was less than 60 percent just a few years ago."

Today, there is a focus on customer sales strategies at Ericsson. However, there is a tendency to forget the long-term benefits of synergism, alliances and other strategic sourcing tools. Suppliers consume as much as 60 percent of our income of sales.

"We shouldn't forget that every crown we save by consolidating and improving our supplier relationships goes directly into our corporate bottom line," Bo Westerberg points out.

Volume purchasing power

One of our main corporate sourcing strategies is to make better use of the competitive advantage in our economy of scale. This means systematically coordinating sourcing procedures and consolidating volume purchasing power over organizational, geographical and functional boundaries. Larger product units have a major role to play here since their relatively large volumes can be used to improve the profitability of smaller units.

"We're talking about coordinating more than 60 product units throughout the world. Thus expedient strategies, corporate directives, effective product area management and fewer preferred suppliers are a must," Bo Westerberg continues.

"Furthermore, it costs approximately USD 40,000 a year just to manage a materials supplier relationship."

There is major potential in volume purchasing of non-product-related goods and services, such as the increasing amount of consultant services, computer hardware, standard software, office inventory and other items that are not included in Ericsson's products.

"We will be able to improve our profitability significantly and free up a lot of internal resources as soon as orders, deliveries and invoicing of these kinds of products and services can be handled via the "Click-to-buy" Intranet tool that will be installed this year," says Bo Westerberg.

One message

"In order to make our demands clear, develop and improve supplier relationships, we need to convey a consistent message to our suppliers. To do this we need common processes and tools throughout the sourcing organization. We have to clearly define who is responsible for key supplier contacts and what and how we measure and evaluate supplier performance. Who has the time to produce the same kind of information, but in different formats, for a lot of different people? There's far too much duplication of effort, both internally and externally," Bo Westerberg emphasizes.

By communicating one message to suppliers, we're bound to eliminate a lot of unnecessary paperwork and facilitate supplier alliance development.

Ericsson has a lot of supplier relationships that are more or less costly to maintain and agreements that require renegotiating every time we turn around.

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We are big enough to demand more open alliances with some key suppliers

"We are big enough to demand more open alliances with key suppliers who can help us to reduce capital expenditures and improve our cash flow," says Bo Westerberg.

Sourcing is teamwork

This means collaborating higher up in Ericsson's value chain and developing more "make-buy" relationships with companies that are leaders in areas that are non-core for us.

"We want alliances with global companies that are where we are, that are prepared to develop with us, share turns in the market, risks as well as profits. Corporate program managers, together with cross-organizational

teams, are responsible for developing and maintaining these key alliances."

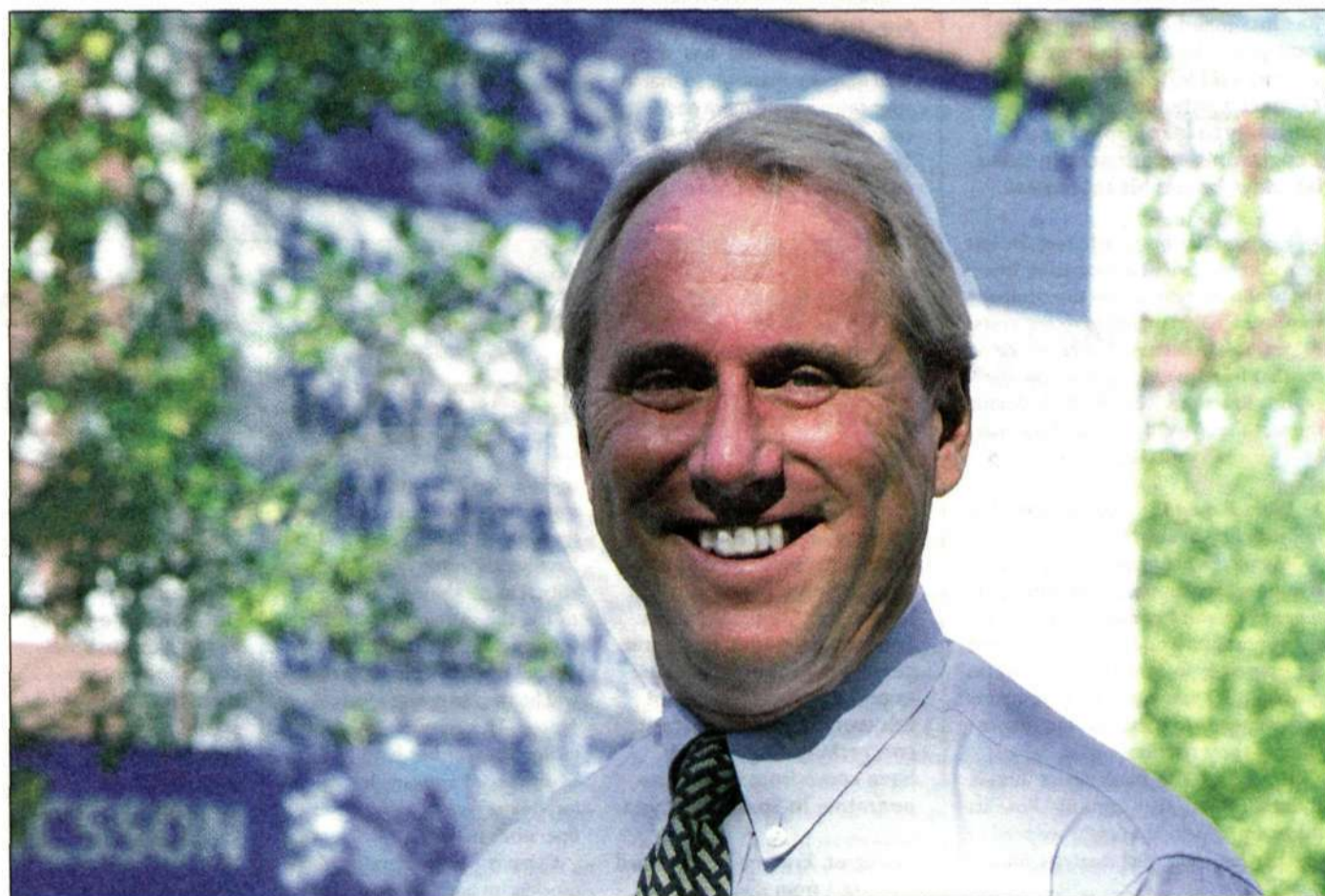
Sourcing at Ericsson is not a matter of writing and submitting orders. It's a multifaceted profession that requires market and product awareness as well as the ability to negotiate. No other function interfaces with so many different people both inside and outside the organization.

Relevant expertise

Since performance criteria vary a lot, product area managers are working with teams throughout the Ericsson organization to obtain relevant expertise from, for example, design, tactical sourcing, logistics, product management and local factories.

"Everyone involved in sourcing must be prepared for the future, for new technological developments and the consequences of an increasingly competitive marketplace," says Bo Westerberg.

Sue Anne Moody



Sourcing is no longer what it was. It is now even more important to have good relations with those who supply Ericsson with goods and services, says Bo Westerberg, who is responsible for sourcing at Ericsson. Today, 80 percent of the costs of a product are derived from purchased goods or services.

Photo: Lars Åström

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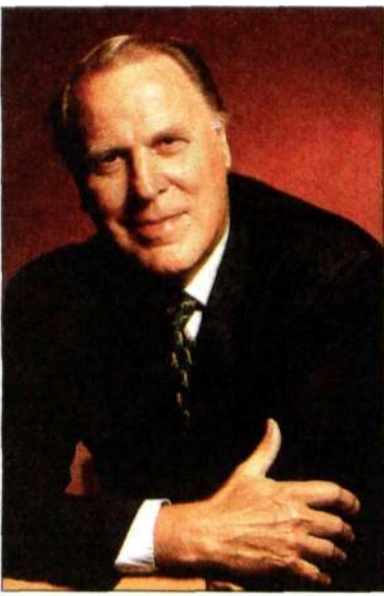
DID YOU KNOW THAT...

The U.S. tops the list of Ericsson's largest markets.

The percentage of total sales during the first six months of 1999. The 1998 ranking is shown in brackets.

	Percentage
1 (2) U.S.A	12
2 (1) China	10
3 (3) U.K.	7
4 (4) Brazil	7
5 (5) Italy	6
6 (7) Spain	5
7 (6) Sweden	4
8 (10) Turkey	4
9 (9) Japan	3
10 (8) Germany	3

HELLO THERE



Per Bengtsson

Per Bengtsson is leaving Ericsson after 35 years of dedicated service. For the past two years, he has been responsible for investor relations in the American market. American investors now own approximately 30 percent of Ericsson's shares and interest in them has increased dramatically in recent years, both from large investors and individual savers. Contact wanted to take the opportunity to learn from Per Bengtsson's experiences in these last days before his retirement.

► Ericsson has been criticized for not providing sufficient information to analysts and investors. Has the company improved in that regard in recent years?

"Yes, it has become better, we could see that from the most recent quarterly report. Reactions were positive, despite the fact that we did not fulfill the market's earnings expectations."

► What should Ericsson do to further improve in that area?

"My experience from the U.S. is that it is impossible to overestimate the importance of personal contact with analysts. It's important to understand their need for complete information as early as possible. It's essential that company management understand the importance of these relationships."

"It is what the marketplace knows about Ericsson that controls how its shares are valued. That's why we need to speak a language that analysts understand."

► Do you plan on selling your Ericsson shares now?

"Absolutely not. There are so many interesting things going on in the telecom industry right now where Ericsson is leading the way."

► You are known for working hard, what will you be doing with your free time now when you retire?

"I have many projects in the works. Above all, I plan on spending more time with my wife and family, as well as sailing, spending time at my country home and enjoying life in general. I'll continue to read the business papers, but perhaps not as thoroughly or frequently."

Gary Pinkham will succeed Per Bengtsson.

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World's slimmest phone now on sale

The beginning of September sees the sales launch of the T28, Ericsson's smallest phone, at stores throughout Sweden. The T28 is the world's slimmest phone. It has a futuristic design and incorporates a range of intelligent functions, including voice control, a vibrating alert and new energy-saving battery technology.

"We are feeling very upbeat. Of course, it's what we have been waiting for," says Pär Sveen, who is responsible for Ericsson's mobile phone sales in Sweden. He was speaking at a press conference for Swedish journalists.

At the press conference, Ericsson again showed off the T28 and of-

fered a preview of the promotional video, which is a feature of the major efforts Ericsson is making to launch the new product.

This campaign is something entirely new and Ericsson is using help from outer space to launch the small, highly intelligent phone.

Small, intelligent and stylish is the message which is to be conveyed to the masses through advertising films, ads, radio commercials and a campaign site on the Internet.

T28 - SMALL, INTELLIGENT AND TASTEFUL

The T28 contains sophisticated software, new functions and battery technology that is entirely unique. The phone has a new kind of menu manager so that the user can navigate more easily. It is possible to create personal "Profiles," a function that enables the adaptation of the phone to vari-

ous situations. For example, when the user is in a meeting, the phone can be programmed so that only calls from the boss and the children's daycare center get through. In addition, the T28 has all of the advanced functions included in earlier models, dual band, voice control and so on.



"This is more than a regular launch," says Per-Axel Larsson, who is responsible for the campaign in Europe, the Middle East and Africa. "A completely new generation of phones is to be marketed and, for this reason, we have to do something new. The campaign to launch the T28 has to be a real eye-opener! The humor and the unexpected method of putting the message across form the foundations of the campaign"

By launching the T28 and the other phones in Ericsson's new

product range - the T10, T18, A1018, R250, MC218 and R380 - Ericsson aims to regain its leading position in the Swedish mobile phone market.

"We hope to achieve a 40-percent market share in Sweden," said Pär Sveen at the press conference.

"During the first week, the T28 will be released in small numbers, but production will be gradually increased during the autumn."

Niclas Henningson
Mia Widell Örnung

New services through Cenaxis

The Spanish telephone information service can now operate all over the country, thanks to the Cenaxis product portfolio, a network-based Call Center Solution. The system makes customer service over the phone easier and more cost-efficient. Ericsson's two most recent contracts during August have come from telephone operators in Spain and Syria.

In August, Ericsson was awarded a contract from the Spanish telephone operator Telefónica. Ericsson will supply a total solution based on the Cenaxis product portfolio. The total solution contains the Customer Interaction Platform network architecture which can be linked to fixed, mobile, IN and IP networks. Ole Lindskov Hansen, head of Solution and Business Development for the Product Line Call Center Solutions, explains how the Spanish customer will be using the system.

"Since the system is network-based, telephone

Using Cenaxis makes customer service over the telephone both simpler and less expensive.

operators at Telefónica's information bureaus can be spread throughout the country and still have access to the same functionality. The customer also has plans to use the system for virtual call center services in the future."

The fixed telephone network will be used to create a virtual call center. This service means that customers will not have to invest in offices or hardware, but can instead rent functionality from the operator's network.

Cenaxis was developed in Stockholm and Copenhagen by Product Line Call Center Solutions, which is part of GSM systems. The Customer Interaction Platform network architecture has previously been sold to Germany, Mexico and the U.K.

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Mobile phone sales begin in Japan

Ericsson is launching a new mobile telephone for Japanese users, the ER207. It is being introduced by NTT DoCoMo, one of the world's largest mobile phone operators. The deal could signal an important breakthrough in Japan for Ericsson.

NTT DoCoMo by Ericsson ER207, which is the telephone's complete name, is Ericsson's first commercial launch for the Japanese PDC digital standard. It is based on the same platform as the T28 GSM telephone. In Japan, all mobile phones are sold through operators. As a result, the name on the phone refers to the supplier, the operator and its technical specifications.

"The order from NTT DoCoMo provides us with a real breakthrough in the Japanese market. We can now start seriously building up the Ericsson brand name here," says Staffan Söderqvist, head of Ericsson Mobile Communications Japan K.K.

Japan is a huge market with 44 million users, a figure that increases

by about one million per month, making PDC the world's second largest digital mobile phone standard. Ericsson has been delivering PDC systems to Japan since 1994 and is a leader among non-Japanese mobile system suppliers.

Ericsson has previously test-launched mobile phones in Japan, and they were well received. The new model, the ER207, is aimed at the Japanese consumer market and is designed according to the strict demands that Japanese users place on their mobile phones. The ER207 has a unique design, weighs just 93 grams, has 120 minutes of talk time and 240 hours of standby time, and has voice activation and easy to navigate menu keys.

"Our ambition is to be one of the most important suppliers of mobile phones in Japan," says Bo Albertsson, PR manager for Consumer Products.

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New showcase opens in Kenya

In a drive to strengthen its brand image in Africa, Ericsson has opened a "concept shop" in Nairobi, Kenya. The shop will play a key role in showcasing Ericsson's consumer products.

Ericsson sells mobile telephones in virtually all the African countries. In countries where it has no office of its own, the company uses distributors. One of the two Kenyan distributors has now opened a showroom in Nairobi. Known as the "concept shop," it displays Ericsson's various mobile phones and accessories, as well as BusinessPhone and the MD 110 business switch.

"The shop is a strategically important way of arousing people's interest and showcasing our brand," says Mats Paulson, sales manager of the Consumer Products business segment for Africa and the Middle East.

Rising market

While sales volumes in Kenya, a country with some 500,000 fixed telephone lines, still remain modest, the privatization of the operator Kenya Telecom combined with the ongoing bidding contest for a second mobile telephone license are expected to activate the market. And Ericsson will be well-positioned from the start.



The new concept shop in Nairobi which will showcase Ericsson's products.

"There are currently some 50,000 mobile phone subscribers altogether in Kenya and Tanzania, and our market share is about 50 percent," notes Mats Paulson.

South Africa is by far the largest market in Africa for Ericsson's mobile solutions, followed by Egypt and Morocco. A similar concept shop to the one in Nairobi has been

established in Casablanca, and several others are planned for Cairo.

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Positive trend for wireline systems

"A team effort that is starting to yield results" – this was how Einar Lindquist, manager of the Wireline Systems business unit summed up the positive trend in the fixed-telephony area. Aggressive sales strategies and continued cost-cutting will ensure that the promising trend is maintained.

Ericsson's most recent semi-annual report shows an operating margin of SEK 113 million for Wireline Systems during the first six months of 1999.

"Although we have only completed the first of three periods, it definitely feels as if we are on the right track," says Einar Lindquist. "Restructuring is proceeding according to plan, and we plan to continue with cost-cutting measures."

According to plan

Plans are proceeding in accordance with the restructuring plan that management presented at the be-

ginning of February this year. At that time it was noted that only about 30 markets were showing profits, while nearly 100 markets were barely breaking even or were making a loss.

"We are marketing ourselves more effectively in relation to the different customer groups by applying a distinct policy of market segmentation, and we have simultaneously reduced the number of unprofitable markets and products," continues Lindquist. "We have also eliminated the duplication of development work by reducing the number of local design centers."

Self-critical

A major rationalization program is under way to reduce the amount of tied-up capital in the form of inventories and outstanding accounts receivable. At the beginning of the year, some SEK 14 billion was tied up in accounts receivable and component and product inventories.

This amount is to be reduced to SEK 10 billion before year-end.

"We intend to analyze why some invoices are not paid on time, while reducing inventories by improving order forecasting. A new information system is also helping us to reduce our inventories of similar products in neighboring markets, which is also releasing a considerable amount of capital" explains Lindquist.

Europe is key market

While several major global customers are based in North America, Europe remains Wireline Systems' most important market area. The driving force in the European market is the rapid growth of Internet traffic.

"The Internet will account for an increasingly large portion of the traffic in the operators' networks," says Lindquist. "This gives us a unique opportunity to regain the initiative in wireline telephony. We hold a leading position in race to

construct the integrated networks of the future for large-scale transmission of both voice and Internet traffic. Now we must make sure that we continue to convince the market that we lead the pack in this area."

Breakthrough with NGN

In the area known as Next-Generation Networks (NGN), the breakthrough came with the order from British Telecom earlier this year. Ericsson's leading position was also strengthened by the order from Telia Denmark for the world's first converged multiservice network for business users. Wireline Systems has set itself the goal of winning at least another three substantial NGN orders during the next six months.

"If Ericsson can secure a few more strategic orders, its leading position will be consolidated and it will attract all the other operators," concludes Einar Lindquist.

Markus Fischer

GSM film wins first prize in U.S. award

Ericsson's advertising film "Seven Into One Will Go" won the first prize at the Annual U.S. International Film and Video Awards at the beginning of summer. The competition featured some 1,600 films from 33 countries.

Ericsson's winning entry shows how Ericsson has succeeded in combining six different mobile telephone

systems, both analog and digital, from seven different operators into a single system at the newly constructed airport in Kuala Lumpur, Malaysia, using a "magic box."

Thanks to this device, all passengers arriving at the airport can use their telephones immediately, regardless of whether they use TACS, AMPS, D-AMPS, GSM 900, GSM 1800 or CDMA. Without Ericsson's solution, 6,000 base stations would

have been needed at the airport. The magic box comprises a common infrastructure plus antennas.

The film also shows TEMS, Ericsson's tool for measuring signal strength, a basic prerequisite for the functioning of the airport system.

Ericsson's new Competence Center, which develops effective solutions for optimizing indoor coverage for mobile telephone systems in

Asia and Oceania, is also located in Kuala Lumpur.

The film "Seven Into One Will Go" was made by the Andersson & Lembke advertising bureau and Birgitta Pettersson at Ericsson in Singapore, where she is in charge of market communication for Asia and Oceania.

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IN BRIEF

World's first Bluetooth line

► The world's first Bluetooth production line is now working triple shifts at Ericsson Components' Microelectronics division in Stockholm.

During the summer, the first batches came off the assembly line for delivery to customers eager to test the new product. Some 1,500 units were produced during June.

Eight people currently work on the line.

Ericsson helps Virgin Radio

► Virgin Radio, which is part of the Ginger Media Group in the U.K., plans to cooperate with Ericsson to test new ways of transmitting radio broadcasts using third generation mobile telephone technology.

The new technology would extend the range of local and national radio broadcasts far beyond national boundaries, enabling them to reach listeners worldwide.

Virgin Radio's aim is to enable listeners to tune in to the station's programs from anywhere in the world.

Another aim of the trials is to demonstrate how users of terminals designed for third generation mobile systems can surf the Internet and send and receive video materials at the same time as they participate in a video conference.

Onboard IT for trucks

► Ericsson and Scania have initiated a joint project to develop wireless communication solutions for trucks.

Modern mobile technology enables the development of systems that facilitate the control of transports and vehicles.

The systems in question are tailor-made for the transport industry and based on Bluetooth, WAP, GPS and other new technical standards.

Scania's newly established company Infotronics plans to integrate Ericsson's solutions in vehicles and market the new products as soon as possible.

"The IT-based communication capabilities built into a truck will soon be at least as important as features like for instance load capacity and fuel economy," says Håkan Samuelsson, head of technical development at Scania.

It is estimated that the global market in this new segment will be worth approximately USD 1.2 billion by 2002.

New GSM order from China

► Ericsson has secured an order worth SEK 650 million (USD 80 million) from Guangdong Mobile Communications Co. The contract covers expansion of the operator's GSM network in China's Guangdong province.

Reconstruction in Turkey

Tens of thousands are dead. Many remain buried under the masses of stone. The Turkish earthquake was one of the worst this century. Rescue teams from around the world arrived at one of the most severely hit areas, around 150 km south-east of Istanbul. Many collapsed buildings lie untouched due to the shortage of personnel and excavators.

All 500 Ericsson employees in Turkey have escaped unharmed from the catastrophe. But anxiety remains high for friends and relatives of those still missing.

"What happened is tragic. Everyone wants to contribute in some way. We have held collections at work and many have given blood," says Sören Ahlstedt, manager of Ericsson's mobile system activities in Istanbul. "But the largest contribution we can make, in cooperation

EARTHQUAKE IN TURKEY

- At 3.00 a.m. on August 17, the earthquake struck. It measured 7.4 on the Richter Scale and lasted for roughly 45 seconds.
- The quake in Turkey was one of the worst of the twentieth century; similar in magnitude to San Francisco's in 1906.
- 96% of Turkey lies in a high-risk earthquake zone.
- Since 1940, Turkey has witnessed four shocks registering over 7 on the Richter scale.
- Newspapers in Turkey have reported that over half of all buildings do not meet building regulations and therefore are at risk in the event of an earthquake.
- During this century, Turkey has, on average, been victim to a fatal earthquake every 18 months.
- The first three days after the earthquake struck saw 250 aftershocks; five were higher than 5 on the Richter scale, while 30 registered over 4.



with our customer Turkcell, is to quickly restore the telephone network in the affected area."

This year, Ericsson has received two extensive orders for mobile sys-

tems in Turkey amounting to USD 1.07 billion. Therefore, many installation engineers and equipment are available to be put to good use in the area hardest hit by the earthquake.

Despite large areas surrounding the town of Izmit having been totally destroyed, the mobile network continues to operate, though at a reduced capacity. System overloading

has been the biggest problem. Ericsson and Turkcell were at the scene on the first day to strengthen the mobile network. The shortage of wireline telephones makes the mobile network an important tool in the organization of rescue work. Directly after the earthquake it was very difficult to call to, or from, the vicinity of Istanbul.

"Two days after the quake, half of the base stations were in operation in the disaster zone. Many had been placed in containers on the roofs of houses now laying in ruins. Where possible, we are setting up new temporary base stations to restore communications," says Ilter Terzioglu, who is responsible for Ericsson's base station installation in Istanbul.

Ericsson's involvement continues beyond its help with the network; mobile telephones have also been supplied to the catastrophe-stricken region.

"We have donated 75 mobile phones to the communication centers set up by Turkcell in the affected area, from where people can contact relatives. Ericsson has also provided rescue workers with mobile phones," says Yesim Yalinkilic, Ericsson's information manager in Turkey.

Ericsson employees were also at the scene to help people contact relatives. In addition, assistance with batteries and battery charging has been made available.

"We also use Ericsson's intranet in Turkey to impart information and messages. Many people have found difficulty in contacting friends and relatives," says Yesim Yalinkilic.

Head of Ericsson's operations in Turkey, Ersin Pamuksuzer is keeping in contact with government authorities in Turkey's capital city of Ankara, with the offer of more help.

Patrik Lindén

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Catastrophe dominates thoughts

Contact visited Turkey three days after the quake and met with some Ericsson employees.

"My family and I have slept outside or in the car since Tuesday for fear of aftershocks," said Altug Alptekin, of Ericsson in Istanbul, who spoke to Contact three days after the earthquake.

Normally, Mr. Alptekin works with the planning of base stations for the expansion of Turkcell, but since the quake it has been difficult for him to concentrate on his work.

"Everyone is nervous. Many are insecure and continue to search for lost relatives. The earthquake is all people are talking about. Naturally, it is



Altug Alptekin

difficult to concentrate on work and, in any case, transport is difficult to find. Customs has also been closed, hindering the delivery of goods."

Altug Alptekin continues by saying that although it is common knowledge that Turkey lies in a risk zone for earthquakes, most lived their lives thinking it would never happen.

"Thoughts revolve entirely around the earthquake. We followed developments on TV," says Bilal Divrik, team leader for Ericsson's GSM installation crew in Istanbul.

He was at home sleeping when the earthquake struck, but immediately rushed himself and his family into the street. Now, nobody dares to enter the damaged houses. Just a couple of houses away in Bilal Divrik's district, a building



Bilal Divrik

has been razed to the ground. The inadequacy of rescue resources led to the sealing off of the area. Later, bodies were removed from the rubble.

"Normally, people here pitch in when it's needed, but now everyone goes home at 5 p.m. to be with, or search for relatives," says Bilal Divrik.

"The uncertainty is the worst thing. It consumes you. It feels difficult to know what to do," says Esra Tan, at Ericsson in Istanbul, where she is Customer Accounts Manager for Turkcell worldwide.

She explains that everyone is scared and many rush outside at the slightest of tremors. It will take time before work returns to normality. Fear and the lack of sleep make people nervous: the atmosphere is tense.



Esra Tan

On the road to becoming a

Three years ago, it was Ericsson's tenth largest GSM country in financial terms; last year, it reached fourth position; and this year, it may become Ericsson's second largest GSM market. Turkey, with its leading mobile operator Turkcell, is Ericsson's largest single GSM customer.

In January this year, Turkcell ordered equipment valued at SEK 4 billion for its GSM system and an expansion order worth SEK 4.5 billion was received during August. When the equipment most recently ordered is installed by the end of the year, the network will have the capacity to handle seven million subscribers.

In addition to Turkcell, there is another GSM operator in Turkey, Turksim, which holds 30 percent of the market. The suppliers of its equipment are Nokia, Alcatel, Nortel and Siemens. There is also an NMT 450 network with 150,000 subscribers.

"Turkcell's GSM network is really being de-

veloped in record-breaking time, which means the pace of our installation and start-up work must be very high," says Sören Ahlstedt, key account manager with responsibility for Turkcell. Along with almost 300 other employees, he works at Ericsson's GSM office, which has its own premises three kilometers from Istanbul Airport and adjacent to the large highway to Ankara. Another 300-400 subcontractors are involved in installation work.

Almost the entire country

Turkcell's network covers the entire country except for the mountains and isolated rural areas. The most rapid extension is occurring in Istanbul, Ankara and along Black Sea and Mediterranean coasts. Half of the country's GSM subscribers are located in Istanbul.

The GSM order in Turkey involves a turnkey contract, which means that Ericsson is responsible for all tasks apart from finding sites – the places where the base stations are to be located.

Previously, all GSM work was carried out using Istanbul as a base, but the country has now been organized into eight regions to make efforts more efficient. Each region has a warehouse and, in certain locations, store premises are shared with Turkcell.

Efficiency is a key word for the employees at the GSM unit. Another important word is outsourcing and this is contributing to the speed of work. Cem Agaoglu, head of installation and start-up of switches, says that much of the installation work for switches is now outsourced. Thirteen former Ericsson installation employees have formed their own company. Testing and integration are other tasks that can be outsourced. New hardware has reduced installation time. Stages in the work process which previously lasted three or four weeks can now be carried out in one week. Much of the work



Cem Agaoglu

previously carried out in the field is now done at the plant prior to delivery of the switches, such as installing software and preliminary testing.

"Today, between 12 and 14 nodes are installed every month, but we are going to increase the pace and achieve up to 20 nodes per month," says Cem Agaoglu.

TTC Global is the Ericsson software that reduces lead times to the customer. This is now being introduced in Turkey and, after an initial period of hesitancy on Turkcell's part, it is functioning well, since the customer can see the improvements.

"Our aim is to install 75 sites per week," says Ilter Terzioglu, who supervises the installation of base stations. A year ago, that number was 20 per week. Just as in the switch sector, much of the installation work is outsourced. A quality audit



Ilter Terzioglu

assisted by Ericsson



Ericsson is currently carrying out the mass installation of base stations in Turkey as a result of the major order from Turkcell. That is why it was easy to mobilize all resources to quickly restore communications in the affected area. Mehmet Pigak is pictured setting up a base station antenna in the district of Avclar on the outskirts of Istanbul. Photo: Lars Åström

major GSM customer

was carried out last autumn and subcontractors have been Ericsson-certified."

Approximately 30 percent of the base stations are container solutions. Installation work in these containers is carried out in large premises not far from the GSM office and they are subsequently transported to the site by truck.

Ilter Terzioglu also reports that two minor contracts have been signed with Turkcell for indoor and outdoor coverage. In this case, Ericsson is taking complete responsibility for all work, from cell planning to the start-up of base stations. All the work for this project will be outsourced, including the task of finding sites and applying for installation permits.

Reaching high targets

"Datacommunications and professional service are two areas in which we intend to increase our involvement," says Sören Ahlstedt. "Our target is to increase sales in the service area by 50 percent each year and we have

managed that to date. The datacom market is still an immature market here in Turkey, but it will soon take off and open up major opportunities for Ericsson."

In October 1996, Ericsson established a training center. Ali Ercan, who is responsible for this Competence Development Center, explains that there was a great need for on-the-spot training in Turkey.

"It is expensive to send employees on courses abroad and we also needed a training switch. Turkcell eagerly supported Ericsson's plans to organize this training and agreed to purchase courses for a certain sum," he explains.

Today, the training center has eleven instructors, seven classrooms, a MINI-LINK lab and a training switch in the same premises as the GSM office. Last year, the equivalent of 5,340 student days were held and Ali



Ali Ercan

Ercan believes that the figure will reach 9,000 student days this year. Most of the courses are given in Turkish, but the teachers, of whom seven are certified, are also able to provide instruction in English. In addition to Turkey, participants come from Azerbaijan, Georgia, Kazakhstan, Israel and Lebanon.

Ali Ercan does not believe that the outsourcing of training is possible, since these are courses designed specifically for Ericsson's products. He believes that training will be expanded and that this will be necessary when the market for mobile datacom takes off in Turkey.

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A large number of the base stations are in the form of container solutions. This is a ready-installed container that will be transported to its site by truck.

Photo: Lars Åström

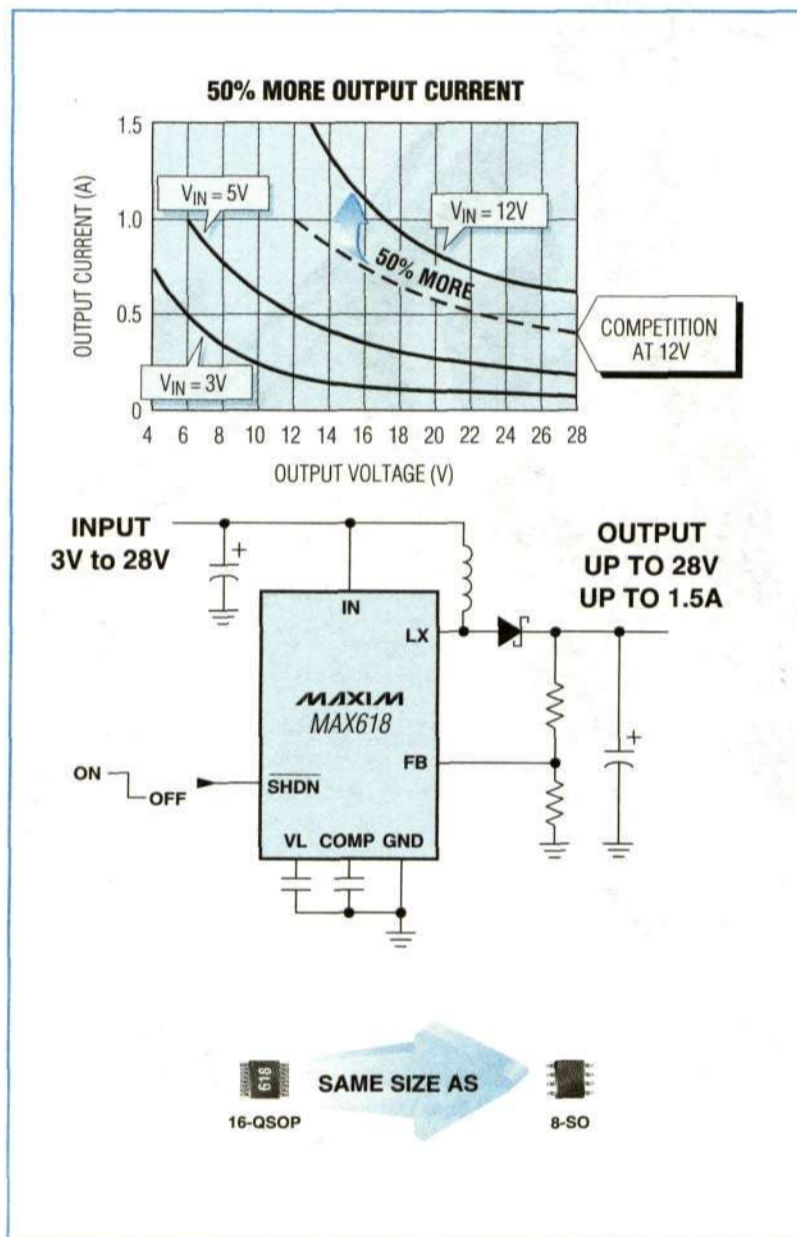


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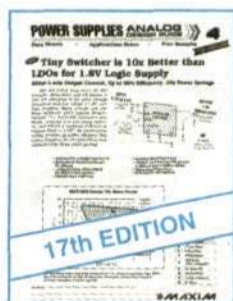
DC-DC with 28V, 2.2A Internal Switch Fits in Same Area as 8-Pin SO

The MAX618 CMOS, PWM, step-up DC-DC converter generates output voltages up to 28V and accepts inputs from 3V to 28V. Compared to the closest competitor in the same size package, the MAX618 provides 50% more output current and allows 2x higher power dissipation. Typical applications include: LCD displays, telecom, networking, and industrial +24V and +28V systems. The MAX618 can also be configured as a high-power step-up/down SEPIC converter for automotive systems.

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- ◆ **1W Power Package is Same Size as 8-SO**
- ◆ **Up to 28V Output Voltage**
- ◆ **3V to 28V Input Voltage Range**
- ◆ **Up to 93% Efficiency**
- ◆ **Low Quiescent Supply Current: 500µA**
- ◆ **Telecom, Networking, and Industrial Applications**
- ◆ **250kHz Fixed-Frequency PWM Operation**
- ◆ **Evaluation Kit Speeds Designs**



The MAX618's 2.2A internal switch current limit delivers 50% more output current than similar-sized competitive 1.5A devices. The high 93% efficiency and 1W thermally enhanced package (vs. 471mW standard) allows higher currents at higher voltages without overheating the die.



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Nordic operator buys MINI-LINK BAS

Ericsson won its first contract for MINI-LINK BAS during the summer. A Nordic operator has placed an order for the system that offers broadband access via radio.

"This contract represents a major breakthrough for Ericsson," says Sivert Bergman, head of the Transmission Solutions business area.

"European and American operators have expressed considerable interest in the system. Now that a customer has taken the first step and signed a contract to buy it, market interest could become even more widespread, if that's possible," says Jonas Johansson, business manager of the Microwave Solutions product unit at Ericsson Microwave Systems in Mölndal, Sweden.

The customer does not wish to disclose its name or country at this time, due to competitive domestic market conditions. The contract includes equipment deliveries, system applications training and implementation. Deliveries will begin in Novem-



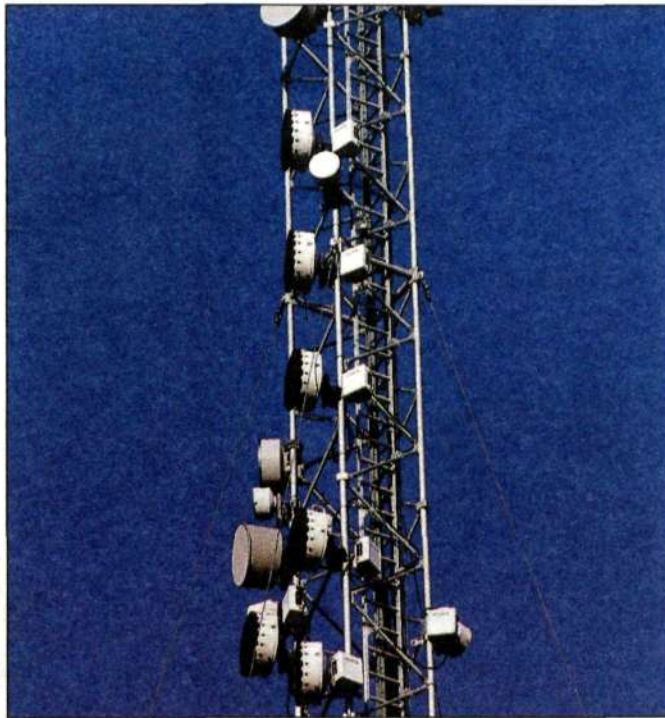
The first contract for Ericsson's MINI-LINK BAS almost certainly represents a major breakthrough in the market.

Photo: Lars Åström

ber of this year and the system will be placed in operation during the first quarter of 2000.

The operator intends to use the system primarily for wireless data and telecommunications within and between different companies. The system offers high network capacity that will enable the operator to offer customers capacity-intensive IP services (voice, data and images via the network), LAN-LAN links (local networks), video conferencing, rapid Internet connections and traditional telephony.

The first customer for MINI-LINK BAS represents a major



breakthrough for the system.

"The customer shares Ericsson's vision of business opportunities offered by the system, and has special expertise in radio technology and enterprise access.

Our cooperation with the operator will be a valuable asset for Ericsson," says Jonas Johansson.

Ulrika Nybäck

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Gathering all market information

Ericsson's entire range of market information is now being gathered in a single, easily accessible location. The concentration of information is the primary objective of MCOM, a new database established last spring.

Every piece of market information in one place? The concept must seem like a dream come true for hard-working marketing personnel at Ericsson's local companies throughout the world. They are often forced to conduct genuine detective work to find the information they need about different products and services.

The new MCOM database will solve their problems. They will be able to order information material such as brochures, subscribe to various types of information publications, monitor advertising campaigns and customer information, in addition to accessing information about exhibitions, seminars and other events.

PMI, which consists of more technically oriented information about products, will also be gathered in MCOM.

"MCOM is a joint corporate initiative to ensure that our marketing organization has access to the best working tools available," says Torbjörn Nilsson, manager of Ericsson's marketing and strategic business development, and a sponsor of the MCOM project.

Work on MCOM was started in the spring and is now moving ahead at full speed.

"For a system like MCOM to



Eivor Bergqvist and Torbjörn Nilsson at Central Distribution in Stockholm are enthusiastic about the new database. "We encourage all persons to order their information material through MCOM. The system is simpler, faster and saves a great of money!"

Photo: Per Myrehed

become truly meaningful, the information must be complete and current. A great of our work, therefore, is focused on making sure the different business areas enter their information into the system, allowing us to replace older solutions with MCOM. Today, 13 teams are working on the project," says Rolf Carlsson, corporate project manager.

Controlled by demand

Greger Berg, manager of marketing communications for the GSM Systems unit of Ericsson's Network Operators business segment, was a major force behind the project.

"We actually got the idea for a database with complete market information from requests submitted by sales personnel and other representatives of local

Ericsson companies. MCOM is designed to increase the efficiency of all employees who market our products."

"Our local companies strive to establish an overall grasp of Ericsson's entire range of products and services. Customers might want information about mobile systems, transmission equipment and mobile telephones. Obviously, there is a huge need for information accessed from a single source," Greger Berg continues.

Today, most units of the Network Operators business segment have started to transfer their market information to MCOM.

Ericsson's Consumer Products and Enterprise Solutions business segments have also started to make product information available through MCOM.

Ericsson's distribution centers

produce and store tons of material that is distributed to all parts of the world. Eivor Bergqvist and Torbjörn Ericsson, who are responsible for implementation of the project at all distribution centers, are extremely satisfied with the new database.

Faster order processing

"For persons working in Ericsson's local companies, it often takes days simply to find out what type of marketing material is available and where orders should be sent. Placing an order via MCOM takes about 15 minutes," Eivor Bergqvist says.

MCOM will also generate savings in terms of time and money at Ericsson distribution centers in all parts of the world.

An ordinate amount of material is shipped today via various forms of courier services. Millions can be saved through more effective ordering routines.

"MCOM and modern printing technologies provide opportunities to restrict production to the amounts of material that are actually ordered – another plus that will yield substantial savings. MCOM is also much more environmentally compatible," adds Eivor Bergqvist.

Johan Beer

<http://mcom.ericsson.se>

Questions concerning MCOM should be sent via e-mail to Rolf Carlsson at: rolf.carlsson@era.ericsson.se

COLUMN



Annika Söderholm

Ericsson faces major year-end test

The numerical combination of 9/9/99 is not the only factor that makes September 9 critical this year. More importantly, it is the date Ericsson will implement a comprehensive global rehearsal in preparation for the new millennium. The entire global support chain and all control centers will be working at virtually full capacity and readiness, exactly as if it were the last day of December.

IT IS IMPORTANT that all Ericsson employees are provided with comprehensive information and realize the importance of the exercise.

The likelihood that real faults and malfunctions will arise on September 9 is not very great. We will, however, take advantage of the opportunity to test Ericsson's readiness, both global and local, partly to see if the Early Warning System functions as planned. Several customers will also take part in the exercise. Project management personnel throughout the world will initiate a series of simulated malfunctions to test Ericsson's readiness and ability to rectify any problems that might arise. However, if real problems occur, the fault simulations will naturally be discontinued.

THE FIRST DATE CHANGE will take place at 2:00 PM Swedish time on September 8th. New Zealand will be the first country to be "hit." Continuous reports on the course of events – regardless of whether any changes or problems are noted – will be monitored by Ericsson's early warning system. The date change will continue for 24 hours before reaching the last country to be affected. The entire exercise will require about 26 hours of total readiness and staffing, including one hour before and after the date change.

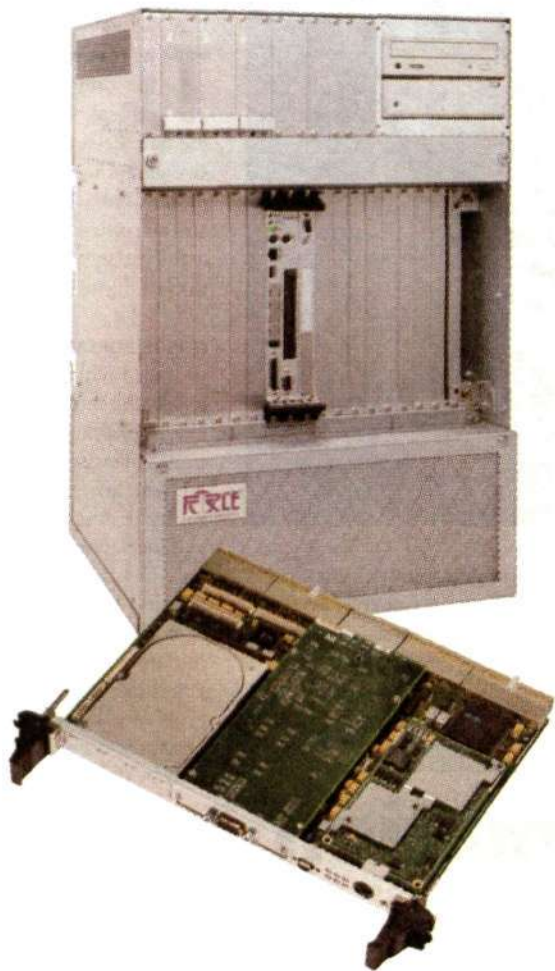
Ericsson's presence in virtually all parts of the world is a tremendous asset that will allow us to monitor the date change via our early warning system as it continues its path around the world. The exercise, of course, will also provide an excellent test to determine how the early warning system functions, and the fallback routines we have established if the intranet crashes, explains Annika Söderholm.

EMOC, THE ERICSSON Millennium Operations Center in Stockholm will monitor the date change, fully staffed with leading management personnel, representatives of corporate management, top management members of the support organization and technical expertise. They will be prepared to intervene if major global problems arise that cannot be resolved locally. Total readiness will also be implemented for the control center of Ericsson's large EMIT computer and EMIC, the Ericsson Millennium Information Center, which is responsible for providing information to customers and media representatives.

Parts of our organization and Y2K readiness will be tested several times before the end of the year. All preparations must be completed and reviewed by the end of September. We shall continue to practice until everything functions perfectly.

Annika Söderholm is the communications manager at Ericsson's Millennium Program Office.

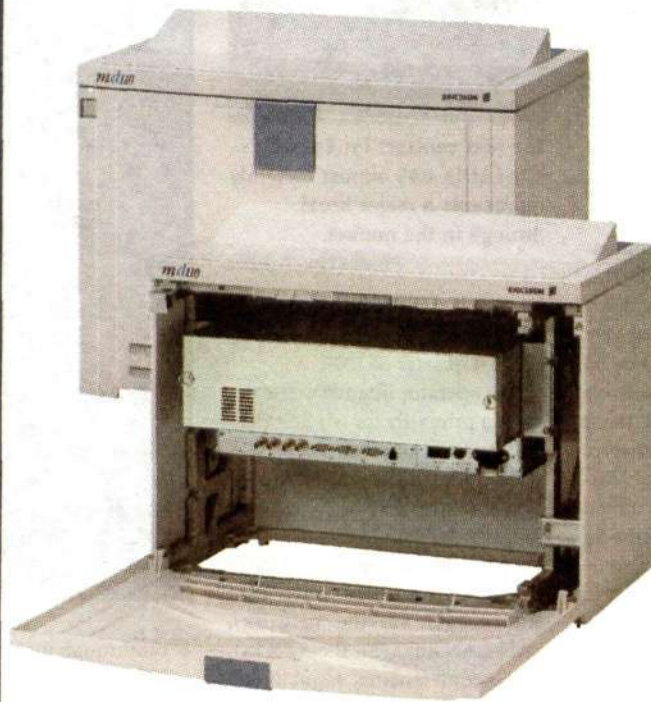
See intranet (<http://inside.ericsson.se>) or contact your local Millennium Controller for additional information.



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Iridium almost bankrupt

Iridium, the satellite telephone company in which Motorola is the largest shareholder, has filed for bankruptcy. The demand for global telephony has not proved sufficiently large to keep the company afloat – the number of customers is 96 percent lower than Iridium had calculated.

Iridium is invoking U.S. insolvency law, which includes a provision whereby a company can be given the chance to continue operations for a specified period while it tries to draw up a plan to pay off its debts. According to Iridium's management, a radical restructuring of operations is required.

Iridium offers global mobile telephony through a global network consisting of 66 communication satellites. The idea is to enable subscribers to call from anywhere in the world. The company had expected to have 500,000 subscribers by the end of 1999, but so far the number of subscribers is no more than 20,000, according to news bureau Bloomberg News.

The demand for global telephony has not matched the expectations of satellite telephone company Iridium, which has now been forced to file for bankruptcy with the U.S. authorities.



Lucent buys Internet company

U.S. telecom supplier Lucent has purchased the Internet company INS for USD 3.7 billion (about SEK 30 billion). The deal strengthens Lucent's position as a network planner and operator of new IP networks.

International Network Services, INS, is among the world's leading consulting companies in the field of planning and operating IP networks. The California-based company, founded in 1991, now has 2,200 employees. Its customers include AT&T, Cisco, Sprint, Microsoft and

Compaq.

Lucent also recently acquired Excel Technologies for USD 1.7 billion. Excel Technologies markets products aimed at newly started operating companies.

As the major telecom producers are entering the new IP-based telecom world, Lucent is one of Ericsson's main competitors.

Earlier this year, Lucent purchased the datacom company Ascend for SEK 160 billion, giving Lucent access to a range of advanced data switches, among other technology.

America Online focuses on Internet via TV

America Online, the world's largest Internet operator, is initiating cooperation with TiVo Inc. to develop the concept of video via hard disk, whereby the hard disk takes the place of videotape.

The project is part of America Online's focus on Internet via the television set.

One of the advantages of the new technology is that it is possible to press the pause button or spool for-

wards or backwards without interfering with the recording.

Several other projects are under way in this area, indicating that Internet surfing via television will soon be commonplace. Microsoft, whose WebTV solution resembles America Online's, is engaged in a cooperative venture with the satellite television company EchoStar Communications. Replay Networks is another competitor. America Online has slightly more than 18 million subscribers worldwide.

Time for lunch!



Illustration: Ulf Ragnarsson

Internet security market grows

The world market for Internet security programs is valued at slightly more than SEK 35 billion, which is an increase of 39 percent compared with last year, according to a report from analysis company IDC.

The U.S. is the largest single market, accounting for some 54 percent of the total, followed by Europe with 28 percent.

The largest suppliers are Network Associates, Computer Associates and Symantec. Firewall programs are showing the most rapid increase in sales, primarily

due to the growth of e-commerce. The problem of general data security is also taken very seriously within Ericsson. In an interview in Contact 8/99, Bo Eklund, in charge of data security at Ericsson, gives a number of tips on the subject.

Among other advice, he recommends handling passwords in such a manner that they cannot be accessed by unauthorized persons; always logging off from your computer at the end of the work day and locking your office door; and being extremely cautious about passing on information to unauthorized persons.

INDUSTRY NEWS

Alcatel secures cable order

► French telecom supplier Alcatel has been chosen to supply marine cable to Bermuda-based Global Crossing. The deal, worth USD 700 million, includes 18,000 km of cable for a data network linking together seven South American countries. Global Crossing plans to construct and operate one of the world's most advanced IP-based data networks, spanning five continents and handling 80 percent of the world's international traffic.

Sweden ranks high in IT

► Sweden is second only to the U.S. in world rankings for IT development. Finland, formerly in second place, has slipped to third position.

Analysis company IDC surveyed 55 countries based on criteria such as computer density, Internet access and investments in IT. The rest of the top ten, after Finland, are Singapore, Norway, Denmark, the Netherlands, Australia, Japan and Canada.

Cisco acquires Calista Inc.

► Calista is one of the leading suppliers of Internet technology that enables different types of business telephones to communicate over an open Internet-based infrastructure. The purchase of Calista, a privately owned company with offices in the U.K. and the U.S., supports Cisco's strategy of offering IP-based data, voice and video services via the Internet.

Bank goes wireless

► Citigroup, the largest banking group in the U.S., has signed an agreement with Canadian software producer 724 Inc. for the delivery of a mobile-services solution.

Citigroup has more than 100 million customers in some 50 countries. Sonera of Finland will be handling the security aspects.

Vodafone roams in 100 countries

► U.K. company Vodafone, one of the world's largest mobile system operators, is the first company in the world to provide real-time roaming in 100 countries. Roaming enables mobile phone subscribers to make and receive calls when they are in other countries. The world's first roaming contract was signed between Vodafone and Telecom Finland in 1992.

Market for palmtops grows

► The world market for hand-held computers is expected to grow from sales of 3.9 million units in 1998 to 21 million units, in 2003. This is the growth rate forecast by analysis company Dataquest in a report. The analysis also identifies the systems and companies expected to spearhead the market, essentially discounting the appearance of upstart companies on the scene. According to Dataquest, as many as 92 percent of all hand-held computers sold in 2003 will be of the PalmOS or Windows CE types.

The last section of the bridge is now in place. Against the backdrop of a dramatic August sky lies the Swedish city of Malmö, the Limhamn port and the giant Swan pontoon crane. In the opposite direction lies the Danish city of Copenhagen and the airport Kastrup where the link will reach land via a tunnel. Once the new bridge opens, it will form more than just a link between Sweden and Denmark. The Öresund Link has come to symbolize the vision of making the Öresund region a reality.

Symbol that unites a region

People in the region have been somewhat defensive. Now, however, there is growing optimism and an aggressive attitude that could attract new companies and talented people to the region. "Companies are deciding whether to situate their Nordic offices in Malmö or Copenhagen," says Bengt Widén, plant manager for Ericsson in Lund.

The new region would like to attract IT and pharmaceutical industries. Major educational investments have been launched in recent years, and the region now supports eleven universities and university colleges, with several specializing in IT and communications.

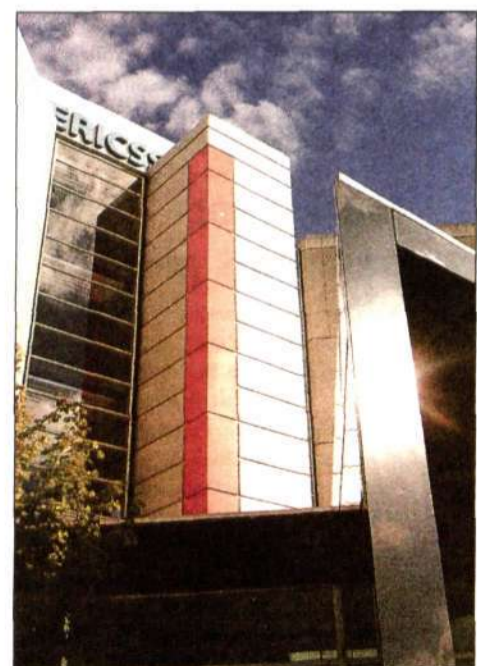
"I think the Öresund region could easily become a center of expertise for mobile IP communications. Both Ericsson and Nokia have developmental operations in the region. Ericsson stands to gain a great deal with the focus on IT expertise in the region," says Conni Simonsen, the head of Ericsson in Denmark.



Conni Simonsen

Common market

With 3.2 million people living there, the formation of the Öresund region will create a large market. As in the rest of Scandinavia, many residents are avid IT users. Almost half the population carry mobile phones and most have access to computers and the Internet. Ericsson, with its 2,500 employees in the region, is the largest elec-



1,000 people are employed at Ericsson in Denmark. Ericsson's new building at Slusseholmen in Copenhagen is situated 10 minutes by car from the entrance to the tunnel towards Sweden.

tronics employer. There are other companies here as well, including Sonofon and Nokia, with their mobile phone software development operations.

"With the addition of the Öresund Link, the workforce will become more mobile, more companies will establish themselves here and that, in turn, will attract more skilled people to the region. The increased competition will set off a chain of events that I believe will attract people with IT skills to both companies and universities," says Jens Andersen, customer account manager at Ericsson in Copenhagen with responsibility for Telia in Denmark.

"But if this region is truly going to operate as a single region, political attitudes need to change, taxes need to be harmonized and the labor market needs to operate more seamlessly," says Conni Simonsen.

Telephone and Internet operators are also beginning to view Öresund as a single region. Operators Telia and TeleDanmark are now conducting advertising campaigns in each other's markets.

"Öresund will become a single market, a so-called basic trading area. Telia, for example, would like to harmonize calling rates so that they would move with customers. We should not be thinking in terms of national boundaries, but rather markets," says Jens Andersen.

On the Danish side, a whole new city is being built, Ørestad, in which Sweden's Telia will be installing communications networks and solutions. The plan is for the city to be a northern European IT center and Medico-Valley, attracting primarily high-tech companies with an emphasis on pharmaceuticals and IT. In June, Telia awarded Ericsson the contract to build a next generation network (NGN) in Ørestad. The new network will offer significant bandwidth and make it possible to offer new communications solutions such as GSM on the Net.

"Ørestad will become a model city showcasing how companies in the future will operate and communicate with each other. This will be an opportunity for us, together with Telia, to develop new communications solutions for compa-



Jens Andersen

nies, according to their needs," says Jens Andersen.

"The contract demonstrates that Ericsson's investments in datacom companies such as Torrent, ACC, Mariposa and others have been of great importance. Without them, it's uncertain whether we would have received the contract," says Conni Simonsen.

University collaboration

A key aspect of making the Öresund region an IT center is a broad selection of university programs with collaboration between universities and companies.

"In the past, universities were not especially interested in collaborating with industry. But since the new Institute of Technology was established in Copenhagen, even the more traditional universities have started contacting companies. I believe that here in Denmark we could have much more collaboration between the universities and small startup companies in the region, in areas such as mobile Internet and the development of WAP applications," says Conni Simonsen.

In Lund, where many of Ericsson's mobile telephone models are developed, Ericsson has been collaborating with the University of Lund for a number of years, and has great leverage in influencing the format of educational programs.

"Ericsson has many contacts with the University in Lund, and there was an interest on the part of the community to have a dialog with us regarding what we need. Now that all of the universities in the region are focusing on regional cooperation, it will be easy for us to establish contact with the other universities as well," says Bengt Widén in Lund.

"The fact that Malmö now also has a university college focusing on IT and communications will lead to even more growth in the region," says Sven-Olof Jönsson, the



Sven-Olof Jönsson

personnel manager for the product unit that is developing GSM telephones in Lund.

Ericsson's operation in Lund has grown significantly in recent years. When the new main building was designed, the plan was for it to hold 600 people. Today there are 1,500 people working in Lund. Many of them work in annexes while others have moved back to the old facility, Ideon.

"We've sucked up all the expertise in the area. While we have access to new graduates, it's difficult to find experienced workers," says Sven-Olof Jönsson.

Fierce competition

Once the bridge is completed, competition for workers will increase. Nokia, for example, which has an established mobile phone software development facility, will be competing for the same employees as Ericsson. Salary levels are also higher in Denmark, and although taxes are lower in Sweden, they still represent significant salary increases. This is especially true if one lives in Sweden and works in Denmark, as housing costs are often lower in Skåne than in Copenhagen.

Ericsson in Lund is striving to remain an attractive employer.

"We'll be offering interesting and challenging assignments and since we continue to grow, there will be new opportunities for employees to advance in the future. Our goal is also to expand our bonus program, a program that today encompasses ten percent of our employees," says Sven-Olof Jönsson.

"But we can also offer quality recreation, beaches and swimming and the convenience of being able to bike to work. Young people today have higher expectations about their quality of life. That's something we can offer in Lund. I think that the entire region will be popular for both individuals and companies," says Bengt Widén.

Mia Widell Örnung
mia.widell@lme.ericsson.se



The new Link stands almost completed, connecting Sweden physically to the rest of Europe. But the Link is, perhaps, even more important as a symbol of a region full of optimism and faith in the future.
Photo: Lars Åström

Daily commute across the Öresund Link

Better housing, more interesting jobs, higher salaries, lower taxes. There are many factors making things look greener on the other side of the strait. Once the Link opens for operation, the number of Öresund area residents who will commute across the strait is expected to increase. Since wages are currently higher in Denmark, it is anticipated that many people from Skåne will try their luck in the Danish labor market. But there will also be those who will commute in the opposite direction.

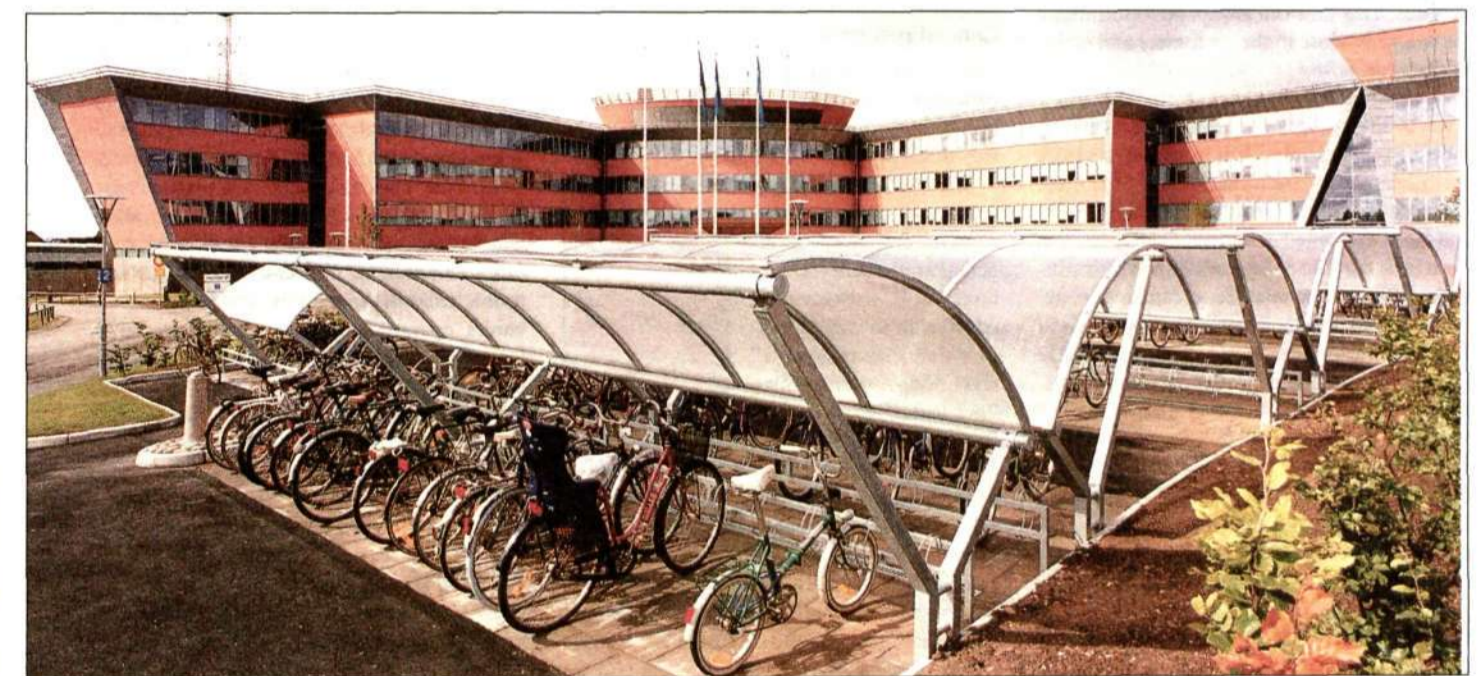
Peter Kirring is a resident of Copenhagen. He has been working as a product manager for Ericsson in Lund since the first of August. Each day he bikes, takes a boat, a train and a bus or car in order to get to work.

"Currently it takes one and three-quarter hours to get to work. Once the Link opens, it will take much less time. I'll save an hour and a half each day," says Peter Kirring.

His decision to leave his place of employment in Denmark was not easy. But the possibility of new job responsibilities led Peter to make the change.

"I worked for two and a half years at the Consumer Products unit at Ericsson in Copenhagen. Now I want to try something new, with new challenges."

Did you entertain any thoughts about going to



Quite a few of the 1,500 Consumer Products segment employees in Lund bike to work. This is Ericsson's biggest workplace in the Öresund region.

work for a competitor and remain in Copenhagen?

"No, absolutely not," he says and laughs. "And even if I'd wanted to, it would have been difficult because of a clause in my employment contract. But the question is a valid one. Once the Link opens, making the daily commute easier, I think salary differences will decrease. I think that Ericsson in Lund will have to pay better in order

to attract competent people from the Copenhagen area - people who would otherwise end up at Nokia."

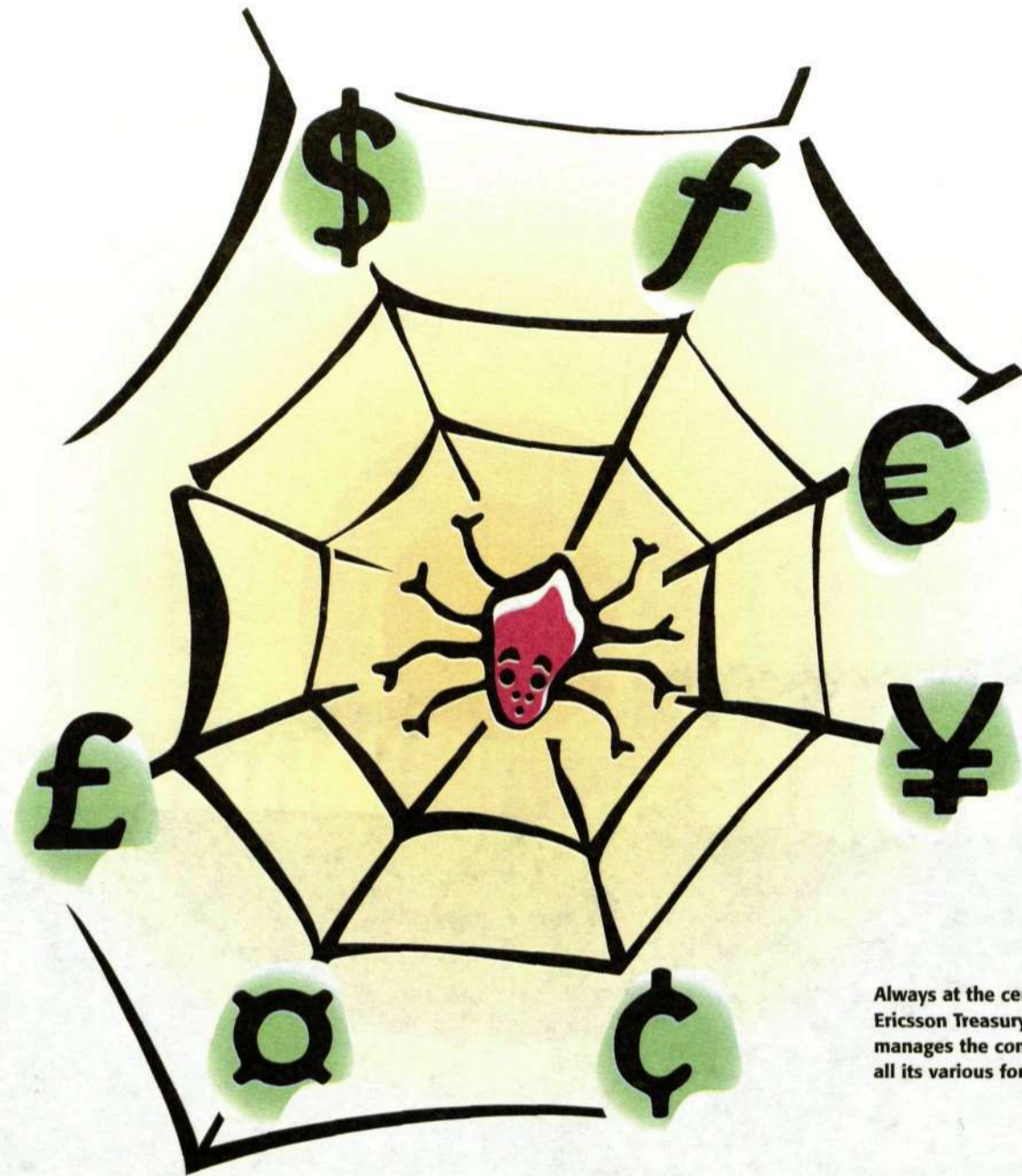
Peter himself finds extra compensation in the form of lower taxes. According to existing rules, he pays taxes in the country where he works, and that is Sweden. But since he doesn't live there and utilize social services in the same way, he can apply for a tax reduction. The reduction is only

good until the end of the year and next year he has to reapply for the tax break.

"But the link is still good for Ericsson. Together, the Swedish and Danish sides are building a larger region that could definitely become an IT region, and that would be good for Ericsson here," says Peter Kirring.

Mia Widell Örnung

Their job is to minimize risk and ensure value. They're experts at handling large amounts of capital and are one of the more significant players in the financial markets. The subject in question is Ericsson's internal bank and financial administration. Its job is to guarantee that Ericsson's various subsidiaries will always have access to capital.



Always at the center of the action, Ericsson Treasury Services manages the company's cash in all its various forms.

Spider in Ericsson's money web

There is a unit within Ericsson's technology-oriented operations that is probably unknown to most – the company's own internal bank and financial administration, otherwise known as Ericsson Treasury Services. This unit can always be found where the action is, close to the customers and major business deals.

Operations are overseen from the ninth floor of the company's headquarters at Telefonplan in Stockholm. It is here that the bank customers' needs are localized and identified. It is from here that credit limits are approved and loans are issued in various currencies. It is from here that the company's cash flow is controlled. The internal bank also carries out currency transactions and exchanges on behalf of Ericsson's various subsidiaries, deals which are safeguarded against potential currency fluctuations.

15 percent of exports

Between 200 and 300 transactions, both internal and external, are carried out daily by the internal bank, involving large sums of money. Ericsson has one of Scandinavia's largest inter-

PART OF CORPORATE TREASURY

Ericsson Treasury Services, part of the Corporate Treasury unit, is located at Ericsson's headquarters at Telefonplan in Stockholm. Corporate Treasury's operations employ 125 people, including approximately 40 who work outside of Sweden. In addition to the internal bank, it also runs an insurance operation, a finance company and customer financing. The unit also includes a staff that works on policies and guidelines for the company's financial operations. The head of Corporate Treasury is Senior Vice President Karl-Henrik Sundström.

national banks. The company accounts for approximately 15 percent of all Swedish exports. On some days, the internal bank is responsible for a major portion of the liquidity on the Swedish foreign exchange market.

Central resource

The operation is similar to that of any other bank, with the exception that the bank's customers only include Ericsson's various subsidiaries around the world.

"We only conduct transactions with internal customers. Our primary task is to be a central resource that conducts efficient and secure transactions in a manner that adds value to the company's financial cash flow," says Vidar Mohammar, President of Ericsson Treasury Services.



Vidar Mohammar

The unit's role has expanded, keeping pace with the company's significant global growth. Today, the internal bank's regional offices, known as Regional Treasury Centers, can be found in Ireland, the U.S. and Singapore. The latter two were established in 1998.

"We need to be close to our customers so that we can provide better service in the various time zones," says Vidar Mohammar.

An important aspect of the internal bank's operations include reducing the risk of loss in conjunction with deals among various Ericsson companies and between those companies and their customers.

Minimize transaction costs

In the past, Ericsson's various units were more likely to conduct their own currency deals, loans and investments, through their own

banks. Today, more or less all currency exchanges, as well as capital loans, are conducted through the internal bank.

Thanks to this centralized operation, the internal bank can realize economies of scale. And at the same time as currency exchange risks are largely minimized, the company's overall transaction costs are also reduced.

Ericsson Treasury Services guarantees that the company's subsidiaries will always have access to the capital they need for their operations. That is both a comfort and, in many cases, a necessity in those regions of the world which are experiencing economic crises or other destabilizing elements. During the economic crisis in Asia, for example, the internal bank's operations have faced ongoing challenges to support Ericsson's business operations in the region.

When the company's subsidiaries need to borrow money, they can make a central application for a line of credit. Money is then loaned

out at market rates comparable to those from local banks.

If Ericsson is in need of capital itself, the internal bank can borrow money on the international money market. This could include borrowing money for the strategic acquisition of companies somewhere within the corporation. This past May, for example, the internal bank borrowed money on Ericsson's behalf in the amount of USD 1.2 billion.

"By borrowing money, we're ensuring the company's liquidity and ability to pay," says Vidar Mohammar.

When the company has a cash surplus, the internal bank invests the money in order to generate as high a return as possible. Altogether, there are some 15 people employed by the internal bank just for the purpose of buying and selling currencies, bonds and other securities that provide a good return.

Bernt Josephson

New euro cash-pool formed

► In conjunction with the introduction of the euro currency, Ericsson is establishing a euro-cash pool with the ABN AMRO bank for all of its companies located within the EMU countries, as well as those in the U.K. and Sweden. Implementation of the new pool is in full swing and is expected to be completed by the end of October this year among Ericsson's largest companies in Europe. The centralized liquidity afforded by this arrangement is expected to involve significant cost savings of up to 80 percent of the total transaction costs.

The euro-cash pool will include the currency

deposits and payments for all of the companies in this part of the world and is a step in the company's efforts to concentrate monetary flow.

"In the past, we relied on some 40 different banks throughout Europe for our deposits and payments. Now, when we have a central bank, we'll be able to minimize our transaction costs. Our goal, over the long term, is to utilize one bank for deposits and payments for all major currencies," explains Vidar Mohammar, Ericsson Treasury Services.

Bernt Josephson

Loosing a contract

StarHub was the megadeal that would establish Ericsson as a leading player in "Fixed Mobile Convergence" – that is, operating cellphones within the wireline network. But it wasn't to be. Nokia won the contract and thousands of man-hours of work went up in smoke.

"The StarHub project is not unique and these things happen. What is important is to learn something from losing the contract," says Matthew Hudson at Customer Marketing, Ericsson GSM Systems.

Matthew Hudson's specialty is evaluating offers, whether won or lost. The StarHub evaluation is the tenth such evaluation in two years.

"Quite often the difference between winning or losing a deal is tiny. As a rule, even the losing team has to put in a lot of work. All offer processes involve success and failure. Our task is to sort all this out and do it better next time," says Matthew Hudson.

"We're not looking for scapegoats. It's more about focusing on the areas we excel at, and fine-tuning them."

Not only price

Before Matthew Hudson and his marketing group got started on their project, discussions concentrated on whether the price was right or not after a contract had been won or lost.

Now they focus on key relationships, tactics, market analysis and conducting in-depth interviews with the sales team involved.

"In the past the management didn't really know why we lost a contract. We are trying to involve the whole sales process and too often find that we knew too little in general about the project, the market and the customer. Offer evaluations are very often enriching experiences and StarHub is no exception," says Matthew Hudson.

In May 1997, Ericsson entered into negotiation as part of the StarHub project, a consortium consisting of British Telecom, Japan's NTT, Singapore Power and Singapore Technologies, which was to invest between Singapore dollars 1.5 billion and SGD 2.0 billion over the next few years.

StarHub was procuring a Fixed Mobile Convergence Solution, a transmission network, an IP and access network, as well as customer care, billing and network management system.

Ericsson in Singapore worked hard. At the Ericsson office, the stack of red-spined files, specifying Ericsson's offer in great detail, grew to over fifty.

According to the evaluation though, there was a fly in the ointment.

CUSTOMER MARKETING

Customer Marketing has set up a Support Account Team. This team travels around the world between Ericsson's business units to learn about GSM System's comprehensive offer evaluation program. These are some of the points of the program:

- Interview key people who have worked with the account.
- Evaluate the sales process. Ask questions: was it an attractive deal, were we motivated to win the contract, could we have designed a better sales solution, did we follow our plans? This gives a hypothesis of what happened.
- Find out from the customer which products were important, what were the key applications and services and which relationships did they consider most important.
- Do a price comparison, look at the tactics, and find out which key people at the customer company were approached and who was not.
- Analyze the results and create a best practices document.



Matthew Hudson's job is to evaluate offers. There is much to be learned, even if a competitor was awarded the contract.

Photo: Johan Ohlsson

For GSM Systems this was the "big one" in Asia in 1998, and would have substantially increased its market share, and also created a strategic opportunity to develop Fixed Mobile Convergence solutions in a critical market.

However, Wireline Systems didn't share the same point of view and was concentrating instead on profitability.

So a conflict of objectives arose and Ericsson presented the customer with two faces.

In the end Ericsson was successful with only one part of the contract, network management.

"Not forming a united front and a lack of coordination is not uncommon in offer processes," says Matthew Hudson. "It is understandable that different business units have different strategies, but somehow this has to be resolved and they must meet somewhere in the middle. Preferably early on in the offer process."

Customer forgotten

But Matthew Hudson thinks that there has to be one common denominator - what the customer wants.

"This is something that the Ericsson offer factory often forgets," he comments. "When the offer team start talking about marketing the technical manager leaves the room. He's got other things to do and the whole picture is lost."

"We are extremely object-oriented. We spend a lot of time responding to changed technical specifications, making us a reactive organization instead of a proactive organization."

"Consequently, when Ericsson puts together an offer it does so on the basis of what it al-

ready knows, instead of what it doesn't know," comments Matthew Hudson. His unit is therefore trying to learn from projects so that they can make a summary specification on what they should be aware of before starting on a new offer.

"We must first understand our customer's financial position, which segment of the market they have chosen, and their business strategy. Quite simply we have to stop being so object-oriented and understand instead where the customer is going," says Matthew Hudson.

"We cannot survive on our technical superiority any longer. Telecom operators are no longer run by tech-heads, but by businessmen. In their eyes a telephony system is just that - a telephony system. They choose the supplier who best understands their business strategy. That we didn't fully understand the StarHub strategy probably has a lot to do with why we didn't get the deal," he says.

In September 1997, Ericsson lost out on a big contract with SingTel to Siemens. However, at the same time, Mobile Systems won a SGD 100 million deal.

According to an Ericsson representative based in Singapore, SingTel usually spreads itself out among several suppliers, but in this instance the problem was more about internal communication at Ericsson.

"Our products are world-class in just about every area. Also, our business processes are the best and the most advanced I have seen. So we should be much more successful than our competitors," he says.

"The most important factor in selling in the Asian market is the relationship with the cus-

tomers. In my experience we often spend too much time explaining to Stockholm what we are doing instead of talking to our customers - it should be the opposite. And when we meet and talk with our colleagues in Malaysia and Thailand it turns out that they experience the same problem."

Stockholm lacks confidence

Matthew Hudson is aware of this. Several evaluations have shown that the local companies often feel that Stockholm lacks confidence in them, despite the local company having all the knowledge about the market, the culture and the customer.

"There is a communication problem and some of the cultural differences can be hard to overcome. One example is the holiday season in Sweden. It can be difficult to do business in July, when Sweden virtually comes to a standstill. In many parts of the world they don't understand this."

Matthew Hudson believes that developing a personal relationship with the customer's key personnel is the single most important factor in successful business for Ericsson around the world. And one that is often forgotten.

"One of the mainstays of our method deals with identifying the most important key people at our customers, and finding out who in our organization knows them. Our internal resources are often very widespread, and this shows that you should never assume that you have all the information at hand when initiating an offer. You have to learn as you go."

Patric Elmén

New type of switch

The WebSwitch 2000 IP switch developed by Ericsson WebCom Inc., formally TouchWave, based in Silicon Valley, is currently attracting considerable interest and curiosity, as well as many questions. Despite being no larger than a desktop PC, WebSwitch provides all the basic functionality of a conventional company switchboard, plus IP telephony.

WebSwitch is primarily aimed at small and medium-size companies. Typical target groups include companies with a number of offices with a wide geographical distribution, or groups of independent companies that cooperate in networks – like chains of retail stores for example. In some cases, an IP network is already in use for data traffic. The addition of WebSwitch enables the same infrastructure to be used for telephony functions also.

Many applications

WebSwitch can co-work with other types of switch in a common network. For example, a local or satellite office can use a WebSwitch to communicate with the head office's larger company switchboard.

WebSwitch also offers an efficient solution for individual workers or groups of workers who telework, enabling them, via an Internet link, to function as full members of the corporate network, who can be reached via their normal telephone extensions.

Another target group comprises Internet providers, who can use WebSwitch to supplement the range of services they offer, including voice via IP for example.

Modular structure

The modular design of WebSwitch 2000 enables it to handle both circuit-switched telephony and voice via IP. It is equipped with plug-in boards for incoming and outgoing telephone lines and for connections to employee telephones. There are two models, providing two and four board positions respectively.

WebSwitch currently has sufficient capacity for up to 64 analog telephone extensions and a maximum of 16 simultaneous IP extensions. All the extensions are part of a common numbering plan. WebSwitch keeps track of who is located where and takes care of all conversions between circuit-switched and IP-packaged calls.

The IP extensions comply with the ITU's H.323 standard for IP telephony. The PC clients connected to the switch communicate via the PhoneLink client software combined with Microsoft's NetMeeting IP telephony software.



Martin Blomberg shows off Ericsson's new WebSwitch. Martin is project manager for the global field tests now being carried out for WebSwitch. Ericsson took over this product in conjunction with its acquisition of the Silicon Valley company TouchWave in April 1999.

Photo: Lars Åström

Companies using WebSwitch do not actually need separate telephone lines, but in their absence voice communication can only take place via the PC clients' microphones and headsets. Or a wireless alternative can be chosen instead. WebSwitch can be used in combination with the cordless IP phones supplied by Ericsson's partner, Symbol Technologies.

Both the number of telephone extensions and the number of IP extensions can be varied to suit customer preferences. It is a simple matter to alter the balance between them to keep pace with changing circumstances.

IP provides the link

Calls within a company use IP telephony. In a physically connected workplace, calls are routed via the corporate LAN. Incoming calls from the public network are repackaged to IP by the switch's integral gateway that provides the link between the IP network and the telephone network. Outgoing local calls are circuit-switched, while outgoing long-distance calls are transferred via IP to the network WebSwitch located nearest to the call recipient and converted there.

For long-distance traffic between different WebSwitches in a network, the IP option is a cost-efficient alternative to company-purchased or leased telecommunication circuits. While it is possible to operate via the Internet,

quality and reliability are improved when the company has control over the bandwidths being used.

Kari Malmström

Simple to install and maintain

➤ WebSwitch 2000 is supplied together with a CD-ROM and printed manuals. Installation takes about one and a half hours.

As far as the hardware is concerned, installation involves plugging in a number of cables for incoming and outgoing telephone lines (trunk lines), telephone extensions and a connection to the corporate LAN. The last-named cable is the key to the switch's IP performance.

The CD-ROM contains all the software required. SwitchLink, a Windows-based system-administration program, must be installed on one of the computers in the company's LAN. The system can then be operated and supervised from any computer or telephone connected to it.

The client software, known as PhoneLink, is installed in user computers.

When the user has logged into the company's LAN and been assigned an IP address, PhoneLink creates an association between the allocated IP address and the user's extension. Every extension has a fixed association to a particular WebSwitch, and every WebSwitch in a network has a fixed IP address. This ensures that calls reach the correct destination, even when they are routed via the Internet through a complex series of intercontinental links.

Kari Malmström

FROM THE PAST

Flying the flag

➤ On my return to Stockholm after my holiday, I see that all the advertising boards in the city center are covered in Swedish flags. This is Ericsson asserting itself with its "Home Sweet Home" advertising campaign.

The Swedish flag is also being flown in this ad from 1945 with the theme "The Birthplace of your Telephone."

Large areas of Europe were in ruins after the end of the Second World War. Swedish companies were on the starting blocks to begin production for the rebuilding of Europe and other parts of the world, and to reestablish contacts with customers

in markets that were closed during the long years of war.

The Swedish Export Council published a lavish brochure with the title "Sweden Trade and Industry." It was sent to countries around the world and provided an overview of the capabilities of Swedish industry, which was still dominated by forestry, paper, steel and engineering products. Ericsson was, of course, among the 200 adverts.

This pure example of functionalistic building is Ericsson's – at that time almost new – head office at Midsommarkransen in Stockholm, where the telephone was born. The

beautiful white functionalistic building was completed just prior to the outbreak of the Second World War in September 1939. It was then ready to provide the world with all types of telephone communication imaginable.

The brochure contains a lot of information about LM Ericsson's quality and about Lars Magnus Ericsson himself. In 1876, he established his modest workshop in Stockholm, which was the origin of today's global Ericsson.

Thord Andersson
thord.andersson@ebc.ericsson.se



Employees breathe life into brand

Every time you meet a customer, a prospective customer or future fellow employee, you are Ericsson. You represent the company and its brand. No advertising campaign in the world can promote Ericsson's image more effectively than your efforts in meetings and talks with customers.

This was the conclusion drawn by employees of the Consumer Products business segment after completing a training program focused on Ericsson's brand.

Since the autumn of 1997, more than 9,000 employees of Consumer Products have participated in Living the Brand, a seminar designed to teach employees how they can promote and nurture Ericsson's brand. The brand name is built on 10 values, the formulations of which are based on opinion surveys conducted among customers and employees of Ericsson.



Johan Siberg

Johan Siberg, head of the Consumer Products business segment, explains the background of the program designed to enlighten all employees.

"We believe that each and every employee can strengthen and promote Ericsson and its brand. Committed employees generate satisfied customers. The more our employees know about Ericsson and our products, the more committed they become to satisfying our customers. We – every employee of Ericsson – should conduct ourselves in a manner that meets the expectations of our customers."

Various ways to promote

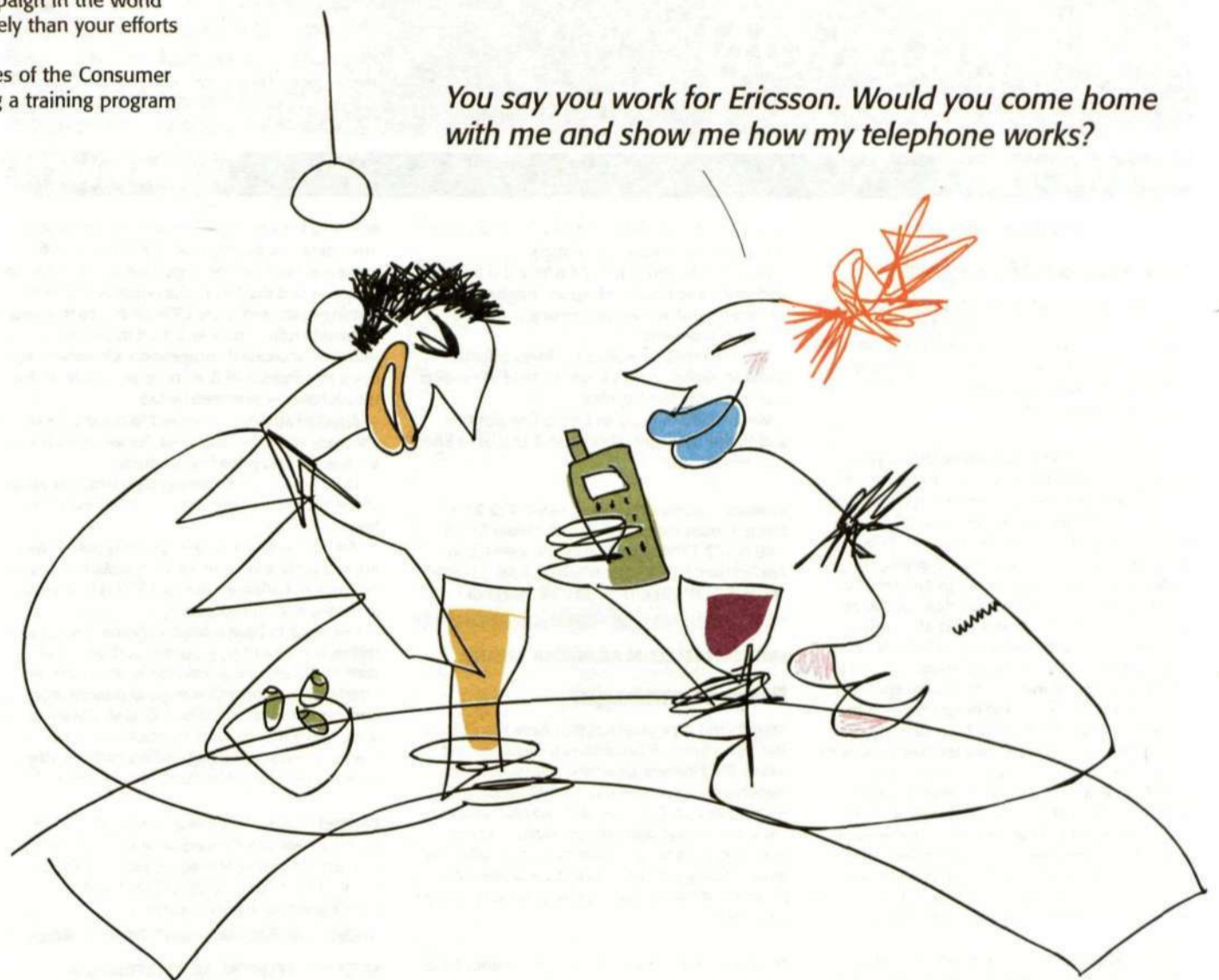
The management staff of Consumer Products has studied proposals submitted by employees on various ways they can help promote the Ericsson brand, and we have started to define measures that can be implemented and to identify persons best-qualified to manage the implementation.

"The training program has produced a large number of creative proposals. It has also created energy to start new improvement projects."

At the end of the seminar, management asked the participants how Ericsson should live up to our expectations. The participants were asked to select three values and explain how we should meet the expectations of each one.

Four main areas

"We immediately saw a pattern in comments submitted by the employees. Four main areas crystallized from the broad range of proposals on various areas in which we should improve efforts to live up to our brand name," says Malin Boulwood, who is responsible for following-up the opinion survey for Corporate Human Resources.



You say you work for Ericsson. Would you come home with me and show me how my telephone works?

Advertising agencies are not the only source of Ericsson's branding. Employees are equally important as ambassadors who project Ericsson's image in meetings with customers, prospective customers, friends and neighbors.

Illustration: Syster Diesel

The four areas identified most readily were Ericsson's organizational structure, internal communications, relations with outside interests and Ericsson's products.

Across traditional borders

With regard to the organization, many employees expressed their wish to increase cooperation across traditional borders, shorten decision-making processes and create and support a more innovative climate. As part of efforts to increase cooperation, job rotation was cited as a key element in regularly scheduled planning discussions with management.

"The opinions of many employees focused on the need for better communications. They want to know what's happening, receive more information on future products, for example, and where Ericsson stands in relation to the competition," Malin Boulwood continues.

Better cooperation needed

As for relations with the outside world, employees called for better cooperation with distributors and partners. Ericsson's image among today's young people should also be improved, which can be achieved in part by securing Ericsson's position as the favorite choice of students as a future employer.

Another important question was how products can be improved to strengthen Ericsson's brand. A great deal of attention was focused on functionality and design.

What will happen now with all these opinions and proposals?

"We shall make continuous efforts to secure Ericsson's leading position as an attractive employer," Jan Siberg says.

An evaluation of the organization will be completed by year-end. Among other considerations, we shall evaluate how the present organization has contributed to increased cooperation and a more innovative climate. As for job rotation, the new SAP system within Human Resources, which will be ready for implementation next year, will facilitate increased exchanges of positions throughout the organization. The question of design has been assigned top priority and is now under further study.

"Building a brand name is a long-term work in progress. Despite continuous change in the world around us, and the need to adjust accordingly, it is important that we have a solid foundation, and a guiding light we can follow," Malin Boulwood says.

We are ambassadors

"Many of us seem to believe that advertising agencies are the sole source of Ericsson's branding. This is not true. In fact, we are Ericsson's most important ambassadors. You also project an image of Ericsson in your social contacts with friends and neighbors. We should all realize and accept our responsibility to promote Ericsson's image," she concludes.

ERIC & SON



vacancies

AT ERICSSON

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

For further information about advertising here, send an email to imejobs@ericsson.se

Contact No. 13 1999

Updated August 23

ERICSSON TELECOM AB, STOCKHOLM

1 -2 Project Managers

Network Implementation & Integration at Customer Services need 1 -2 Project Managers for maintenance and development of methods and tools around the NI&I services. You will have your base in Stockholm, Telefonplan. Some travelling will be required.

● You will have the possibility to define your role together with the rest of the team, but we expect your main areas of responsibility will be: Administrative head of helpdesk function. Revision handling of existing method and tools including e.g. review of requested changes; conducting reference group meetings and release handling. Training concept development to secure that NI&I methods and tools are easily available globally including e.g. self-study course development; establishing training network locally following a train-the-trainer concept. Actively participate in training program when new revisions are being issued to be able to pick up improvements for future releases. Networking to ensure that NI&I is in synch with other service units both at a central and at a regional level. Support roll-out of NI&I methods and tools e.g. through support to FOA (first office application) projects. Competence management including e.g. keeping track of people that have received training on NI&I methods and tools; planning for competence build-up together with resource owners.

We are looking for someone who is willing to dedicate the next couple of years to establishing the NI&I service concept within Ericsson. The role requires negotiation skills and experience from customer projects.

The person we are looking for should also be interested in the development and maintenance of methods & tools needed to make Ericsson excel within the area of Network Implementation and Integration..

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ERICSSON TELECOM AB, NACKA STRAND

Project manager

Introducing new products to a New World!Ericsson Datacom & IP Services is a business unit within the Network Operator segment, which targets solutions for Fixed and Wireless Networks. Ericsson Datacom & IP Services is focusing on providing datacom products and network solutions for our customers, typically operators offering internet solutions with the aim to provide connectivity and service delivery to their customers.

● We are working with Operations within Datacom, which means that we cover all the issues that are related to operations for our Product Units. We are working in an international environment with Product Units situated in the United States as well as in Stockholm. Our Business Unit is growing not only organic but via acquisitions too. This means that our scope will grow in the coming years.

We are looking for members to join our New-product-introduction team for introducing new products into the Datacom world.

We see the role as a project manager with the task to establish and implement efficient order-, supply and forecast flows that brings our new products into the Time-to-Customer process. In order to be successful you need to take on a broad perspective in the work.

Experience from datacom/telecom is an advantage as well as the ability to understand the Time-to-Customer process. Contract manufacturers, our own supply organisation as well as internal product units and our market organisation are some of your main partners that you

have to establish relationships with in order to be successful in your line of work.

As a person you like to be where the action is, self-going and fluent in English. You have an innovative mind and enjoy working in an international environment.

You are result as well as business oriented. A suitable background is from the field of product management and logistics.

We are offering you an interesting position within the Datacom world that is crucial to Ericsson. Interested?

Contact: Torbjörn Hammar, +46 8 422 23 25, torbjorn.hammar@etx.ericsson.se, Jesper Smith, +46 8 422 1798, jesper.smith@ericsson.com. Application: NPI, Ericsson Telecom AB, Christel Thörnqvist NA/ETX/D/H, 131 89 Stockholm,

ERICSSON TELECOM AB, NACKA STRAND

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ERICSSON TELECOM AB, TELEFONPLAN

Product Marketing Managers

Marketing and Product Management within Product Unit Switching & System Offerings (S&SO) has the responsibility for the Product Unit's Switching Offerings as well as Business Unit Wireline Systems System Offerings.

● Product Marketing is responsible for S&SO's marketing and pricing strategies as well as the implementation of them globally. The marketing message and the pricing for our products is becoming more and more difficult due to the paradigm shift from circuit switched to packet switched, increased competition, globalisation, open interfaces and that more and more of the functionality is delivered by SW.

A global strategy is needed to handle these changes, since they put new demands on how we market and price the products.

Our focus is on marketing the customer value of the products in our different business solutions.

We also support tenders globally both regarding technical and commercial questions. One of our major challenges during 1999 is to market standard network solutions.

You need to have a solid technical knowledge within the area of telecommunication or datacom or experience in working in the customer interface. You should have good presentation and communication skills in English. Personal drive and ability to work in cross-functional teams is important. The position involves international travelling why flexibility is beneficial.

Contact: Fredrik Josephson, +46 8 719 86 75, fredrik.josephson@etx.ericsson.se. Application: Product Marketing Managers, Ericsson Telecom AB, VL/ETX/X/XB, 126 25 STOCKHOLM, fredrik.josephson@etx.ericsson.se.

ERICSSON TELECOM AB, TELEFONPLAN

Strategic Buyers

Marketing and Product Management within Product Unit Switching & System Offerings (S&SO) has the responsibility for Product Unit's Switching Offerings as well as Business Unit Wireline Systems System Offerings. We are looking for Strategic Buyers in the area of Software and OEM. As a strategic buyer you will be the Business Coordinator in a team with Product Management Technical Supply Logistic and Support skill.

● You will be the co-ordinator for the chosen supplier and secure that margins lead times and support levels from the vendor develops according to our needs. Our internal requesters and contract users are located at different locations in the Ericsson group.

You will work with identifying and building partner relations with vendors for new products. You will develop and negotiate commercial and logistical contracts with vendors as well as participating in ensuring smooth releases of sourced products. The work requires a good understanding of business practices as well as of TTM and TTC-flows. Previous experience from sales, purchasing, logistics or distribution is an asset. An excellent command of the English language is required as well as good analytical and communication skills.

Contact: Donald Bratt, +46 8 719 18 59, donald.bratt@etx.ericsson.se, Torbjörn Olsson, +46 8 719 20 37, torbjorn.olsson@etx.ericsson.se. Application: Strategic Buyers, Ericsson Telecom AB, VL/ETX/X/XB, 126 25 STOCKHOLM, donald.bratt@etx.ericsson.se.

ERICSSON RADIO SYSTEMS AB, SUNDBYBERG

Multi Function Project Management

Do you believe the future lies in convergence between fixed and mobile, telecom and datacom? Do you believe that services, in all aspects, will drive the new telecoms world? We have taken the best of two worlds, the former Network Intelligence organization at BN and Value Added Services at BR, and merged them

into PVAS: Product unit Value Added Services. With a broader product range, and truly converging services to offer, we are ready to conquer the minds of the telecom community.

● Looking for a great challenge? Come and join us at the Product Line Applications, Product unit Value Added Services. Your responsibility will be to create, manage and maintain a living project plan including all service application projects within the product line.

You will be responsible for defining the measurements that, the PL Applications projects must fulfill.

You will be an active driver of the Operative Steering Group for the product line organization and an active member of the management team. Interested?

Contact: Maria Khorsand, +46 70 556 60 13, maria.khorsand@era.ericsson.se. Application: Multi Function Project Management, Ericsson Radio Systems AB, LU/HRS Anya Brännström, 164 80 STOCKHOLM, anya.brannstrom@era.ericsson.se.

ERICSSON RADIO SYSTEMS AB, KISTA

Project Manager

Are you hungry for a project to manage and still wants to keep one foot in technology?

● As a Project Manager for Pre Studies you will be responsible for the system development of the next release of PDC. Your scope of work will cover the following areas within PDC: switching, O&M, datacom and system characteristic & improvements.

We work in an international organization where we have contact with Customers, Suppliers, Marketing, Product Management, Design and Verification. It is therefore important that you communicate with ease, take own initiatives and speak and write English well.

We find our customers in Japan, one of the fastest, most expansive and in the same time toughest markets in the world, a great challenge for the right person.

You should have worked with AXE10 for several years, preferably as a system manager, and have knowledge about PROPS. Experience from mobile systems and project management are merits.

Contact: Ola Hubertsson, +46 8 764 1332. Application: IN154, Ericsson Radio Systems AB, LX/HS Ann Beer, 164 80 STOCKHOLM, ann.beer@era.ericsson.se.

ERICSSON BUSINESS CONSULTING AB, VÄSTBERGA

Senior Project Managers - SAP R/3

SAP R/3 is the world leading business support system Ericsson has selected for its core processes within the Model Company concept. It is intended that the system be used to support all stages of the Time-To-Customer process flow, from the time the order is taken until the customer is satisfied and the invoice is paid. The SAP R/3 system will replace a large number of current systems at Ericsson Companies all over the world.

● For the implementation of SAP R/3 at the Ericsson local companies we are now looking for experienced project managers who will take on the extremely tough and exciting challenge to manage the implementation projects.

The job will involve working at a series of consulting assignments at Ericsson local companies implementing the standard SAP-based Market Unit Solution.

You can expect to spend around 6 months at each implementation and this may well require living abroad during that time. Career prospects are excellent for progression in the SAM Center as a manager in Stockholm, Dallas or Kuala Lumpur.

As a project manager you will work within the SAP Application Management Center (SAM Center) that is maintaining the Ericsson adapted SAP Solutions and Implementation Methodology, supported by a large group of competent SAP and other specialist staff. You have already several years of experience of Project Management within Ericsson, and could well be working as a business consultant within Ericsson today. This will be your next assignment!

You have knowledge of and have worked according to PROPS, and you are familiar with process oriented work. Maybe you have worked as a manager at a local Ericsson company abroad.

The job will involve working at a series of consulting assignments at Ericsson local companies implementing the standard SAP-based Market Unit Solution. You can expect to spend around 6 months at each implementation and this may well require living abroad during that time. Career prospects are excellent for progression in the SAM Center as a manager in Stockholm, Dalas or Kuala Lumpur.

We assume that you have well developed skills in English (and other languages would be a bonus) and have a strong interest in Change Management issues. We expect that you are outgoing, independent, a team builder, result orientated and a self starter.

To help equip you as a Project Manager for this important assignment you will receive two weeks training in Stockholm during mid September covering i.e. SAP R/3, Change Management and the Ericsson Implementation Methodology. After completion of these weeks you will be ready to take on the responsibility to manage an implementation project, supported by the knowledgeable staff in the SAM Center and Corporate IT Solutions Office.

If this is interesting to you then please contact Lars Lidman for further information. Please send in your application for this assignment (ideally no later than 23th of August 1999).

Contact: Lars Lidman, (+46 8 726 36 10). Application: SENIOR PROJECT MANAGERS - SAP R/3. recruitment@edt.ericsson.se.

ERICSSON RADIO SYSTEMS AB, SUNDBYBERG

Ericsson has closely been following the developments of the emerging regional and global satellite systems. Ericsson has focused on narrowband systems for voice and low rate data (like Iridium, Globalstar and ICO) and broadband systems for multimedia services for voice, data and video (like Astrolink, Teledesic and Skybridge). Our narrow-band satellite systems are CME20-based with additional satellite functionality Ericsson has been awarded two gateway infrastructure contracts. In March 1997 a contract was signed with ICO, a global mobile satellite system operator, and in December 1997 Ericsson signed a contract for Thuraya, a regional mobile satellite system operator.

To be able to support and provide the satellite operators with a total satellite system we are working closely with several satellite companies. The satellite footprint for our regional system Thuraya covers 50 countries. The implementation schedule for Thuraya is 36 months. During this time we will support our partner in the US and of course the satellite operator in UAE, work on the development of new satellite features within CME20 and coordination with our local companies. If you think this is a real challenge and want to work in a small organisation, than we can offer you interesting positions as:

Senior Project Manager

● As a Project Manager you will define and run satellite projects. You will be responsible for planning, follow-up and finishing all activities to fulfil the contract and budget in accordance with the customers and our own expectations. It is a complex multi-project environment with several internal/external subcontractors.

You should possess qualifications that make it easy for you to motivate, inspire and guide the project and to create synergism in the team. You are experienced and recognised as leader but would not hesitate to take active part wherever needed. The job includes a large number of travel in the contact with the customers and suppliers.

We need persons who's profile shows that they are outgoing, independent and self-motivated with strong interpersonal and communication skills. They should have a university degree, preferably M.Sc. or similar.

Good written and oral skills in English. It's a strong plus if they have experience in tender preparations.

Contact: Lars Bergström, +46 8 404 6705, Helena Sollenberg, Human Resources, +46 8 585 31479. Application: SENIOR PROJECT MANAGER-SATELLITE, Ericsson Radio Systems AB, SG/ERA/LP/HA Siv-Britt Johansson, 164 80 STOCKHOLM, siw-britt.johansson@era.ericsson.se

ERICSSON RADIO SYSTEMS AB, VAS OPERATIONS - STOCKHOLM

Supply Controller

Vi har tagit det bästa av Ericsson världen IN organisationer och format PVAS, Produktenhet Voice Added Services. Med produkter som sträck-

er sig från fast nät till mobila applikationer står vi rustade att möta den framtida telekom världen. VAS Operations, Supply & Support i Stockholm/Karlstad hanterar leveranser av Network Intelligence plattformar och tjänster till hela världen.

Vi söker nu en controller med ansvar för orderhantering och forecast. Vi erbjuder dig ett arbete med ett brett ansvar för vårt interna order kontor. Vår verksamhet cirkulerar runt kundorderna och leveranser till hela världen.

● Ditt jobb är att hålla i vårt formella styrsystem baserat på Balanced Scorecard och leda budget, forecast och orderhanterings processen. Du kommer att göra ekonomiska analyser med uppföljning och utfall samt arbeta kontinuerligt med att förenkla och förbättra processer och arbetssätt för att öka flexibiliteten och kostnadseffektiviteten inom avdelningen. Genom din roll kommer du att bygga ett omfattande kontaktnät runt om i VAS organisation med många kontakter med dotterbolag i olika länder.

Du har en ekonomisk bakgrund med erfarenhet av statistik- och budget/forecast arbete och en naturlig känsla för ordning och reda. Erfarenhet från Web och Balanced Scorecard är meriterande liksom teknisk kunskap för att kunna förstå orderbehovet vid beställningar. Som medlem av vår ledningsgrupp förväntar vi oss att du är öppen, drivande och flexibel. Du är service minded och vill aktivt vara med och bidra till avdelningens framgång.

Kontakta: Karl-Johan Brinck, Manager Supply & Support, +46-8-7193603, karl-johan.brinck@etx.ericsson.se. Ansökan: Supply Controller - VAS OPERATIONS Ericsson Radio Systems AB, HF/ERA/LU/O Tanja Adell, 125 26 STOCKHOLM, tanja.adell@era.ericsson.se.

TELEFONAKTIEBOLAGET L M ERICSSON, STOCKHOLM

Senior Credit Analyst

The telecom-business is under deregulation which attracts new players whose main objectives are to generate value for its shareholders and secondly to provide telecom service. The competition among equipment suppliers in the telecom market will further increase. The ability to identify the most viable new projects will be the key to increasing market shares. For the customer selected by the vendors, financing support may be considered. Customer Finance has an immediate need for increasing capacity to conduct analysis of new telecom projects and thus, from a credit risk perspective, contribute to making these selections successful. The objective is to be able to make informed decisions, whereby business opportunities versus credit risk considerations are carefully balanced.

● We are now looking for a Senior Credit Analyst who will be reporting to the Head of the Credit Analyst Group. You will be joining a truly international team with 30 colleagues spread over the world. Your current base will be Stockholm but you may have short and/or long-term assignments abroad. The Credit Analyst will be working closely with the Financial Advisers within Customer Finance. He or she will also be a member of the ad hoc project teams.

Project Analysis: Analysis of customers, their sponsors, business plans and their markets in order to determine the feasibility of their proposals or business plans and to identify relevant risks. This includes financial analysis through the use of financial analysis tools as well as collection and study of market, regulatory and other information having an impact on the project.

Documentation: To participate in the documentation so the analysis and the filing are in line with the framework given in the document Credit Risk Rating Model: To secure that all necessary information is available/included when making the rating of a new transaction and that the result of the analysis is considered when such a credit rating is made. Information: To stay well informed about trends in the telecom sector and the macro economic development etc. Training: To participate in training of personnel in project financing/vendor financing. Support to Ericsson Credit AB/EFC: In case a customer is in a default situation or there is a high risk of future default participate in a task force set up by EFC.

We expect that the person joining our team, apart from having a personal interest in the global financial markets and in the telecom industry, also will meet the following requirements: A university degree in Business Administration, preferably specialised in financial analysis/finance or economics. At least 5 years of qualified experience in project finance/credit analysis at a telecom company, a telecom operator or at an investment bank/commercial bank. Ericsson experience is of course an advantage. Excellent

knowledge in advanced financial modelling and in the Microsoft Office package. Fluency in English both orally and in writing. Good knowledge in a second foreign language (preferably Spanish) is a merit. We are looking for a mature person with good intercultural, diplomatic and communications skills. We also think you have the ability to combine teamwork with independent research and analysis work.

Contact: Wilhelm Alstermark, Head of the Credit Analyst Group, +46 8 757 00 34, wilhelm.alstermark@lme.ericsson.se, Sven Åke Helligren, Head of Unit Customer Finance, +46 8 757 00 35, svenake.helligren@lme.ericsson.se. Application: Senior Credit Analyst LME/X, Telefonaktiebolaget L M Ericsson, HF/LME/P Maria Clewemar, S-126 25 STOCKHOLM, Maria.Clewemar@lme.ericsson.se.

ERICSSON RADIO SYSTEMS AB, KISTA

Internal communication manager

Business Unit GSM Systems works with GSM solutions as well as UMTS to create a platform for long-term business success in wireless communications. It includes all network elements from core switches to radio base stations, and a range of complementary services and applications to enable operators to address the new business and mass-market wireless service environment.

● Our business unit keeps around 25 000 Ericsson employees busy around the world and at present we are 5.000 co-workers in the Swedish line organisation (ERA/L). The Business Unit is constantly changing in order to adjust our working mode to the business requirement which makes internal information and communication of vital importance to keep employees motivated and engaged. You work will be both strategic and operational.

Your task as internal communication manager will be to provide the tools for communicating goals, strategies and organisational changes to help increase business awareness internally to support the management in communication skills to work with and co-ordinate electronic and printed media as well as meetings/events to act as an internal consultant and give support to other internal communicators within the unit.

The person we are looking for must have a formal relevant educational background and be fluent in English.

We expect you to have several years' experience of driving communication projects in a fast moving environment and to be an experienced buyer of consultant services within the information field.

You will report to the head of Human Resources and Organisation at GSM Systems.

Contact: Carl-Gustaf Leinar, +46 8 404 51 42, Yvonne Kaplan, +46 8 404 57 44. Application: Internal Communication Manager to GSM Systems, Ericsson Radio. Systems, KI/ERA/LHS Ewa Strandendahl, 164 80 STOCKHOLM, ewa.strandendahl@era.ericsson.se.

ERICSSON RADIO SYSTEMS AB, MARKETING COMMUNICATIONS, KISTA

Project Manager, Public Relations and Media

Ericsson is the leading provider in the new telecoms world, with communications solutions that combine telecom and datacom technologies with freedom of mobility for the user. With more than 100,000 employees in 140 countries, Ericsson simplifies communications for its customers - network operators, service providers, enterprise and consumers - the world over.

There are approximately 95 million subscribers using TDMA/AMPS networks worldwide. TDMA is commercially available as a dual-band (850/1900 MHz) and dual-mode (analog-digital) technology. Nearly 23 million subscribers are already using TDMA digital services.

● TDMA Systems is looking for an experienced PR and media project manager to work with global and strategic Marketing Communications and interactive multimedia projects presenting Ericsson's mobile systems and solutions.

The project manager will develop the strategic public relations and press media plan for TDMA Systems and manage the project flow, execution, development and budgeting of TDMA Systems public relations and press media activities and their support activities worldwide.

Provide support and leadership for PR and media activities to local companies and the Network Operators' segment.

Participate in cross Business Unit project and

steering groups to ensure a strong, balanced approach in all public relations and media activities and review content of presentation materials used for major analyst/journalist presentations as well as develop and run press training program for upper management.

You must have the following: Masters degree or equivalent in marketing/business, PR experience is valued highly. Ability to define and manage large, complex projects, often of a technical nature, to develop important documents/articles such as whitepapers. Knowledge of Ericsson and TDMA Systems customers and products, services and applications. Excellent written and verbal English communication skills. Spanish/Portuguese, a plus

Contact: Donya Ekstrand KI/ERA/AM/IC, +46 8 404 4848. Application: PROJECT MANAGER, PUBLIC REL AND MEDIA, Ericsson Radio Systems AB, KI/ERA/AH/H Catrin Düsing, 164 80 STOCKHOLM, catrin.dusing@era.ericsson.se.

ERICSSON TELECOM AB, STOCKHOLM

Quality System Manager

Wireline System Global Supply Chain (GSC) is a truly global organisation working 24 hours per day utilising competence and resources worldwide. We work in a world of new networking paradigms where our ability to define and deliver complete network solutions is the key to the success of our customers as well as our own. TTC Operational Development is a service function within the GSC and manages the development of the Global Supply Chain. It's a dynamic, high-skilled team which now needs to strengthen its competence/experience to keep up with the increased speed of change.

● Your role will be to define, implement and develop the quality system for the GSC organisation in Sweden. You will be the GSC representative in quality boards and workgroups within Wireline Systems.

The role includes the responsibility to suggest for improvements, take preventive/corrective actions, to co-ordinate non-conformance and perform internal audits for the GSC quality system. An essential part of your responsibility will be to ensure an appropriate web environment is established in order to manage and publish the quality system.

The line organisation will need continuous support and education in handling the web environment.

You should have a M.Sc. or equivalent and be experienced in quality system management, ISO 9000 and ISO 14000. Knowledge of the TTC flow and quality auditing is a benefit. You should be well structured, used to communicate verbally and in writing in Swedish as well as English and have the ability to work independently. Experience from implementing change is essential.

Contact: Per Nordin, +46 8 719 4147, per.nordin@etx.ericsson.se, Ann Jingklev, +46 8 719 3404, ann.jingklev@etx.ericsson.se. Application: QUALITY SYSTEM MANAGER, Ericsson Telecom AB, HF/ETX/X/XOH Ann Jingklev, 126 25 STOCKHOLM, ann.jingklev@etx.ericsson.se.

ERICSSON RADIO SYSTEMS AB, KISTA

Price Manager - GSM Middle East & Asia Pacific

Ericsson Radio Systems AB, Kista - KI/ERA/LO/LMGSM Business Management & Support Middle East and Asia Pacific (ERA/LO) is the unit responsible for new business with existing accounts in Asia Pacific and Middle East. Business Management Support & Pricing, ERA/LO/L is the unit within LO responsible for Price Management and Market Application Management, Market Launch etc. We are today based in Sundbyberg, but will from June be based in Kista, Torshamnsgatan 23

● Strategic pricing is becoming an increasingly important tool in order to win new business both with existing and new customers. In the price management team we are now looking for a new price manager.

The main areas of responsibility for the price management team are, To develop a price strategy for the region. To support the business managers and KAM teams in the local companies in the tender and contract activities with price strategies, price recommendations, price analysis and price comparisons. To participate in GSM Systems Price Responsible Group and Price Network.

As a price manager you will co-operate with business managers, KAM's and marketing managers in the local companies.

Thus, you must be prepared to do some traveling. The person we are looking for should preferably have experience of marketing/sales and pricing of cellular systems.

We believe the position would give a sales person a possibility to deepen their strategical competence in marketing of GSM systems.

An academic degree in Business engineering, fluency in English, an analytic mind and a service minded attitude are required.

Contact: Magnus Holmgren, LO/LC, phn +46 8 757 57 09, magnus.holmgren@era.ericsson.se, Ulrika Andersson, phn +46 8 757 39 97, ulrika.andersson.a.era@ericsson.se, Lars Svårdling, phn +46 8 757 29 61,

lars.svardling@era.ericsson.se Application: PRICE MANAGER - GSM - MIDDLE EAST & ASIA PACIFIC, Ericsson Radio Systems AB, SG/ERA/LOHS Helga Holmkvist, 164 80 STOCKHOLM, helga.holmkvist@era.ericsson.se.

ERICSSON RADIO SYSTEMS AB, SUNDBYBERG

Fixed Radio Access is a business unit within New and Special Business Operations. We are responsible for access solutions, which provide fixed subscriber connections via radio networks. Ericsson is the world leader in normal telephony applications. We now intend to become the world leader also in the field of providing fixed Internet connections via radio.

Network Design Manager

● The mission of Market Operations within Fixed Radio Access is to market, sell, supply, implement and support our solutions on a worldwide basis. Within Market Operations, New Products is a unit under establishment for marketing and sales of products for IP access.

We are now looking for a qualified network design manager to the New Products unit. You will be instrumental in the planned launch of our next product. You will team up with colleagues from Fixed Radio Access and staff from Ericsson Market Units to promote and sell this product to our target customers. You will be the overall responsible for the end-to-end solutions offered to our customers. You will thus be instrumental in

analyzing the customer's needs and designing the appropriate solutions. You will be involved in overall product marketing, and your feed-back from customers will also be of great value to our product management. You will report to the director of marketing and sales New Products.

This is a challenging position in a rapidly changing international environment. We therefore expect you to be a leading team player with substantial and documented achievements from network and solution design in similar situations. You have a M.Sc. degree within telecommunications (civ.ing.).

Experience from the radio and IP areas is a clear merit. You are result oriented with a strong drive and we expect you to master spoken and written English.

Do you want to work for a company in a business where the market is constantly changing?

In 1876, Lars Magnus Ericsson made his dream come true and opened his own little repair shop for telegraph equipment. Today Ericsson is a world leader in telecommunications. About 100 000 people work for Ericsson in 140 countries.

If you are interested in any of the possibilities offered below, we would like you to know that Ericsson's very advanced technologies have only one objective: to make it easier for people to communicate.

Wherever they are, whenever they want.

Director, Volume Management PU Accessories

Accessories is a Product Unit within the Ericsson Business Segment Consumer Products. The Product Unit markets accessories products for Ericsson mobile phones and terminals worldwide.

Volume Management is a function within Product Unit that serves as the link between operations, market regions and product management in the development and the fulfillment of volume plans. Its mission is to contribute to Ericsson's efficiency, by utilizing cross-functional planning processes for managing accessories volumes with world class performance through the entire product lifecycle. The function's primary performance measure is forecast accuracy.

PU Accessories is seeking a Director of Volume Management to be based in Kista. The Director will report to the General Manager of Accessories and be a member of the Accessories Management Team. He/she will manage the Volume Management organization, which currently consists of three individuals in Kista and two in the United States.

Candidates interested in this position must

have a university degree and a minimum five years of relevant work experience, e.g. forecasting and inventory management. They must also be fluent in English and willing to travel domestically and internationally. A strong overall business understanding coupled with the right experience will be highly valued. Any experience from sales, procurement or a consumer product business is also considered a plus.

Manager, Market Analysis PU Accessories

Accessories is a Product Unit within the Ericsson Business Segment Consumer Products. The Product Unit markets accessories products for Ericsson mobile phones and terminals worldwide.

PU Accessories is seeking a Market Analysis Manager to be based in Kista, reporting to the General Manager of Accessories.

This position will involve supporting the Accessories Management Team with qualitative and quantitative market information collected and analysed individually and in co-operation with other parts of the organisation.

Examples of areas to focus on are pricing, competitor strategy, as well as market value development in terms of customer segments, geographical regions, and product areas.

Both domestic and international travel will be required frequently.

Candidates interested in this position must have at least of two-three years of relevant work experience, a university degree, and an analytical mindset. They must also be comfortable managing meetings and performing presentations. English will be spoken on a daily basis and used in all documentation and correspondence, why

strong skills are required. Any work experience from a consumer products business, sales or market research is considered a plus.

For further information please contact:

Per Aspemar, General Manager Accessories

Phone +46 8 404 36 78

Maria Lindén, Human Resources

Phone +46 8 404 38 04

Please send applications marked "Director" or "Manager" to:

E-mail: gunn.sahlberg@qcs.ericsson.se

Ericsson Mobile Communications AB
KI/ECS/HKA Gunn Sahlberg
164 80 Stockholm



Make yourself heard.

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REQUIRED SKILLS: Technical - excellent knowledge of IP and Radio Access.

Good knowledge of radio network planning and integration of IP networks. Telecom - understand the Operator's business, communicate with customers.

Ericsson knowledge - build networks with Market Units etc. Communication - presentations, written documents, meetings, language (English, Spanish a bonus).

DESIRED PERSONAL PROFILE: Team player/team leader. Driving & finisher. High capacity. Clear goals. Social skills - internally and in international customers situations

Contact: Anders Smedberg, +46 8 764 09 83, anders.smedberg@era.ericsson.se. Application: Network Design Manager, Ericsson Radio Sys-

tems AB, SG/ERA/KD/HS Mari Skoglöf, 164 80 STOCKHOLM, mari.skoglof@era.ericsson.se.

ERICSSON BUSINESS NETWORKS AB, NACKA STRAND

Strategic Pricing

Business Unit Enterprise Systems The Business Unit Enterprise Systems in Nacka Strand develop, sell, and support communication solutions to a broad spectrum of customers from smaller companies located in a single site to multinational companies with offices connected in global networks. Our solutions cover everything from regular telephony to advanced data communication.

The unit Strategic Pricing is responsible for driving the licensing and pricing strategies for the

direct channel within Enterprise Systems. The Strategic Pricing unit is also in charge of the pricing flow from PU through BU to our Market units within the direct channel.

● For the Strategic Pricing unit we are now looking for 2 persons to fill the gap for people going to other units.

The objectives and main tasks are to be a part of a small team, with the focus of being a part of business planning regarding license and pricing strategies, securing a logical and transparent pricing information process and administration from PU through our Direct Channel to our local companies, being part of education in development projects and sales regarding licensing and value based pricing, being responsible for driving an Enterprise segment Pricing Forum.

You should have a Degree in Business Administration or equivalent. As working in the pricing group you need to enjoy working both with numbers and people.

Personal skills required are customer orientation, a thorough and methodical approach to work and to be able to work as a team member. The work includes some travelling. Good knowledge in English is a must as your contacts are all over the world.

Contact: Anders Söderqvist, +46 8 422 0087, anders.soderqvist@ebc.ericsson.se. Application: STRATEGIC PRICING, Ericsson Business Networks AB, NA/EBC/BEES/HR Susanne Pettersson, S-131 89 STOCKHOLM, susanne.pettersson@ebc.ericsson.se.

Do you want to work for a company which sees no limit for communication between people?

In 1876, Lars Magnus Ericsson made his dream come true and opened his own little repair shop for telegraph equipment. Today Ericsson is a world leader in telecommunications. About 100 000 people work for Ericsson in 140 countries.

If you are interested in any of the possibilities offered below, we would like you to know that Ericsson's very advanced technologies have only one objective: to make it easier for people to communicate.

Wherever they are, whenever they want.

The Global Sourcing Organisation within Ericsson Business Segment Consumer Products in Kista are looking for new employees:

Global IS/IT Co-ordinator

As Global IS/IT Co-ordinator for Sourcing you will have the responsibility for the IS/IT budget within the unit.

You will support Consumer Segment Sourcing in all kinds of IT related issues by leading the Global Co-ordination within the Segment via IT-team, and Co-ordinate with the other Business Segments. During the implementation of SAP R/3 you will also manage our needs for IT-support.

As technical adviser handle IT related requirements and recommend how to solve them and support the Sourcing team with database knowledge.

The position requires:

- Experience from positions within IS/IT.
- Documented skills in Database management.
- Structured and analytical competence.
- Target oriented with the ability to define goals, steer and perform.
- Experience from working with Project management.

- Ability to communicate and work on all levels in the organisation with people in an international environment.
- Fluency in English.
- International travel comes with the nature of the position.

For further information please contact:

Tommy Liljegren, phone 08-585 317 23.

Johan Rydbeck, phone 08-585 320 39.

Please send your application to:

E-mail: mia.hjerten@ecs.ericsson.se

Ericsson Mobile Communications AB
KI/ECS/HKS Mia Hjertén
164 80 Stockholm

Business Managers

Business Development within the Global Procurement Organisation is a unit dealing mainly with non-phone specific project management and support. We are looking for two new Business Managers.

Focusing on, but not limited to, the general business and commercial aspects, the main areas of responsibilities are:

- Business Structuring, including setting up and reviewing concepts and strategies as well as lead/support the implementation thereof.
- Leading/supporting and Structuring of Alliances/Partnership.
- Non-Phone Project Management and Contracting.
- Internal Business Consulting.
- Trade Regulations.

In order to keep up with the high growth within the business and the challenges this presents to our unit, we now need additional Business Managers.

We are searching for innovative and creative business professionals who have a proven high competence and track record within the areas of business project management, consulting, purchasing, sales or business development. You have an eye for the total picture, have a strategic focus, are accustomed to international business, have the skill to make different competencies join forces and work towards defined goals, and knows how to optimise a business venture. You stand for time, accuracy, respect and quality in your work.

For further information please contact:

Sixten Nordmark, phone 08-585 326 85.

Please send your application to:

E-mail: gunn.sahlberg@gcs.ericsson.se

Ericsson Mobile Communications AB
KI/ECS/HKA Gunn Sahlberg
164 80 Stockholm



Make yourself heard.

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ERICSSON TELECOM AB, VÄSTBERGA

Events Manager

Marketing Communications within Switching & System Offerings (SSO) focuses on two parallel paths: - image activities to position Wireline Systems as a credible supplier of future networks - activities to promote Switching & System Offerings (SSO) product portfolio

● Your task as Events Manager will be to actively promote SSO's product portfolio at all the events, (such as exhibitions, conferences, road shows, seminars, etc) where SSO is involved. This includes planning, production, execution and follow-up of different kinds of activities. You will work closely with product owners, customer group representatives and product marketing and sales teams, as well as over organisational borders with other business units. You will put an emphasis on using events as a media to market SSO's products in such a way that effective communication of important market messages is achieved.

You should have some form of Marketing Communication education, or solid experience within similar working areas. Project leader experience is a plus. Good presentation and communication skills in English are a must.

You don't have to be a technician but should feel confident in a sometimes rather technical world. Personal drive and ability to work in cross-functional teams as well as good co-ordination skills are very important.

Contact: Klas Reimers, +46 8 719 7466, klas.reimers@etx.ericsson.se, charLotta Mantell, +46 8 719 4881, charlotta.mantell@etx.ericsson.se. Application: EVENTS, MANAGER, Ericsson Telecom AB, Klas Reimers VL/ETX/X/XB, 126 25 STOCKHOLM, klas.reimers@etx.ericsson.se.

ERICSSON TELECOM AB, VÄSTBERGA

Web Manager Marketing/Product Management

Marketing and Product Management (M&PM) within PU Switching & System Offerings (SSO) has the responsibility for Product Unit's Switching Offerings as well as Business Unit Wireline Systems System Offerings. PU Switching & System Offerings is the largest PU within Wireline Systems, dedicated to lead telecommunications into the New Telecoms era.

● Marketing Communications within M&PM is looking for a web-manager that will be responsible for M&PM's Intranet site and SSO's Internet site. The main responsibilities are to maintain and further develop the current sites, making sure that the sites are up to date and well structured containing correct and useful information relevant to the target groups. A focus is put on making SSO's product portfolio site the best and most functional site! This is of course not achieved by just one individual, on the contrary, a whole group of people is involved but the main implementation responsibility does belong to the web-manager.

The person we are looking for has an educational background or solid experience of web design/management. Good knowledge of different web-applications and programs (we use mostly Front Page) is very important. Excellent written English is essential. Experience as a project leader is a plus. You must have personal drive, solid organizational skills, be a strong co-ordinator and enjoy working with people.

Contact: KLAS REIMERS, +46 8 719 7466, klas.reimers@etx.ericsson.se, charLotta Mantell, +46 8 719 4881, charlotta.mantell@etx.ericsson.se. Application: WEB MANAGER MARKETING/PRODUCT MANAGEMENT, Ericsson Telecom AB, Att. Klas Reimers VL/ETX/X/XB, 126 25 STOCKHOLM, klas.reimers@etx.ericsson.se.

ERICSSON TELECOM AB, NACKA STRAND

The future is Data Communications and IP - and the Datacom Networks business unit is leading the way for Operators and Service Providers to transition to the Packet world.

Sales Engineer

We've got state of the art products! You've got top-quality competence!! Let's form excellent solutions!! You will support the sales and presales process in the EMEA region (Europe, Middle East & Africa) with technical solution competence covering the Data Network products that Ericsson supplies to public operators. Examples are ATM

networks, Carrier Class IP networks, Billing and Network management of the same etc. Presales and engineering of different system solutions for tenders, contracts and field trials form a big part of the work. The work implies quite some travelling in the region. Taking part from the beginning, you will help form this recently established Sales Engineering Group at the Data Business Unit.

● As a person, you are result oriented and like problem solving. You are flexible and stress tolerant, as the work tends to come in bursts. You are communicative since you may lead technical groups in international environments.

You have a data communication background with internetworking experience or solid competence in Asynchronous Transfer Mode (ATM) technology. You have a computer science and engineering education (M.Sc. or B.Sc.) or equivalent.

If you forward your application by E-mail, please send a copy to Sara.

Contact: Sara Bern, Head of Sales Engineering, +46 70 24 66 866, sara.bern@etx.ericsson.se, Britt Alexandersson, Human Resources, +46 8 42 21258. Application: SALES ENGINEERS, Ericsson Telecom AB, NA/ETX/D/H Christel, Thörnqvist, 131 89 Stockholm, christel.thornqvist@etx.ericsson.se.

ERICSSON RADIO SYSTEMS AB, KISTA

Marketing and Sales Support is a unit within the Product Unit GSM Circuit Switching Systems. We are responsible for product marketing and global market and sales support of the GSM Switching System including the Core Network of Third Generation Systems. Our main task is to drive and actively support New Account Management and Key Account Management in the sales of switching products and solutions towards new and existing customers.

Marketing and sales

● We are now looking for a marketing and sales oriented person with a good technical understanding of the GSM switching system. One part of the work is to develop product marketing material, e.g. marketing guides, business cases and presentations, and to actively push GSM Switching products to the market. Another part is to work closely together with local companies in all phases of the sales process towards customers, e.g. customer presentations and actively take part in pre-tender, tender and negotiation work.

You should have a M. Sc. in Engineering, preferably including a degree in Industrial Marketing or similar, and at least two years experience in the area of marketing and sales or GSM Switching System. The position entails extensive contacts with Local Companies and customers and you must be prepared to do some travelling. You are result oriented, creative and willing to take initiatives. Communications skills and fluency in English are important. The position is located in Kista.

Contact: Johan Dahlström, +46 8 757 24 21, johan.dahlstrom@era.ericsson.se. Application: IN109, Ericsson Radio Systems AB, LX/HS Ann Beer, 164 80 STOCKHOLM, ann.beer@era.ericsson.se.

ERICSSON RADIO SYSTEMS AB, KISTA

Project Manager - Marketing Events

GSM is the leading digital mobile system worldwide, with more than 100 million users worldwide, increasing with 5 million every month. Ericsson is the clear global leader for GSM systems, with a market share of well over 40%. With its strong entrepreneurial spirit, the business unit for GSM Systems, (BMOG) has established itself as a leader within the Ericsson group to meet the challenges of today and tomorrow in this exciting and rapidly changing market.

● The Marketing Events team for BMOG is responsible for providing marketing event activities such as participation in public exhibitions, conferences, sponsored events and customer events with stands, advertising, speakers and demonstrations. To date we consist of six project leaders and one manager. We are now looking for an additional project manager.

The job involves a wide variety of activities, the main ones being the following: Planning and execution of BMOG's participation in CeBIT and other major events: - Co-ordination of BMOG products/solutions and messages - Managing people in an international environment as a project manager and team leader - Managing sub-

contractors regarding design and stand building - Follow-up/evaluation of the projects - Internal communication You will be working in close co-operation with other Ericsson companies and product units.

As part of the team you must be an enthusiastic, supportive and creative team player and above all be both an efficient and effective administrator. You must be fluent in English (spoken and written), and have ability to work under pressure to meet deadlines. Ericsson knowledge and a well developed internal network as well as experience of events is expected. A communications background is recommended but not necessary. A technical background is an advantage.

Contact: Britta Ahlberg, manager for Marketing Events, +46 8 404 51 23, britta.ahlberg@ericsson.era.se. Application: PROJECT MANAGER - MARKETING EVENTS, Ericsson Radio Systems AB, KI/ERA/LHS Ewa Strandendahl, 164 80 Stockholm,

ERICSSON MOBILE COMMUNICATIONS AB, KISTA

Manager, Market analysis, PU Accessories

Accessories is a Product Unit within the Ericsson Business Segment Consumer Products. The Product Unit markets accessories products for Ericsson mobile phones and terminals worldwide.

● PU Accessories is seeking a Market Analysis Manager to be based in Kista, reporting to the General Manager of Accessories. This position will involve supporting the Accessories Management Team with qualitative and quantitative market information collected and analysed individually and in co-operation with other parts of the organisation. Examples of areas to focus on are pricing, competitor strategy, as well as market development in terms of customer segments, geographical regions, and product areas. Both domestic and international travel will be required frequently.

Candidates interested in this position must have at least two-three years of relevant work experience, a university degree, and an analytical mindset. They must also be comfortable managing meetings and performing presentations. English will be spoken on a daily basis and used in all documentation and correspondence, why strong skills are required. Any work experience from a consumer products business, sales or market research is considered a plus.

Contact: Per Aspemar, General Manager Accessories, +46 8 404 3678, Maria Lindén, Human Resources, +46 8 404 3804. Application: MANAGER, MARKET ANALYSIS, PU ACCESSORIES, Ericsson Mobile Communications AB, KI/ECS/HKA Gunn Sahlberg, 164 80 Stockholm, gunn.sahlberg@qcs.ericsson.se.

ERICSSON RADIO SYSTEMS AB, SUNDBYBERG

Business Manager, Australia and Taiwan

Ericsson Radio Systems AB, Sundbyberg - SG/ERA/LO Business Management Middle East and Asia-Pacific ERA/LO is responsible for business operations for products based on GSM, NMT and TACS standards.

We are now looking for a Business Manager responsible for one or several accounts in Australia and Taiwan.

● As a Business Manager (BM) you are the BMOG ambassador with the overall responsibility to supervise and support the Local Company (KAM) in achieving the goals and objectives as set up by BMOG Mgmt. The BM should also represent the Local Company towards other Ericsson units to give good attention and priority for the market.

Major tasks are: Develop and follow-up business strategies and Account plans, together with the Local Company (KAM). Support and Coordinate the local company Marketing and Sales activities. Promote BMOG's applications, services and products. Build relations in the local company and establish good awareness for the market in other units within Ericsson.

We are looking for a Business oriented person with wide experiences in market & operations of GSM infrastructure projects. You should be flexible and able to prioritize on a very wide range of high level tasks, which are related to this role.

Contact: Khalid Qureshi, Tel. +46 8 585 305 25, khalid.queshi@era.ericsson.se, Eva Fransson, Human Resources, Tel. +46 8 757 57 38, eva.fransson@era.ericsson.se. Application: BUSI-

NESS MANAGER AUSTRALIA AND TAIWAN, Ericsson Radio Systems AB, SG/ERA/LOHS Helga Holmkvist, helga.holmkvist@ericsson.se.

NIPPON ERICSSON K.K, MOBILE PHONES & TERMINALS - SC JAPAN

SC Japan, is included in the BU Japan & Satellite Standards within the Consumer Segment (SC). The organization consists today of the following units: R&D, Product Management and support functions. SC Japan has also a Joint Venture with Marubeni. The organization consists of 150 employees. Our present manager for the unit Operational Development & Environment is finalizing her 2-year contract here in Japan and we are therefore are looking for her successor:

Senior Manager Operational Development and Environmental Management

● We are looking for a person that will continue on working with building our Internal Infrastructure. We are building up our organization and need to continue to work on establishing Ericsson processes and procedures.

The main responsibilities will be: Take over the work with establishment and implementation of a highly supportive Management System as complement to the Management System of the BU. The goal is to achieve ISO 9001 certification for SC Japan in March. To be responsible for that our Environmental Management System is fully implemented and adapted in the organization. ISO certification will be performed October 1999. To establish and support the implementation of global SC processes such as TTM and TTC, Business Management and Competence Management. To represent SC Japan in applicable NRJ steering groups.

You will be reporting direct to head of SC Japan.

We are looking for an Ericsson expatriate with a solid knowledge about our processes and organization. (Contract length: 1-2 year). You should also have a good network within our global organization. One of your missions will be to recruit a local Japanese successor and to transfer your knowledge to this person.

The person we are looking for should have a broad experience from several different areas, e.g: development, marketing, process management, customer-support. You should also have some line- or project manager experience. A highly developed skill of working in a multi cultural environment is required.

Contact: Asa Jonzon (Manager Operational Development & Environment), Phone +81 3 3222 4654, Karin Enberg (HR manager), Phone +81 3 3222 4710, Kary Warnerman, (Head of SC organization), Phone: +81 3 3222 3412, +46 8 757 27 14. Application: c/o H. Hiraide hiromi.hiraide@ericsson.co.jp.

MU CARIBBEAN, JAMAICA

Project Manager - Jamaica and Cayman Islands

The MU Caribbean is responsible for marketing and deliveries of Ericsson products in the Caribbean region covering an area of 230,000 square kilometres and with a population of 27 million people. Activities are carried out from offices in Puerto Rico, Jamaica and Curacao. We are looking for a Project Manager to handle the continuous expansions of the cellular networks (TDMA) in Jamaica and Cayman Islands. The position will be based in our office in Kingston, Jamaica.

● The Project Manager should have several years of experience of managing implementation of cellular networks - preferably in developing countries. The candidate should also have excellent skills in the English language - both in writing and verbally.

Contact: Arne Palmkvist, Director Project Management, MU Caribbean, +1 787 758 1770, Kerstin Efraimsson, HR-department, +1 787 758 1770 ext. 242

ERICSSON TELECOM AB TELEFONPLAN.

Quality Engineer

● Do you want responsibility? Do you want to work with the Capability Maturity Model and quality?

ACESS 910 PRODUCTS requires a quality engineer in the line organisation level, focusing on quality issues. We are basing our improvement

work on the Capability Maturity Model (CMM). You will be part of the leading force in making things happen.

You will be responsible as part of the Quality function, to ensure quality assurance is implemented in projects, using the approach given by CMM. The Quality department is currently being established and provides a significant opportunity for personal development and career progression.

It is an advantage if you have experience from Ericsson projects. A background in software is valued, and training combined with competence development will be given in line with the Organisation Policy. It is envisaged that this will be a local position, however external applications are welcome. Expected start date Oct/99.

Your profile: Liking people. Accurate. Champion. Result, business and solution orientated.

Contact: Paul O' Brien A 910 Line Quality Manager, +46 8 719 1305 e-mail: Paul.O'Brien@etx.ericsson.se

ERICSSON TELECOMMUNICATIONS ROMANIA SRL

SS Support Engineer

Ericsson Telecommunications Romania SRL has been established in 1994 and today has 220 employees working with all Ericsson products. In 1997 ETR signed the contract with Mobifon, one of the mobile operators, dominated by Airtouch and TIW. Our customer had a flying start which surpassed all the expectations. The tempo is very high and the customer is in a tough competitive situation.

● We are now looking for a SS Support Engineer within our Support department. The objective of the job is to provide technical support in one or more of the system nodes that are operational in the customer network such as HLR, MSC/VLR, AUC/EIR, SMS, MIN. This requires close relationship and interaction with the customer, strong technical background that enables the SS engineer to conduct fault analysis, trouble shooting and program correction handling in an efficient manner. You will play an active role in providing support and advice to the local engineers and build up the local competence.

Requirements: you have experience of working within Customer Support, a good knowledge of support activities, providing emergency and day to day support, trouble report handling, trouble shooting on/off sites, system upgrade. You have good command of written and spoken English.

Contact: Joakim Karlsson, Front Office Manager, memoid: ETR.ETRJOAK or Simona Serban - Human Resource Manager, memoid: ETR.ETRSISE.

NIPPON ERICSSON K.K. - JAPAN

IMT-2000/UMTS System Experts/Engineers

● The Customer Support Division in Shin Yokohama has a number of vacant positions for experienced system experts (CMS30 or GSM) who have been working with the IMT-2000 System in design or who are looking to move into the WCDMA field. The candidates must be self-motivated and be able to assist in the build up of the IMT-2000 support organization in Japan. We are looking for experts in the Radio and Switching areas at this stage.

The applicants must be fluent in written and spoken English with Japanese language skills being a plus.

In addition, we will be looking for a range of engineers/experts to build up the support for IMT-2000 in Japan throughout the next 12 months and therefore applications are welcome from engineers interested in working in the UMTS support and implementation fields as well. There will also be a number of management and team leader positions available.

This is a great opportunity for interested and highly motivated engineers to take part in the support and implementation of the new generation WCDMA Network in Japan.

Contact: Greg Atkinson NRJ/SWCCustomer Support Division, Shin Yokohama. E-Mail: greg.atkinson@nrj.ericsson.se, Phone: + 81 45 477 5712, Fax: + 81 45 477 5730

ERICSSON LEBANON

MSC/BSC System Expert Engineer

● Main responsibilities for the position: This position will report to System Support manager at

Ericsson Lebanon (STL) and play an important role in the continuous improvement processes already in place as well as to identify new improvement areas. The key responsibilities for this position shall be: To provide technical competence for resolving complex problems at highest technical level and to customers expectations and provide technical advice and assistance to support Engineers. To transfer trouble shooting skills and competence to system support staff.

Essential technical competence Experience/expertise in supporting AXE 10 Digital switching application Systems for at least 6-8 years of which at least 4-5 years experience on GSM CME 20 (MSC/BSC) Systems in verification and support environment. Candidate should have Masters or BSc. degree in Computer Science or Electronics Engineering with at least 8 years experience in the telecommunications field desired.

Essential practical experience: 4-5 years practical experience in MSC/HLR/VLR and BSC for CME 20 is a must.

Personal skills: Familiar with TRtool, MHS. English Language. Good communication skills
Miscellaneous: On site work might be required.

Contact: Elie Rouss, Operations Director, +961 3 34 88 96. Application: Christine Andrea, Human Resources Manager, E-mail: xtine.andrea@ericsson.com or Elie Rouss, Operations Director, E-mail: elie.rouss@stl.ericsson.se

ERICSSON RADIO NETWORK PRODUCTS RESEARCH TRIANGLE PARK, NORTH CAROLINA, USA

Base Station Radio Performance Verification Engineer

The Base Station and Systems Development Department is a BMOA organization in the US responsible for design and development of wireless base station equipment supporting the North American IS-136 air interface standard. Products under development include RBS 884 family Micro and Pico base stations. The successful candidate for this position will become a member of the Integration and Verification group, which is responsible for all testing activities for our base station products.

● Job Description: Perform radio receiver and transmitter performance testing on radio base station products. Develop performance test specifications and testing strategies based on internal requirement specifications and industry performance standards. Document test results and report all design deficiencies. Lead efforts to automate radio performance testing. Investigate new test methods and tools which would aid in the design and verification of new products and technologies. Represent the Integration and Verification group during project documentation and design reviews.

Previous Experience: At least 3-5 years of experience testing radio receivers and transmitters. Some understanding of GMSK, DQPSK and FM modulation schemes desired. Some familiarity with cellular industry air interface standards (in particular IS-136) and minimum radio performance requirement standards (IS-137, IS-138) desired.

Telecommunications and cellular system experience, preferably within test, preferred. Some hands on experience with RF test equipment and radio performance testing required. Knowledge of CMS 88 system useful. Experience with UNIX operating system, Ericsson test tools and automated testing using Autosys would be a definite plus.

Other Information: Two year GCE contract position may be available to a qualified candidate. Occasional travel may be required (up to 10%).

Contact: Mike Melley Tel (ECN) 80227562 eMail: mike.melley@ericsson.com or Ulf Hagstrom Tel. (ECN) 80226235 eMail: EUSUHAG@am1.ericsson.se or Human Resources Mary Peebles Tel.(ECN) 80227550 eMail: EUSMBP@am1.ericsson.se, 7001 Development Drive, Research Triangle Park, North Carolina, USA 27709

ERICSSON COMPONENT DISTRIBUTION, KISTA

Responsible for sales activities

Ericsson Component Distribution, part of Ericsson Electronic Distribution AB, is a leading distributor in Northern Europe, representing many of the world's leading component manufacturers. With a turnover of over 150 million USD and over 220 employees, we're now adding to our list of offices in Northern Europe and opening an office in Milan.

● Responsible for sales activities in Italy, these roles work closely with line managers and field application engineers in Sweden, focusing on DC/CD Power Modules. Main tasks will be to achieve design wins, negotiate contracts and develop good relations with customers and suppliers.

For the right individual who can demonstrate good technical skills and proven sales experience, we can offer excellent career opportunities.

Kontakta: Mats Andersson, +46 8 757 4254, mats.andersson@eke.ericsson.se, Ulf Gladh, +46 8 757 4931, ulf.gladh@eke.ericsson.se. Ansökan: ECD-I, Ericsson Electronic Distribution AB, VDS Ingela Ström, SE-164 84 Stockholm, ingela.strom@eke.ericsson.se.

ERICSSON MOBILE COMMUNICATION AB

Ericsson Mobile Communication AB develops, manufactures and sells mobile phones globally. One of the product units (PU), MODULES, is expanding rapidly and needs to recruit talented people to its headquarters in Bilbao, Spain. Product Unit MODULES is responsible for machine to machine communication by using wireless technology. The machine to machine market is expected high growth and reaches 90 million units within the next couple of years. This technology will soon be found in most products and applications.

Sales Manager Telemetry

● In this position you will be responsible for sales of modules. The segment includes alarm applications, meter reading, vending machines etc. These segments will be penetrated by your own dedicated sales force. This position requires that you have successful sales experience in direct selling. You should also have international experience of business and marketing with a clear focus on sales. We expect you to have excellent relationship skills in order to develop and maintain high-level customer contacts. People management experience is also merit. This position will be based in Bilbao and report directly to PU Manager.

Account Manager Telemetry

● You will be responsible for one or more segments like alarm, vending machines, meter reading etc. You should have documented sales experience and proven sales record of system selling. Your prime target customers will be system integrators with strong application focus. You should also have good technical communication skills. The job requires a lot of travelling in international environment. We are looking for someone with high energy and strong performance. This position will be based in Bilbao and report to Sales Manager Telemetry.

Product Line Manager Modules

● The responsibility of this Product management unit is global; i.e. covers modules for all standards and all applications. As manager for the unit you will be responsible for total Product Portfolio Ownership, P&L, Management of the unit including securing competence and resources.

Other key responsibilities are: Develop, define, communicate and implement strategies for the product portfolio of the product unit. Definition of a profitable, timely, competitive and for Ericsson optimal product Modules' portfolio.

We are looking for someone with strong experience in product management, well-developed strategic skills and also highly skilled in the area of people management. This position will be based in Bilbao and report directly to PU Manager.

Product Manager - GSM Modules

● GSM Product Manager In this position you will be responsible for Profit and Loss for GSM Modules. Other areas of responsibility are: Define, implement and manage competitive and profitable GSM modules. Monitor and analyze competition behavior, market & business trends. Define strategic positioning of the GSM modules, establish product road maps and release plans. Define product requirement specifications. Follow-up the product until phase out.

We are looking for someone with strong experience in product management.

Technical Product Manager - GSM

● In this position you will be involved in the product development projects where you actively will represent product management. Your main responsibilities are: Develop and refine Product Requirement Specification from technical perspective as well as from customers' point of view.

Manage and monitor the achievement of technical goals from a customer's perspective - that are settled for a specific product/customer. Interface concerning all technical matters between customer and product development during product development project.

We are looking for someone with experience in product management as well as in engineering.

Project Manager - GSM Modules

● Business Control Modules

This position is responsible for the product units, MODULE, financial strategy and planning, financial management and control. Other key areas include: Estimate process and business planning. Consolidated financial outcome including project costs, product costs, expenses (market operations, functions etc) and capital employed. Logistics, meaning optimal location of manufactured units on the total global market and consolidation of market operations, products, project costs and functions. We are looking for someone with experience from business control that could perform this job with speed and high accuracy.

This position will be based in Bilbao and report to PU Manager.

Contact: Daniel.Micolta@ine.ericsson.se

ERICSSON HEWLETT-PACKARD TELECOMMUNICATIONS AB, GÖTEBORG

The global supplier of convergent software applications for telecom management EHTP is an independent software vendor that delivers mission-critical software applications and services that provide high financial value to operators. Our products are based on deep expertise in three main areas of telecom convergence: The convergence of communications services, of operations and business support processes and of telecommunications and computer competencies.

We operate worldwide, on a solid financial foundation that enables our long-term commitment to the telecom industry. Our systems are delivered through a global network of major channel partners. We have the largest worldwide installed base of systems for operations and business support, comprising 510 systems in 75 countries, as of October 1998. EHTP was created by combining resources from Ericsson and Hewlett-Packard, which have been major driving forces in the development of both telecom and IT. Today, we have 1,000 employees and strategically located offices in key markets to ensure global coverage and local presence.

We are extending our Channel Management function and are looking for suitable persons to the following positions:

Regional Channel Manager, North America and Mexico. Regional Channel Manager, South America.

● Your task is to "sell EHTP" to both present and potential partners among system integrators in North America and South America. These can be regional units out of the global system integrators but they might also be companies solely working in that geographic area. You are responsible for the development of both potential and present partners into effective and loyal EHTP sales channels. You will be located in Dallas and Sao Paulo respectively.

You will be part of a small, dedicated global team of pioneers in this field. Apart from these working colleagues you will also have the support of our global sales organisation and a powerful channel program, to reach your goals.

We believe your background is from the telecom or the IT industry. You have worked in a sales organisation for a number of years with project oriented, business-to-business sales. Your English is fluent and for the Regional Channel Manager position in South America we regard Spanish/Portuguese as a prerequisite. If you have previously also worked with channel development and/or in an international environment that's of course an advantage.

Your personality is very much the one of an entrepreneur. You like to see things grow and to be an active part of it. You are interested in people and are good at handling relations with all sorts of people. You are active and focused on reaching - and exceeding - your goals.

Contact: Hans Ola Månsson, +46 31 746 25 01, hans_ola.mansson@ehpt.com, Johan Hesslind, +1 972 583 23 12, johan.hesslind@ehpt.com, Mats Hagelin, +46 8 685 21 27, mats.hagelin@ehpt.com. Ansökan: Ericsson Hewlett-Packard Telecommunications AB, VK/EHS/FP, Jessica Dyrendahl, 126 25 Stockholm, ehjob@ehpt.com

This autumn, Ericsson will sponsor the MTV Europe Music Awards for the first time. The gala event will be held in Dublin on November 11.

The main sponsors for this year's music awards show are Ericsson, Carlsberg, Compaq and Diesel. One of Ericsson's new innovations for the awards show is an interactive web site.



Madonna accepted an MTV Europe Music Award at last year's show. This year, Ericsson will enter the MTV arena for the first time as a sponsor.

Photo: Scanpix

MTV and generation Y

In parallel with MTV's music awards show, Ericsson will focus on several new areas as the company tries to make its name better known among younger target groups. An interactive web site, several commercial advertising films and information for retailers about new Ericsson products are just a few examples.

"Ericsson wants to strengthen its position with younger consumers. We have worked hard to find the right 'language' and best channel to convey our message. MTV is the second strongest brand name among young consumers," says Per Söderström, project manager for Ericsson's sponsorship of MTV's Europe Music Awards.

Music and communications will be the main attractions at the interactive web site, which is scheduled for launch on September 30. Mikael Blidö, manager of the web project, describes the messages to be conveyed by the web site.



"Make yourself heard" will be the main theme of Ericsson's interactive web site, scheduled for launch on September 30.

Photo: Scanpix

"The overall theme is 'different ways to make yourself heard.' It will be one of the most powerful and most daring pages ever released by Ericsson, both in terms of design and technical approach."

The web site will project a low profile, downplaying the emphasis on Ericsson logotypes. Instead, the campaign's main theme, "Make yourself heard," will indirectly permeate the web site and other parts of the campaign. The primary target group is generation Y, an audience in the age group between 14-25.

"Generation Y has grown up with advertising, and they don't buy any simple or overly explicit messages. The interest of

Ericsson wants to strengthen its position among young consumers, and it's vital to find a language that attracts their attention.

Photo: Scanpix

this target group has to be aroused by other means and, for this reason, the web site contains topics that we believe will pique their interest. The interactivity is important," continues Mikael Blidö.

Mikael Blidö does not want to disclose too much information. The web site will also feature several contests and various ways to win different products.

Ulrika Nybäck

ulrika.nybäck@lme.ericsson.se

www.ericsson.com/mtv

Footnote: During the autumn, Contact will report on the various events in which Ericsson is involved and other sponsorship activities. If you would like more publicity for any event or activity, send an e-mail to: ulrika.nybäck@lme.ericsson.se

UPCOMING

October 10-17: Telecom 99 + Interactive 99 in Geneva. The International Telecommunications Union trade exhibition, which takes place every fourth year. Contact will be reporting from the exhibition.

Ericsson launches its smallest and thinnest mobile phone - the T28. An advertising campaign with a futuristic space-theme begins soon across the GSM world.

Sept 9: In preparation for the Millennium, a full practice simulation for the business segment Network Operators Service Providers, will take place worldwide. It will commence at Ericsson Fiji at 0.00 on Thurs. 9/9/99 - a crucial date in the computer world.

UPDATES

August 17: Turkey was hit by a major earthquake. Ericsson has been involved in reestablishing the mobile network and has donated phones.

Sept. 1: Kjell Sörme has been appointed Executive Vice President of Market Area Asia Pacific, filling the position vacated by Kurt Hellström. The appointment commences from September 1st.



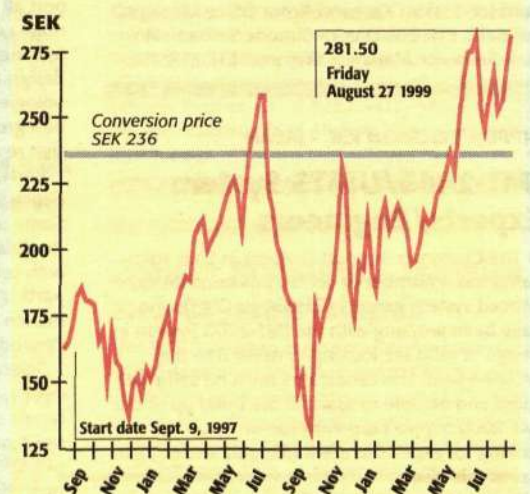
Kjell Sörme

NEW ASSIGNMENTS

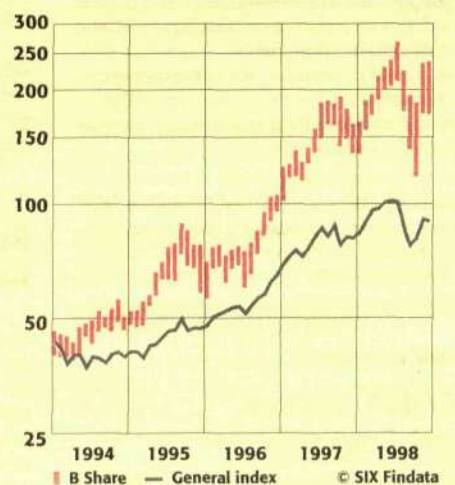
Ove Anebygd has become head of the Access and Product Offerings product unit within the Network Operators business segment. He succeeds Ron Dikhoff who returns to Ericsson's company in the Netherlands.

The appointment of managers in the Human Resources and organization unit in the Network Operators business segment has now been completed. Mats Andersson will be responsible for Compensation and Industrial Relations and Göran Henriksson for management planning. Håkan Olson will oversee Operational Development, while Elisabeth Armgarth will take responsibility for Synergy and Resources.

THE ERICSSON B SHARE



An Extraordinary General Meeting of shareholders on September 9, 1997, approved a proposed convertible debenture program. The conversion period extends through June 30, 2003. For additional information, access the web site: <http://inside.ericsson.se/converti.htm>



contact strategy

SEPTEMBER 1999

Web game hones your IT IQ

The strategy is clear: Ericsson will be a leading player in the new telecoms world. This means its employees must be well versed in IP.

The entry ticket is company-wide training in data communications, IP and the Internet.

The web-based course "Datacom and IP for everyone" – Ericsson's broadest training initiative to date – starts in October. The idea is that most of the company's employees will take the course before the end of the first quarter of the year 2000. The goal is to give each employee basic knowledge of the new telecom world, in both business and technical terms.

"Rapid technical development changes our customers, competitors and working methods. It is therefore important to establish a common level of knowledge about the new environment we are living in," says Per-Olof Nyquist, in charge of competence development within the company.

Own training responsibility

If Ericsson is to be a quick-footed company, an understanding of the new market logic is absolutely necessary. It is also essential to employees' ability to make decisions on a decentralized basis that are rooted in management's visions and strategies.

"Every employee is an important Ericsson ambassador to our customers and society at large. The web course will not make you fully trained – individual employees must continually train themselves to obtain the necessary skills," says Per-Olof Nyquist.

All employees are responsible for their own skills development. The company should provide the opportunities and means.

"I think we're pretty good at supplying these facilities. Now, we're going to get even better," says Per-Olof Nyquist.

Web course as game

The course "Datacom and IP for everyone" is designed as a game where players must pass through various rooms and answer questions. Each player must successfully answer 80 percent of the questions to pass. For sections the player does not answer correctly, web courses are available to provide more knowledge and background. The web course can then be resumed at any time. Sections already successfully completed do not need to be repeated.

"It's all based on participants' own responsibility and interest in the knowledge presented by the course. We will post various units' scores



The web-based training package "Datacom and IP for everyone" is designed in the form of a game. Illustration: Jan Olsson

regularly, to encourage everyone to do as well on the course as possible," says Nils-Gunnar Håkansson, project manager for "the Competence Shift," of which "Datacom and IP for everyone" is a part.

Various knowledge levels

The course contains various knowledge levels, depending on the employee's background and duties. An engineer, for example, might need to learn more about the new market, whereas marketing people will probably require more technical background to pass the course.

"Some people will be able to complete the course in a few hours, others will need a few days – including the extra courses they will need. The challenge for the really keen is to improve their scores and take on more difficult questions to pass the higher levels," says Nils-Gunnar Håkansson.

Follow-up and administration of "Datacom and IP for everyone" are the responsibility of the relevant human resources departments. Local units should also clarify the connection between the company's visions and goals, and their own operations and responsibilities. A roadshow directed at various marketing units will be undertaken in the autumn to provide further information on the course format.

The web-based course will be delivered through Ericsson Weblearn, the company center for web-based training. Weblearn currently has almost 50,000 users and arranges courses in technology, accounting and management training.

"We are also in charge of Ericsson's 'IT driver's license,' which is a good prep course for employees before they take 'Datacom and IP for everyone,'" says Thomas Jerpseth, project manager for Weblearn.

More courses to come

Apart from the web initiative to secure a basic level of IP competence among Ericsson employees, there will also be special training courses for certain job categories. A seven-day course for 3,000 sales employees is scheduled later in the autumn. It will include the topic of value-based selling – how to sell added value to the customer – as well as data communications products that Ericsson is already offering.

In addition, there will be a course for engineers, in the form of tailored training packages for each new major technology project. This course focus on understanding the market and meeting experts in various technologies.

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Click on competence shift.

THIS SUPPLEMENT

Ericsson strategy pegged

The strategy has been established and the strategic-planning process completed. The strategy was set last week by the Board of Directors. Strategy work has been going on for some time and was initiated by the former president, Sven-Christer Nilsson. The main focus has been the same throughout, but has now been set forth in more detail. The key points of the strategy will be disseminated throughout the company – for example, via Contact, which presents the main aspects of the section on product strategy and wireless Internet in this supplement.

SPEAKING ON TECHNOLOGY...

The future is not what it used to be

Strategic planning is largely about determining a course for company development. It is not unusual for revolutionary technology to have decisive significance. It can be difficult, however, to foresee the future significance of the innovations.

"It's just a toy."

Alexander Graham Bell, about the telephone, 1876

"I believe there is a market for about five computers in the world."

Thomas Watson, founder of IBM, 1943

"There is no reason for individuals to have computers in their homes."

Ken Olson, founder of Digital Equipment, 1977

"The TV will never compete with the radio, because it requires that you sit and stare at a screen, and American families don't have time for that."

New York Times, 1939

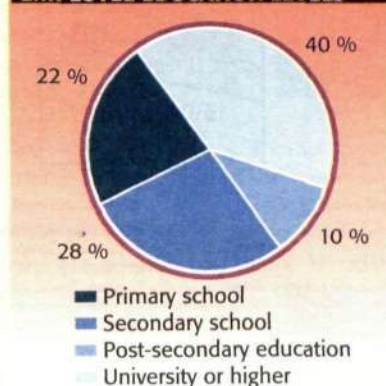
"I see no reason why it shouldn't be possible to send intelligence instantaneously by electricity anywhere in the world."

Samuel Morse, inventor of the electric telegraph, 1832

"Telephone technology constantly seeks new avenues. Every day brings something new and inspires us to continue our progress, at the same time as increasingly high demands are made on development work and its men."

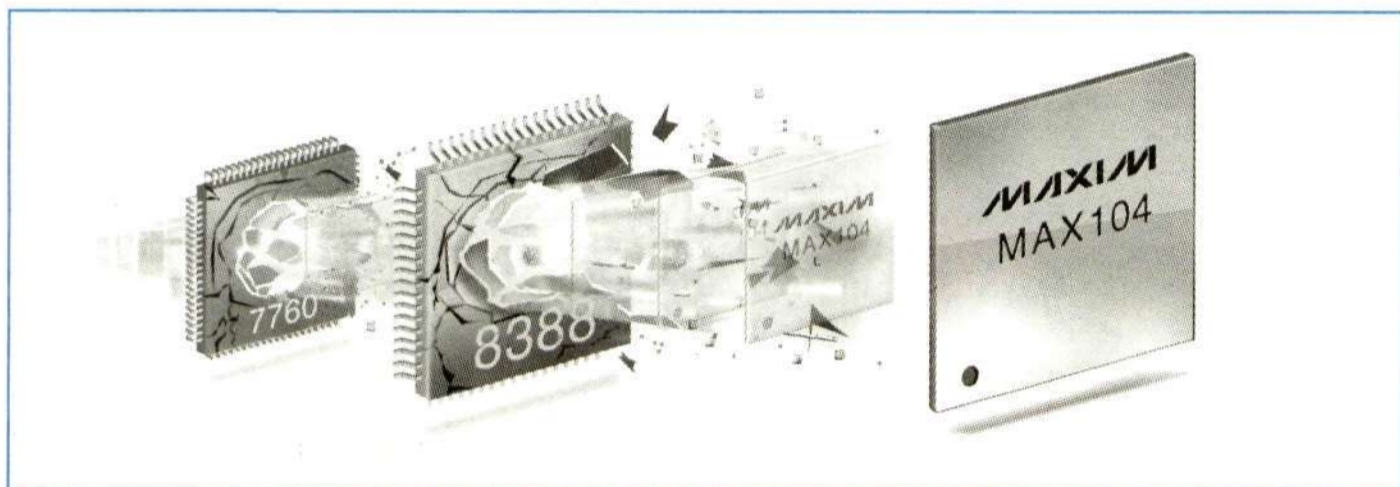
Hugo Blomberg, Manager of Ericsson's technical department, 1939

EMPLOYEE EDUCATION LEVELS



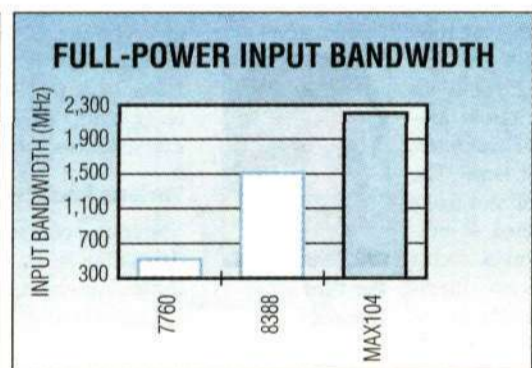
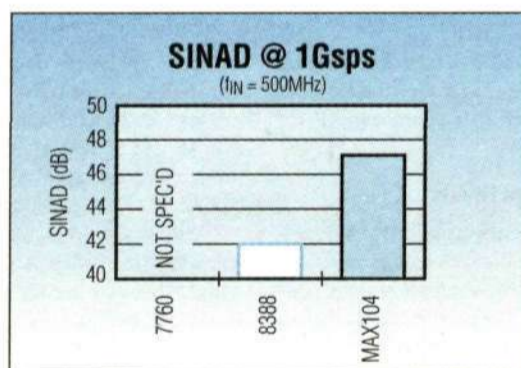
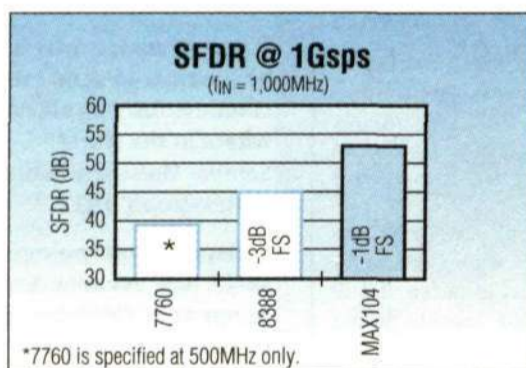
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Inger Högberg is the head of the Strategic Planning Unit. Together with her colleague Rolf Bäckström, she has refined the strategic planning process and adapted it to the new organization.

Photo: Lars Åström

Tool leading Ericsson towards its goals

Formulating and realizing goals can be a difficult task. Ericsson's process for strategic planning, otherwise known as ESP, is helping to facilitate that work.

The ESP process consists of essentially four phases: setting up overall goals, letting the business and market units find ways to reach them, formulating the company's strategic plan and, most important of all, implementing the plan.

"In order to satisfy our customers and become a leading supplier in the new telecom world, it's important that everyone work towards the same goal. That's why a common framework is needed – a long-term view of what Ericsson wants to achieve."

"The ESP process is a tool to help us get there," says Inger Högberg, head of the company's Strategic Planning Unit.

Adapting the process

Together with her colleague Rolf Bäckström, Inger has further refined the strategic planning process.

"Strategic planning is nothing new. Our task has been to adapt the process to the new organization and make strategic planning a natural part of our daily operations," she explains.

The process starts with an analysis of the marketplace. Information is compiled about market trends, competitors and customers, both existing and prospective. Planning for various scenarios also plays a role.

Being prepared for change

"What happens, for example, when an operator lowers their mobile telephony calling charges and people start using mobile phones much more than they did before? Do we have systems that can handle the increased traffic? In this manner, we can prepare ourselves for various developments," says Inger Högberg,

emphasizing that strategic planning is an ongoing process and that it is important to be flexible when facing new opportunities and threats.

The marketplace analysis forms the foundation for the corporate executive team to work from when developing new visions and long-term goals. These include concrete goals for everything from market share and earnings results to expertise and innovations.

"Long-term goals are presented to the managers of our business and market units in February each year," explains Inger Högberg.

Local ESP coordinators

It is then up to every business and market unit to develop its own strategic plan. These plans should contain long-term goals for the unit which are connected to the company's overall goals, along with strategies for how to attain those goals.

"We don't get involved in the specifics of how they do their work. It's important that every unit work with a model that fits their reality. In this stage of the work, our local ESP coordinators do a big part of the job," says Inger Högberg.

Once the strategic plans from the units are complete, strategies are formulated that encompass the entire company. Each year, in

June, the corporate executive team discusses these plans before presenting them to the board in August.

"In order to succeed, ESP needs to be communicated and implemented. The strategic plans need to be understood by all the employees and converted into plans of action that can be implemented. And in order that the material does not just sit on a bookshelf collecting dust, implementation should be reviewed every quarter."

Sensitive information

Even if the key word in the ESP process is communication, there are certain restrictions regarding the handling of information. This is true of financial information, for example.

"We cannot risk allowing sensitive information ending up in the hands of our competitors. But at the same time it's also important to show our strength to the market, to demonstrate what we want and where we are going. I think that in the past we've been a little too cautious about showing where we stand," says Inger Högberg.

She points out that the company is currently undergoing a phase filled with change. It is there that the ESP process can play an important role.

"Our ambition is for everyone to understand Ericsson's strategy – and to have the passion, willingness and strength to make it happen."

Lena Lidberg

WHAT WILL WIRELESS INTERNET DO FOR YOU?

Eleana Pagoulatou,
Head of Marketing
Communications,
Ericsson Greece



"More and more people are using the web everyday in order to find and retrieve information. After the launch of new technologies like WAP:MMM and upgrades of GSM such as GPRS and WCDMA, wireless Internet can be developed and become very efficient and useful."

José Germán Escobar Pantoja,
Technical Support,
Ericsson Telecom, Mexico



"I envisage major opportunities. Most importantly, it will be possible to find information at any time without being dependent on a wireline phone. This technology will create major changes in our lifestyles. You could be anywhere at all and still have access to everything."

Bernt Högberg,
President of Ericsson
Radio Access AB, Sweden



"When driving to work I can select the route based on the traffic situation. Maybe I can check through some mail if I still get stuck in a traffic jam. I can also check if the lawn needs mowing at my summer cottage."

Jan Wäreby,
Head of the Europe, Middle
East and Africa market area



"Initially, updated e-mail access and Internet browsing wherever you are will be very attractive. Looking forward, there are all the other applications like music, sending pictures and location based services. And that is only the start."

Patrik Östman,
Systems developer,
Ericsson Finland



"As a private individual, I will be able to handle banking services, pay small amounts of money like car parking fees, check frequently changing information like stock exchange information, look for bus and train timetables. I will also be able to check the temperature and alarms at my house when not at home. In my work, no matter where I travel, I will have access to all the features that I have on my PC desktop at the office, but through wireless Internet."

César Paixão,
Product manager,
Ericsson Portugal



"In meetings with customers, there is the need to access the Ericsson intranet to consult documents such as Product launch, Product Announcements, Service Plan and Service Advice, in order to provide faster answers, or to send and receive e-mails, which is very important. Privately, wireless Internet can save me some time because I can carry out banking operations, for example, without spending time in queues."

Susanne Lithander,
Head of Private Radio
Systems product unit,
Lynchburg, U.S.A.
"Freedom!"



Ericsson's strategy was approved by the Board last week. A lengthy period of work, which was initiated by Sven-Christer Nilsson, has now come to an end. Ericsson's new executive management team, headed by Kurt Hellström and Lars Ramqvist, fully supports the strategy. This issue of Contact focuses largely on those aspects that relate to product strategies within wireless communications and IP/ATM-based networks, as well as competence development. A more detailed description of other aspects will be presented later this autumn.

Strategy approved



Although a large number of people were involved in the strategy work, it was Torbjörn Nilsson, responsible for marketing and strategy development at corporate level, who held the operation together, aided by Inger Högborg, head of the corporate unit for strategic planning.



Inger Högborg

Ericsson's principal strategies for attaining global leadership in the new telecoms world can be summarized in the following areas:

- Increase proximity to the customer. Due to sharper competition and the technological paradigm shift, close customer relations have become extremely important.
- Focus on growth markets. The aim of Ericsson's strategy is to attain global leadership in new segments. The aim for new markets within the next three years is to

reach a position of at least a strong third place.

- Provide solutions, services and products for the new telecom world. The main customer focus is on operators and service suppliers, and their efforts in various customer segments. However, Ericsson will also offer turnkey solutions to companies and homes, and within the mobile communications field.
- Right-sizing of resources. Ericsson must have the right competencies and resources available at the right place and the right time.
- Stimulate and lead innovation. It is important for Ericsson to identify and develop new ideas beneficial to suit your sales success.
- Strengthen the trademark. Ericsson must not be viewed solely as a mobile-phone supplier, but as a communications supplier in the new telecoms world.
- Develop employee competence and the company-culture to make Ericsson leader of the new telecoms world.

IP is the way forward

The telecom sector is heading for revolutionary changes. Ericsson's strategy for attaining a leading position in the new telecoms world hinges on the development of a completely new generation of products. The main focus will be on the fields of wireless data, Internet, IP-based telephony and multimedia.

The fusion of data-communication, telephony and media technologies is resulting in an exciting transformation of the entire telecom sector. Users, operators and suppliers will all be affected when an increasing amount of the information flow is switched to the Internet.

"Data traffic over the Internet will overtake voice traffic via telecom networks as early as this year, or at the beginning of the year 2000. At the same time, the importance of mobile-data solutions is increasing. As a result of this

growth, we foresee an enormous upswing for both Internet-based and wireless-data systems," says Torbjörn Nilsson, who is responsible for Ericsson's marketing and strategic business development.

Increase in voice traffic

Voice traffic via the world's mobile networks is increasing sharply. The main reasons for this trend are competition among mobile phone operators and cheaper call charges, which are enabling users to increase their call time.

Today, the average call time per subscriber is nearly 200 minutes per month worldwide, a figure that is expected to at least double by the year 2004.

"This upsurge in traffic will generate even more infrastructure sales for Ericsson. It will affect both radio and switching equipment, when operators are forced to expand the capacity and upgrade the quality of their networks," Torbjörn Nilsson explains.

U.S. recaptures number-one spot

The rise in traffic via mobile telecom networks is also one of the reasons for Ericsson's recent sharp growth in the U.S. market. Following the second quarter of 1999, the U.S. regained the position as Ericsson's most important market.

"This entails a huge challenge for us, but it is also a threat, should our competitors succeed in penetrating the market," emphasizes Torbjörn Nilsson.

Ericsson is currently the world leader in mobile communications in the broadest sense of the term. This applies to everything from infrastructure and systems to terminals and microwave links.

In monetary terms, Ericsson accounts for nearly one fourth of the total mobile-communications market. The figure for mobile systems alone is 30 percent – more than Nokia and Motorola combined, for example.

"Our goal is to continue to be the global leader in wireless communications, regardless of customer segment. We also intend to establish a number-one position in the market for wireless data transmission," says Torbjörn Nilsson.

"Data traffic over the Internet will overtake voice traffic via telecom networks by as early as this year, or at the beginning of the year 2000," says Torbjörn Nilsson, Senior Vice President of Ericsson's Marketing and Strategic Business Development. "That's why Ericsson is focusing on a completely new generation of products, principally within the fields of wireless data, Internet, IP-based telephony and multimedia."

Photo: Lars Åström

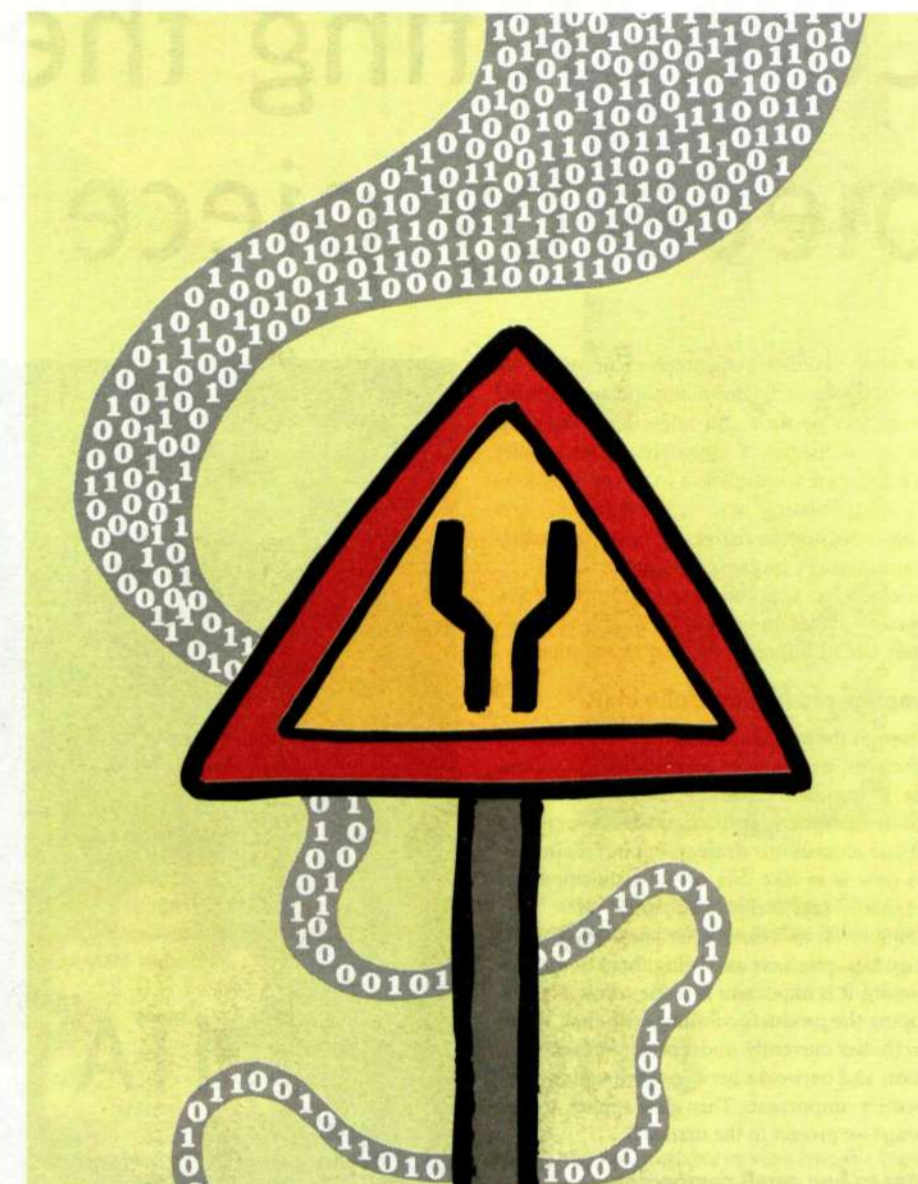


Illustration: Jan Olsson

Ericsson's investments in the third generation of mobile systems, 3G, are a key component in these efforts. As a result of the company's agreement with American mobile-telecom supplier Qualcomm during spring 1999, Ericsson now has a complete portfolio of products for all of today's different mobile systems. In other words, the company's research and development activities are well equipped for 3G. Among other features, the new generation of mobile systems will enable wireless access to the Internet and e-mail in mobile terminals.

Sharp upswing in number of users

Ericsson recently upgraded its forecast of the number of mobile phone subscribers worldwide. The current projection is a billion users as early as during 2003/2004.

"During this period, the use of wireless Internet will also soar. A key reason for this is that we will release new applications via the rapid product lifecycle of our mobile phones. The total global market for mobile phones is already twice as large as the number of PC terminals," Torbjörn Nilsson explains.

"We aim to enhance our position in the consumer products segment and become one of the two largest companies in the fields of both voice telephony and data transmission via mobile terminals."

Growth areas within the fixed telephony segment are being driven by Internet traffic. The computer world, which is still facing problems in creating reliable and robust networks, is providing new business opportunities for Ericsson and other players with telecom expertise.

Internet – the new challenge

Ericsson's goal is to establish a position as one of the top-three players in high-class (carrier-class) wire-line data transmission and in real-time communication based on the Internet Protocol (IP).

Ericsson is one of the three largest players in today's market for circuit-linked voice telephony.

"Ours aims are to retain this position, even in this mature market, to adapt our resources and to generate a healthy cash flow," says Torbjörn Nilsson.

Internal Ericsson forecasts indicate that there will be one billion Internet users in the world, via fixed or mobile systems, by the year 2004. At that time, Internet users will have equaled the number of users of fixed telephones or mobile phones.

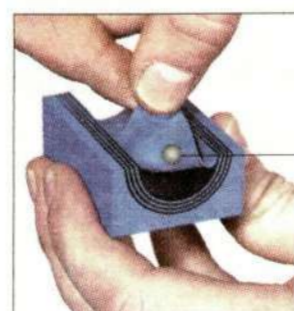
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The telecom world is turning to new architecture as networks merge and new services appear. To gain time and to acquire expertise and products quickly, Ericsson purchased several companies in the IP and ATM areas over the past year.

Completing the puzzle, piece by piece

These acquisitions complement our own strengths in development, and are intended to buy us time and know-how. Basically, they are a matter of supporting high-quality voice and data transmission in IP and ATM, as well as stimulating new network traffic," says Torbjörn Nilsson, in charge of Ericsson's marketing and strategic business development.

Ericsson has announced acquisitions of companies or stakes in companies worth approximately USD 1 billion in the past 14 months.

Complete product portfolio in IP

"Through the acquisitions and our own activity in the area, we have essentially achieved a complete IP product portfolio. No doubt we still need to incorporate further, smaller investments into our acquisitions strategy, but our main concern now is to take care of the acquisitions we have made," says Torbjörn Nilsson.

"First of all, we'll familiarize ourselves with the companies' products and bring them to market. Secondly, it is important that the companies developing the products continue with that. Finally, activities currently under way to create integration and networks between various units are extremely important. This also applies to the message we project to the market."

Better to buy small companies

Why then did Ericsson not purchase a large company to complete its product portfolio, right from the start? Torbjörn Nilsson believes that the answer is partly that there are simply not many large companies that have the expertise Ericsson has sought, and partly that major acquisitions often create problems in integrating the different corporate cultures.

"We have a sound integration process for the companies we have acquired. We have not experienced any particular problems with, for example, employees quitting. Many of the companies have been small and had difficulties expanding by themselves. They therefore welcome Ericsson and its global marketing channels for their products, while we appreciate their products and expertise. The companies are also assigned clearly defined roles in the overall operations.

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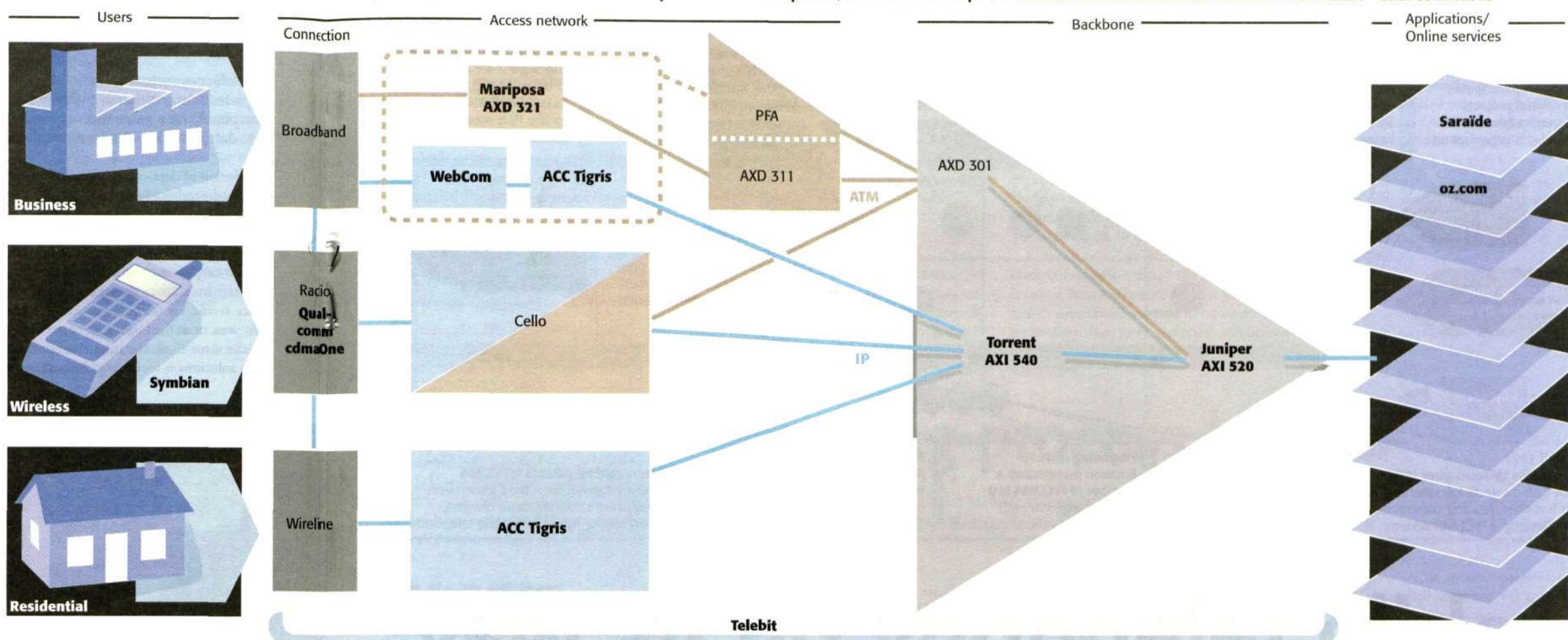


Ericsson is filling out its product portfolio through acquisitions. In slightly over a year, Ericsson has announced acquisitions of companies or shares in companies totalling approximately USD 1 billion.

Photo: Will Crocker/Image Bank

ERICSSON'S INVESTMENTS BRING TOTAL SOLUTIONS FOR IP/ATM NETWORKS

The rapidly growing need for transporting large volumes of data places increasingly heavy demands on data networks. To develop data networks, Ericsson has made several investments over the past year. The following diagram shows how various companies' products round out Ericsson's product portfolio. These are now essential parts of the overall picture, as Ericsson develops the data and telecommunications networks of the future – such as IMT2000



The various structural levels of the IP/ATM network can be compared to international flight connections, where cities with varying-sized airports are connected by different types of plane. It is simply not cost-efficient to try to reach all international airports from one local airport. Instead, you take a smaller plane to a larger airport.

From there you might take a jumbo jet to reach a certain area quickly. The IP/ATM networks are based on the same principle. Different users take different communications routes. Information flows via access networks to the backbone – the true "highway" of the new IP/ATM networks.

New units strengthen powerful IP/ATM networks

Ericsson's corporate acquisitions are essential pieces of the overall puzzle, enabling the company to offer complete solutions for new IP and ATM networks. The chart above shows how the various new companies fit into the network structure.

The new data communications networks link today's access networks with a backbone capable of handling a variety of services. This allows the network to handle traffic from GSM phones, ordinary fixed phones (PSTN) or LANs, for example. The three primary access routes are radio, copper and fiber-optic/coaxial cable.

Ericsson's acquisitions and investments are important supplements in the development of future data and telecommunications networks (such as IMT2000), which will require enormous capacity for real-time transmission of voice, data and multimedia.

IP/ATM network transmission uses various levels to simplify communications.

Residential Internet connections are limited by modems for ordinary fixed telephone lines which have a capacity of 50 kilobits per second at most. However, developments are under way at Ericsson

to increase speeds of both residential and business connections. ISDN, currently undergoing strong expansion, offers up to 144 kilobits per second. New high-speed modems are also being tested. ADSL (Asymmetrical Digital Subscriber Line) over copper, for example, provides several megabits per second, as does high-speed transmission over cable-TV modem.

Ericsson is also developing high-speed radio, namely LMDS (Local Multipoint Distribution Systems), to deliver high-speed Internet directly to users.

Backbone connection via Tigris

The new IP networks connect residential communications to the AXE switch and on to a router. This is a switching node where several lines converge that can handle various transmission techniques. The Tigris access-router – which Ericsson acquired

through the purchase of ACC – is used here. The access router then connects to the next level, the aggregate level, which is part of the backbone. The aggregate level merges traffic from several access routers, from both wireline and wireless networks. After acquiring Torrent, Ericsson has a gigabit access router, the AXI 540. From here, information is routed to the highest level in the backbone and to the Juniper AXI 520. The transmission speed of the AXI 520 is currently 40 gigabits per second.

Ericsson also targets high-speed transmission using ATM technology. The AXD 321 ATM switch from Mariposa completes Ericsson's range for business ATM communications. ATM access switches, such as the AXD 311, are currently also sourced from GDC. In addition, Ericsson offers the internally developed PFA switch, which handles the closely related transmission protocols Frame Relay and X.25.

A scalable high-capacity switch for the ATM network, Ericsson's internally developed AXD 301, is used in the backbone.

In the IP network, the acquisitions of ACC and

Torrent, combined with the investment in Juniper, are very important for communication in the access and backbone networks. For third-generation wireless systems, Ericsson has developed its own product called Cello, which is a combined IP router.

As a result of its recent purchase of Telebit, Ericsson has gained products and critical expertise in real-time transmission via routers and next-generation Internet, IP version 6.

Systems for wireless terminals

Symbian, Ericsson's joint venture with Nokia, Psion, Motorola and Matsushita, is carrying out its own development of a new operating system designed for wireless terminals. This is enormously important for the evolution of wireless Internet.

Ericsson is also driving the development of open systems and interfaces, such as Bluetooth and WAP. This means that more suppliers and software vendors will be able to use the technology, which in turn will make things easier for users and enhance market growth.

To enable users to access services over the Internet, a large number of servers are connected to the network. Ericsson has invested in San Francisco-based Saraide to stimulate wireless data traffic. Ericsson also has partnership agreements with several content providers – the Reuters news agency, for example – to enable users to access such services, via their service provider, at any time.

Simpler communication

Certain services can be offered by network operators themselves through various control and communication functions. Ericsson's stake in the Icelandic company Oz.com will mean that the new product impulse will simplify Internet communications. For network monitoring and operation, Ericsson offers several other services. Apart from its internally developed services, these include solutions from the joint-venture company EHPT (Ericsson/Hewlett-Packard), Compaq, Bell and other cooperation partners.

Nils Sundström

NINE BUILDING-BLOCKS IN ERICSSON'S ACQUISITIONS STRATEGY

Mariposa Technology Inc.

(JUNE 1998) As part-owner of Mariposa Technology Inc., Ericsson can use the U.S. company's solutions for voice/data access over ATM networks. By combining voice and data traffic, operators can reduce costs for data-access lines, etc.

The partnership strengthens Ericsson's position in the rapidly growing market for ATM access.

Mariposa, founded in Petaluma, California, in 1997, has slightly more than 50 employees.

ACC

(SEPTEMBER 1998) In September last year, Ericsson purchased U.S. datacom company ACC – Advanced Computer Communications – from the Canadian company Newbridge. The compa-

ny is based in California and was founded in June 1991.

ACC is a leading supplier of access equipment, such as routers and concentrators, and was involved in this area at an early stage.

The access market is one of the largest and fastest growing areas of the datacom industry. By acquiring ACC, Ericsson obtains the expertise necessary to develop and capture share in the important Internet access market.

The company's founders have 30 years' experience of technical development work in datacom and the Internet. ACC currently has about 200 employees and is a key unit of the Datacom Networks and IP Solutions business unit.

Juniper Networks

(MARCH 1999) U.S. company Juniper manufactures high-speed routers. Together with Cisco, it

dominates the relatively new market in gigabit routers. Through partial ownership of Juniper, Ericsson can compete with Cisco, in this area as well.

A distribution agreement allows Ericsson to sell Juniper's data switch, the M40 Internet backbone router, as an integrated component of Ericsson systems. Juniper has about 270 employees and its head office is located in Mountain View, California.

Qualcomm

(MARCH 1999) Last spring, Ericsson purchased U.S. mobile telecom supplier Qualcomm's infrastructure division, which develops and manufactures CDMA systems. This completes Ericsson's product portfolio, which now encompasses all current digital cellular systems and development of the third-generation wireless system, 3G.

The new CDMA-systems business unit has 1,300 employees, most of whom are based in

San Diego, California. Research and development operations, involving 150 employees, are located in Boulder, Colorado. The business unit develops products and services for today's narrowband cdmaOne systems (IS-95) and the next generation, the Multicarrier cdma2000 systems.

Operators worldwide are expected to invest a total of USD 9.5 billion in CDMA systems in 1999, corresponding to 25 percent of the year's total investments in wireless systems.

Torrent Networking Technologies

(APRIL 1999) Torrent manufactures high-capacity routers that concentrate a large number of lines to the backbone. These routers will play a key role in both IP and ATM-based networks.

This company's products round out Ericsson's

product portfolio in high-capacity network products, making Ericsson a key player in the IP area. The purchase increases Ericsson's ability to offer complete data network solutions.

Torrent was formed in 1996 and currently has about 110 employees. The company is now included as the product unit Ericsson IP Infrastructure in the Datacom Networks and IP Solutions business unit. Torrent retains its head office in Spring Valley, Maryland.

TouchWave

(APRIL 1999) Ericsson spent a few months actively seeking a company with expertise in both voice telephony and data networks. It chose TouchWave, based in Silicon Valley.

The company, now called WebCom, has been in existence for three years and has 27 employees. It develops Internet solutions for small and

medium-size businesses, and specializes in IP telephony. Its WebSwitch product enables smaller businesses to use their existing data networks for telephony as well.

With this purchase, Ericsson is in a better position to offer IP telephony and increases its chances of taking market shares in the U.S. and Japan.

WebCom is a product unit within the Enterprise Solutions business segment.

Oz.com

(JUNE 1999) In June, after a period of cooperation, Ericsson became a partner in Oz.com, which develops Internet software.

The cooperation has already resulted in an advanced Internet portal offering simple access to Internet communication. The investment in Oz.com strengthens Ericsson's role in the creation of voice-over-IP and other datacom services.

Oz.com's head office is in San Francisco, but many of the over 90 employees are based in Reykjavik and Stockholm.

Saraide.com

(JUNE 1999) At the beginning of the summer, Ericsson announced it would purchase an interest in U.S. company Saraide.com.

Saraide is a newly started company that focuses on services in the area where wireless and the Internet meet. For example, it adapts web services such as news, stock prices, and so on, to work with cellphones and WAP terminals.

Saraide targets operators, who then market the services to consumers, and is thus very much a service company. Saraide currently has 150 employees in Ottawa, Canada and San Francisco and Dallas in the U.S., as well as sales offices in Europe.

Telebit

(JUNE 1999) Danish company Telebit is among the leaders in routers for robust wireless IP networks. Its products are based on both the current Internet protocol and that of the next generation, IP version 6 (IPv6).

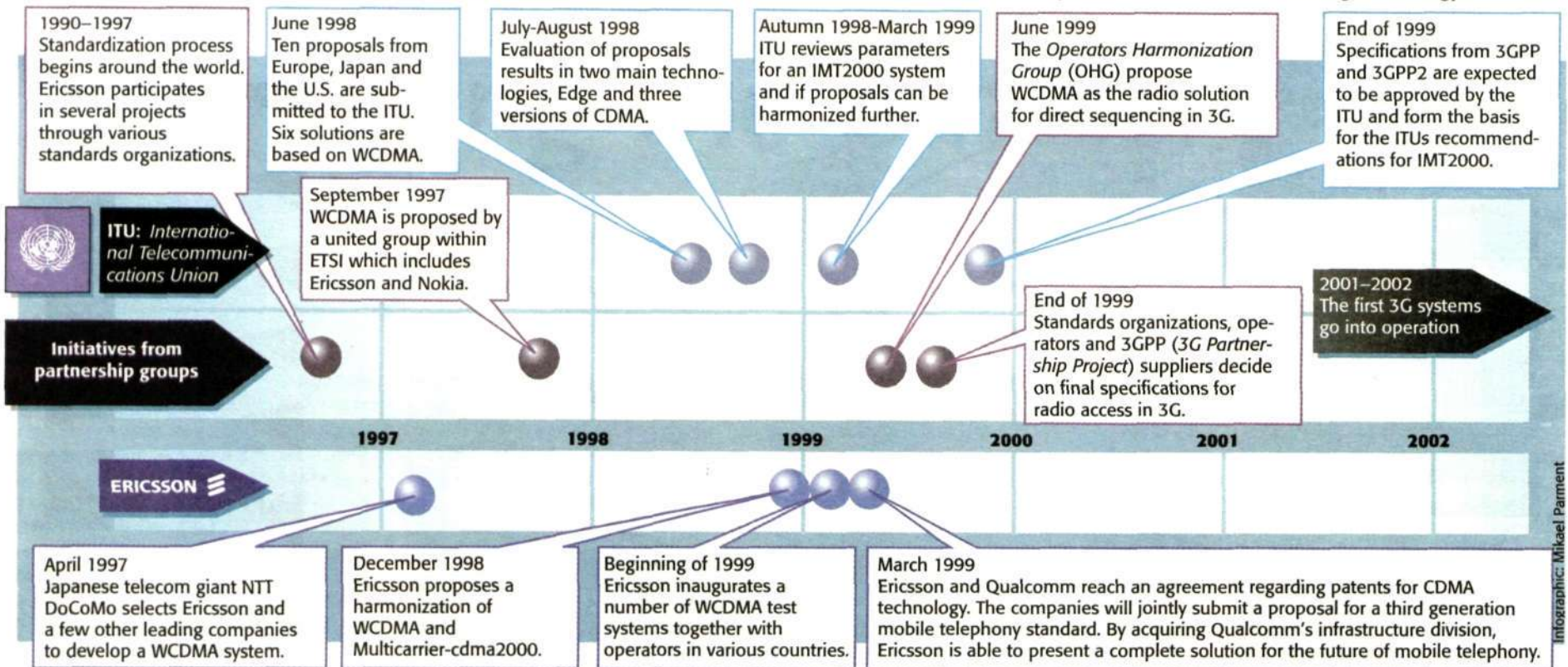
Over the next two years, Ericsson will invest USD 30 million in Telebit. The company employs about 60 people, and has its head office in Viby outside Århus on the Jutland peninsula of Denmark.

The investment is strategic in that it quickly provides Ericsson with real-time routers and expertise on IPv6. The protocol is an essential prerequisite for creating IP addresses for all users when the market for wireless Internet begins to heat up.

IPv6 will also make it easier to implement new wireless networks.

DEVELOPMENT OF A WORLDWIDE STANDARD FOR THE THIRD GENERATION MOBILE SYSTEM, IMT2000

Following numerous discussions regarding standardization issues for 3G, the third generation mobile phone system, a worldwide standard should be ready by the end of 1999. Depending on their needs and frequency allocations, operators will be able to choose among four different versions of radio access. WCDMA and Multicarrier-cdma2000 will dominate the 2GHz bandwidth, which will also support TDD solutions. Within existing frequency bands, GSM and TDMA operators will be able to utilize Edge technology.



Mobile telephony on its way towards a single standard

After ten years of work, global agreement has now been reached about which technology to use in the third generation mobile system, IMT2000. All specifications for a worldwide standard should be complete by December.

A decisive political step was taken earlier this summer by key operators.

The Operators Harmonization Group (OHG), which consists of approximately thirty leading operators from around the world, agreed on a choice of technology for the third generation mobile phone system in June. The group has been working to reach agreement for a year, but was hampered by a polarization between GSM operators and IS-95 operators (cdma-One).

Political unity

The decision reached in June shows that there is now political stability, both among operators and suppliers, regarding technology. The OHG forms the solid base needed in order to make 3G a commercial success and to meet timetables for starting up new systems.

"The technical choice made by OHG is in complete agreement with Ericsson's strategy. It means that all operators are winners when it comes to migrating to IMT2000,"



Mats Nilsson

says Mats Nilsson, who oversees technical standards issues for the company.

The worldwide standard for IMT2000 will consist of four different versions or modes, as Contact has previously reported. The solutions compliment each other, depending on operator frequencies and needs.

Supports all systems

Within CDMA technology, there will be three wideband versions: WCDMA, Multicarrier-cdma2000 and TDD. Edge is available for TDMA technologies, meaning GSM and TDMA operators will be able to upgrade their systems to third generation mobile phone systems using existing frequency bandwidths.

"Ericsson supports all IMT2000 versions. With the purchase of Qualcomm's infrastructure division last spring, we'll also have equipment for IS-95 operators," says Mats Nilsson.

Requirement for unity

Ericsson's agreement with Qualcomm regarding IPR (intellectual property rights) issues in March was also a prerequisite for reaching

global agreement on standardization among operators and suppliers. Patent agreements mean that all manufacturers are now able to license CDMA technology and create commercially viable products and systems.

"WCDMA and Multicarrier-cdma2000 will be the most widespread wideband CDMA technologies since TDD is not suitable for national coverage," says Mats Nilsson. "If one looks at the situation on the world markets regarding frequencies and operator needs, then it is clear that WCDMA will play the dominant role within wideband CDMA technologies."

For operators who are currently using IS-95 systems, Multicarrier-cdma2000 is a natural expansion step for certain frequency bands. The technology can be installed in previously allocated bandwidths.

On the other hand, for GSM, TDMA, PDC and mobile telephone operators who get new licenses in the 2GHz band, WCDMA will be the natural technology choice.

Nils Sundström

nils.sundstrom@lme.ericsson.se

THIS IS HOW HARMONIZATION WILL WORK

The decision by the Operators Harmonization Group means that there will be a harmonization of the solutions for CDMA direct sequencing. The technology will be based on a WCDMA solution that, with software additions, will be able to handle services in upgraded IS-95 networks. Harmonization means that WCDMA will receive a reduced chip-rate of 3.84 megachips per second. That will not affect the performance of WCDMA systems, however.

The choice of technology also means that base stations in the network will not have to be synchronized, as is the case with the Multicarrier-cdma2000 solution.

One change, however, is that the WCDMA solution will be complemented with a multiplexed pilot code in order to determine radio channels, reflections, multipath propagation and so forth, between base stations and mobile terminals.

IS-95 operators will also have the option for another IMT2000 solution, namely Multicarrier-cdma2000.

That technique utilizes several carrier waves in the downlink to mobile phones in order to enable simultaneous operation with existing IS-95 systems, where the same frequencies are used. Uplinks in multicarrier are, however, wideband.

WHAT WILL WIRELESS INTERNET? DO FOR YOU?

Sigrun Hjelmquist,
President, Ericsson
Components, Sweden

"To be more independent and free to communicate wherever I am and whenever I want with colleagues and friends, to be able to do shopping and banking 'on-the-run' and to get quick access to information. I will continue to use my wireless terminal as a tool - with a switch-off button."



Santanu Ganguly,
Customer Order Management and Projects, Ericsson Telecom, Sweden

"The wireless Internet, brings in a scenario where, in a person's life the words 'home' and 'work' tend to merge since these two do not necessarily remain geographical entities. I think that this opens up a lot of opportunities since geographical location is no longer a limitation."



Krister Gavelius,
Management Consulting, Ericsson Business Consulting, Sweden

"For me, it will really increase my flexibility in planning my own time. I will be able to get connected and select/access information when, where and however I want to. That will give me the opportunity to spend more quality time with my family."



Donna Campbell,
Head of Ericsson Cyberlab, New York, U.S.A.

"We've come to rely on the Internet for so many things - communicating with colleagues, family, friends, making travel arrangements, shopping, and research - that we want to be connected to it all the time. It's our lifeline to the rest of the world. The only way to have that constant connection is with wireless Internet."



Specifications to be finalized by year-end

Final specifications for WCDMA will be nailed down in December by 3GPP, the Third Generation Partnership Project.

Included are six regional standards organizations along with numerous suppliers and operators from the mobile telephony industry.

During the summer of 1998, all the regional standards organizations submitted their technical recommendations regarding 3G to the International Telecommunications Union (ITU).

Following evaluation by the ITU, a process was begun to further harmonize the various technology proposals, resulting in the creation of 3GPP.

3GPP sets standards

Members of 3GPP include the American standards organization ANSI T1, Europe's ETSI, Japan's ARIB and TTC, China's CWTS, and South Korea's TTA along with representatives from over 230 of the industry's leading suppliers and operators.

"3GPP's specifications will become the official worldwide standard for WCDMA, which the ITU will refer to when issuing recommendations for how the standards will be used on a global basis," says Jonas Sundborg, Ericsson's overall project manager for 3GPP standardization.

Lots of work still ahead

The main focus of the so called UMTS specifications (Universal Mobile Telecommunications System), to be ready in December, will be the new radio interface to be included in WCDMA, as well as TDD. But 3GPP will still have lots of work to do after that.

The plan is for there to be annual updates of

IMT2000, just as there have been for GSM technology. The difference is that the new standard will be even more global so that developing new versions will be more complex.

Moving towards IP

"New versions are needed since the market is constantly demanding new applications. For example, there are plans to incorporate advanced positioning services and a more IP-based core network in the year 2000 version of UMTS," says Jonas Sundborg.

The core network of the WCDMA system is

based on GSM technology. The first version of the core network will allow both packet-switched data via GPRS nodes as well as traditional circuit-switched data.

All services IP-based

In the future, however, circuit-switched data is expected to disappear. Instead, all services, including voice, will be IP-based. A new generation of mobile exchanges will therefore be required to handle IP traffic in mobile networks.

A dozen or so operators and suppliers, including Ericsson, formed the 3G.IP industry forum in June to promote the idea that new IP-based core networks should be based on GPRS technology. But there are other solutions as well that have been developed for Multicarrier-cdma2000.

Specifications for Multicarrier-cdma2000 are being made by 3GPP2, a sister organization to 3GPP, which was formed by IS-95 mobile telephone standard interests. 3GPP2 will be approving final specifications for the first version of cdma2000 by the end of the year.

The work, which Ericsson is now participating in following its agreement with Qualcomm, will be coordinated by 3GPP. Work will continue after that with specifications for the new IP-based core network for Multicarrier-cdma2000.

Nils Sundström

www.3GPP.org

www.3GPP2.org

Licensing process begins

By the year 2001, the first commercial 3G system is expected to be put into operation. So far, however, only Finland has auctioned off licenses for third generation mobile telephony in the 2 GHz bandwidth.

Earlier uncertainty surrounding a worldwide 3G standard has meant some delays in the licensing procedures of various countries.

Taking off next year

Four operators have currently been issued licenses for third gen-

eration mobile telephony in Finland. Licensing is now expected to take off in Japan and New Zealand. By the end of the year or the beginning of next year, licensing auctions will also get underway in the Netherlands, the U.K. and Germany.

Licensing must begin in all EU nations by next year, according to an EU decision. Operators within the EU should be able to have their networks running by early 2002.

Asia soon to follow

In Asia, several nations such as China, South Korea and Taiwan are expected to issue 3G licenses by the end of next year.

The situation in the U.S. is dif-

ferent. There, frequencies in the 2 GHz bandwidth are already being used by current mobile systems.

That means operators can upgrade their systems within existing spectrums.

The IS-95 system will become Multicarrier-cdma2000 and the TDMA and GSM systems will be upgraded to Edge technology.

Nils Sundström

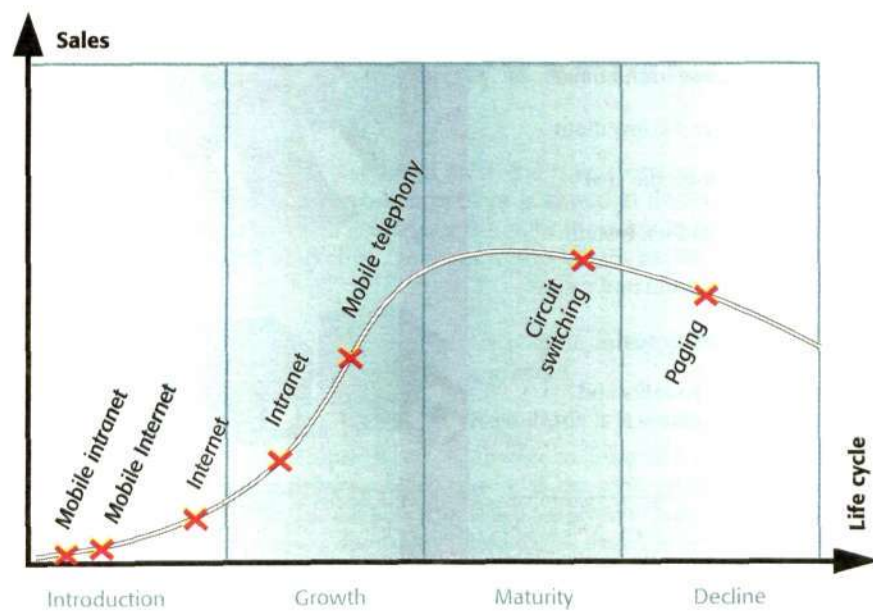
ERICSSON'S MARKETS VARY IN MATURITY

Since Ericsson's activities and product portfolio encompass the entire product cycle, operations must be managed in different ways, depending on how mature the market for a given product is.

Products in circuit-switched telephony – such as AXE and the MD 110 business switch – represent a mature market. The products generate large financial returns but have low

growth. Conventional paging systems represent a market that has already peaked.

The main growth area today is mobile telephone systems. The mobile dimension of intranet/Internet technology is still in its introductory phase, and the same applies to fully IP-based communication for fixed networks. This is where Ericsson's future revenues will come from.



Haijo Pietersma, Head of the Enterprise Solutions business segment

"As a consumer you will be able to handle, organize and share increasingly amounts of information and services much faster. What you need is what you'll get – instantly. There will be more and better quality time for the pleasures of life, be it in business or private."



Marita Hellberg, Human resources manager, Europe, Middle East and Africa market area

"I see great benefits, when travelling or out of the office, to be able to be operational whenever I want it. On a more personal level, I will be able to get information about what's on when I am in town."



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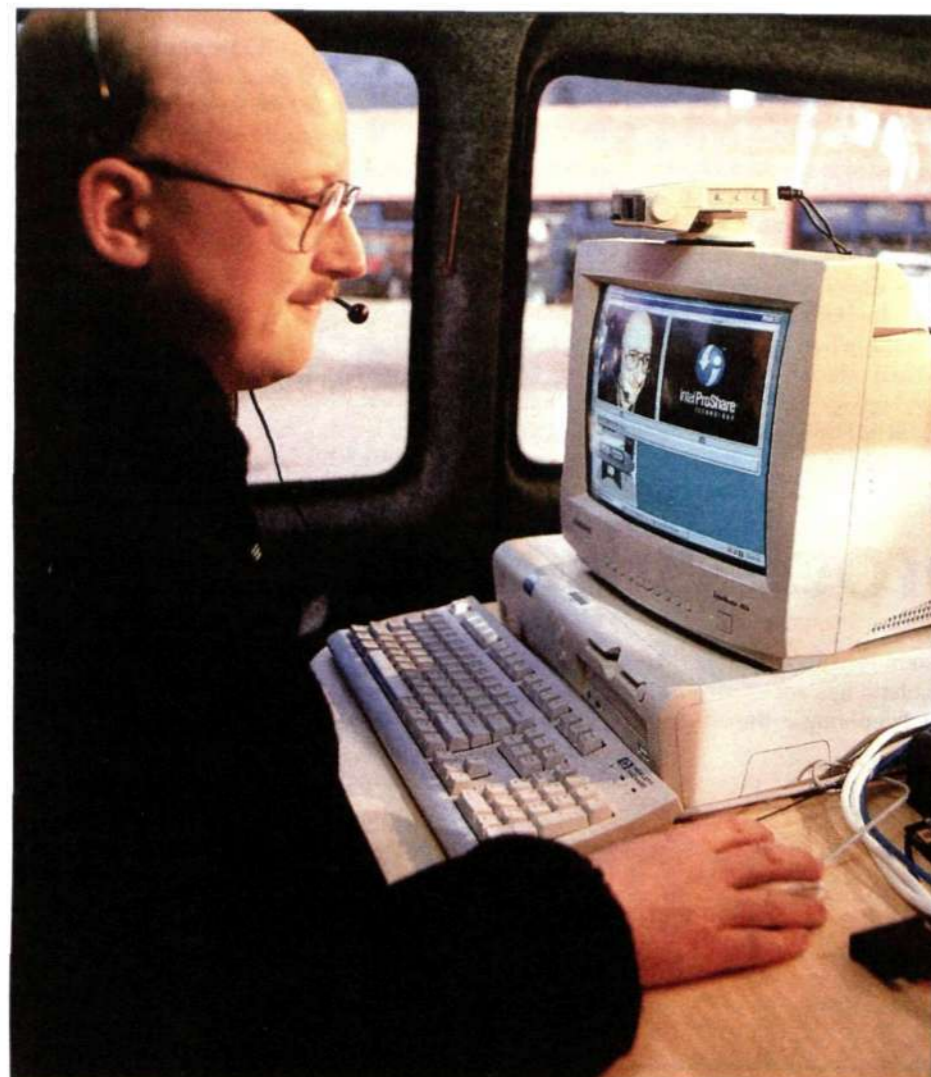
On the agenda:

- Ericsson SS7 in the future
- Product Presentations
- Customer Presentations
- Ericsson Infotech as SS7 Core Product Unit

Visit our web-site at: infotech.ericsson.se/company/courses for information and registration.

ERICSSON

Marketing UMTS makes U.K.



Bob Dysart with one of the test buses that demonstrates Ericsson's WCDMA test system in the U.K.

At Ericsson Ltd in Guildford in southern England, the marketing campaign for UMTS, the third generation of mobile telephone systems, is in full swing. Ericsson's test system in Guildford is a key element in this project.

Several major international operators have their head offices in the U.K., and their choice of supplier has an international knock-on effect. This makes the U.K. a major hub in the new telecoms world.

In January this year, a dedicated UMTS unit was created at Ericsson Ltd in Guildford, where a test system for WCDMA was also inaugurated in February. UMTS is the designation for the third-generation mobile telephony standard in Europe.

"There are 17 of us here in Guildford working exclusively on UMTS, as well as a number of people who split their time between UMTS and other assignments, bringing the total number of people involved with third-generation mobile telephone systems to about 30," notes Håkan Enquist, head of the UMTS unit.

Four mobile operators

Deregulation of the telecom market was already under way at the beginning of the 1980s in the U.K., where there are four different mobile operators today. The allocation of licenses

for third-generation (3G) systems will probably not begin until early next year. The process has been postponed six months due to the complex politics surrounding license decisions. One contentious issue relates to a fifth license which the government wants to award to a newcomer to the telecom sector.

"There is an incredible amount of media interest in 3G, with articles on the subject appearing on a daily basis in the U.K. press," says Håkan Enquist.

User group for operators

At the end of last year, Ericsson initiated the formation of a U.K. User Group consisting of the four mobile operators in the U.K.

"The operators were extremely interested in 3G, and a test system was needed so that the technology could be explained and demonstrated," relates Lars Bergendahl, who is responsible for Ericsson's WCDMA Test Center in Guildford.

The test system, which covers Guildford and its environs, was inaugurated in February.

Keith Woodfield, who is responsible for day-to-day operations at the Test Center, coordinates demonstrations and tests with the operators.

"At first we were using a single system that could be configured for either test or demon-



Håkan Enquist

a vital place

stration purposes, but now we have two separate systems, which relieves the pressure on the demo center," explains Keith. The system includes three test buses.

At the end of June, the system was upgraded to its full capacity of 384 kbit/s, ensuring that the operators remained keenly interested.

Visitors to the Test Center are impressed when they can observe and try out a functioning system, as opposed to a simulation.

"The technicians from the operating companies are interested in radio interfaces, capacity and coverage, while the representatives of the media companies would just as soon skip the technology and be informed how and for what purposes the system can be used," continues Keith.

Applications tested

So far, the tests in Guildford have been performed jointly with the operators. Now each operator has started testing various applications separately, with the aim of identifying those applications that provide the best competitive advantages.

"The operators' cooperation with the U.K. User Group has given rise to several important demands on their part," says Lars Bergendahl.

One of these demands is that it should be possible to use the sites where base stations are located for both second-generation and third-generation base stations. Since the sites - particularly in London -

tend to be extremely cramped, any operator

who can develop a compact and power-efficient base station has a clear advantage. Another requirement is that applications be compatible with WCDMA technology.

Ericsson in Guildford enjoys a fruitful collaboration with the University of Surrey, where tools for dimensioning networks for 3G are being developed; the tools are tested at Ericsson.

New customer categories

"We have also had discussions with representatives from the Department of Trade and Industry to identify prospective 3G purchasers," says Lars Bergendahl, noting that there are companies outside the telecom sector that see a 3G license as a gateway to new business opportunities.

Ericsson is not the only company with a test system for 3G in the U.K. There are three other test systems in the country, but all rely on simulation.

Leading supplier in U.K.

Today, Ericsson is the U.K.'s largest supplier of equipment for mobile telephone systems, with 50 percent of the market.

"As well as having a complete test system, we were also the first company to receive an order for GPRS here in the U.K.," says Håkan Enquist. "This was in March, when the operator One2One signed a GPRS contract with us."

"Given that GPRS is the gateway to UMTS, Ericsson is in excellent shape for the future," he concludes.



Lars Bergendahl

Gunilla Tamm

gunilla.tamm@ime.ericsson.se

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More and more players in the new telecoms world

"When the licenses have been auctioned off in the U.K., Ericsson will be the natural choice of supplier. Much of our work at present is aimed at finding the right people in the operating companies and conveying the right message to them," says Richard Carter, sales and marketing manager in the UMTS unit at Ericsson Ltd in Guildford.

You only have to look at the parking area outside Ericsson's facility in Guildford to see evidence that new interested parties are being drawn into the new telecoms world. Previously, the visitor parking area was occupied by ordinary cars belonging to customers or the technicians from operating companies. But now it is nothing unusual to see Jaguars and Rolls Royces parked there.

Going outside the telecom sector

"When the licenses are auctioned off, probably early next year, there are expected to be five of them, one of which will be earmarked for a company or group of companies outside the telecom sector," explains Richard Carter. As an example of such a company, he names Virgin, whose activities include an airline and a television production company. Virgin has an extremely strong brand and now wants to team up with another company to enter the mobile telephone market. A large number of companies are currently jockeying

for position in preparation from the license auctions.

How much is it worth?

Another company that is eager to obtain a license is the cable television company NTL, which has access to more than 11,000 potential base station sites. Another prospective bidder is Energis, which operates a fixed private telephone network. A key question for all the companies involved is how much a license could be worth and how much future business it could generate. Given that 3G is a unique product that can be used in a number of different ways and in new application areas, it is vital to convey the right message to the prospective customers.

"In view of the turbulent situation at present, with consortiums being formed and companies being acquired, it is extremely difficult to decide which are the most serious candidates for a fifth license, which means that we must work on a broad front if we want to be in with the best possible chance of competing as a supplier to the new operator," says Richard Carter.



Richard Carter

Gunilla Tamm

NEW TECHNOLOGY, NEW TERMS

New technology brings new terms. Here are some of the abbreviations and terms that could be of use to those who want to be able to find their way around in the new telecom world:

3GPP: The Third Generation Partnership Project - a project initiated to accelerate development of open, global technical specifications for 3G services.

Air interface: (Air or radio interface.) Radio link between a mobile communication device, such as a mobile telephone, and a base station.

AMPS: Advanced Mobile Phone System. An analog mobile telephony standard widely used in the U.S., Asia and Eastern Europe.

ANSI: American National Standards Institute, the standardization body for North America.

ARIB: Association of Radio Industry Businesses, Japan's standardization body.

Asymmetric communication: Two-way communication in which the traffic volumes in each direction differ substantially. An example of asymmetric communication is Pay-TV.

Bandwidth: Information capacity of a communication resource, usually measured in bits per second.

Bluetooth: Global joint initiative, involving Ericsson, IBM, Intel, Nokia and Toshiba and aimed at creating a standard for wireless communication between mobile telephones, mobile computers and other devices.

Broadband: A classification of bandwidth capacity for a communication channel. Broadband usually refers to a bandwidth higher than 2 Mbit/s.

CDMA: Code Division Multiple Access. Access technology used for the cdmaOne, cdma2000 and WCDMA radio interfaces.

cdmaOne: Narrowband digital radio link technology developed by Qualcomm.

cdma2000: Proposal from the CDMA group of interested parties for a system standard for 3G services. Now known as Multicarrier-cdma2000.

Core network: The physical network infrastructure to which the radio access network is linked in a mobile network.

Edge: Enhanced Data rates for Global Evolution, an enhanced radio adaptation technology for GSM and TDMA networks.

E-GPRS: Another term for Edge.

Epic: Operating system for mobile multimedia terminals developed by Symbian.

ETSI: European Telecommunications Standards Institute. The European standardization body.

GPRS: General Packet Radio Service. An improved version of the GSM core network that introduces packet data transfer. Makes efficient use of the existing radio spectrum and provides the user with more access bandwidth than is available over an ordinary link. Can also be applied in TDMA networks.

GSM: Global System for Mobile communication. Originally a European standard for a digital mobile telecommunications network to support mobility across borders. GSM is now the dominant mobile standard worldwide.

IMT-2000: International Mobile Telecommunications 2000. The ITU's initiative for a service designed to provide radio access to the global telecommunications infrastructure, via both satellite and terrestrial systems. Serves users in both public and private fixed and mobile networks.

Intelligent Network: A capability in public telecommunications networks that enables new services, such as personal numbers, call diversification, etc. to be rapidly developed and introduced at any level - from local trials to entire networks.

ISDN: Integrated Services Digital Network. A public digital telecommunications network that can provide a number of services (voice, data, images and video) via a standard terminal.

ITU: The International Telecommunications Union. The UN organization responsible for coordinating global telecommunications activities such as standardization and the allocation of radio frequencies.

Multimedia: Refers, in the context of mobile communications, to a service that combines voice, data, images and video information.

PDC: Personal Digital Cellular. The digital mobile telecommunications standard used in Japan.

PSDN: Public Switched Telephone Network. The ordinary telephone network.

Radio access network: The part of a mobile network that handles subscriber access. Includes radio base stations, and control and concentration nodes.

Real-time communications: A communication service in which the transmitted information reaches the recipient directly in an unbroken sequence. Telephone calls and video conferences occur in real time, in contrast to database searches and e-mail transmission.

Roaming: Facility enabling a mobile telephone user to shift between different networks without this affecting the ability to communicate.

Router: Performs roughly the same function as a telephone switch, but in a datacoms network.

Symbian: Consortium formed by Ericsson, Nokia, Motorola and Psion. Symbian's remit is to develop a standard operating system (EPOC) for mobile multimedia terminals. Matsushita is now also a member of Symbian.

TCP/IP: The data protocol used on the Internet.

TIA: Telecommunications Industry Association. A standardization body in the U.S.

UMTS: Universal Mobile Telecommunications System. A system for supplying 3G services being developed under the auspices of ETSI.

WAP: Wireless Access Protocol: A global open standard for online services from mobile telephones with a small display.

Wideband: A classification of bandwidth capacity. Usually refers to bandwidths in the range from 64 kbit/s to 2 Mbit/s.

Wideband CDMA (WCDMA): The radio technology for 3G services chosen as the standard by both ARIB in Japan and ETSI in Europe.

The technology mediates high-speed multimedia services, such as full-format video, Internet access and video-conferencing.

A fireman goes into a burning house in search of a sleeping family. It's difficult and dangerous to navigate in the darkness and smoke. But he is receiving help through a wireless Internet connection. With the terminal in his pocket and the safety glass on his helmet functioning as a virtual display, he can see blueprints of the building showing him the way.

Just a wild fantasy? Not at all. In fact it's already possible with today's technology.

Wireless for work and play



Sure, new technology is good, but what is it good for? "The technology behind third generation mobile telephony promises to open up endless possibilities," says Jens Zander. "Just imagine if a fireman could get directions displayed directly on the shield of his protective helmet while inside a burning house!"

Photo: Torbjörn Gustafsson/Pressens Bild

Jens Zander is a professor of radio systems technology at the Royal Institute of Technology in Stockholm. He provides numerous examples of how wireless Internet access could be utilized in coming years. His scenarios are both plausible and yet unbelievable at the same time.

"We're now in an age when it's no longer the technology which sets the limits. The technology behind third generation mobile telephony will open innumerable possibilities," he says. "But in order for them to become a reality, they have to be profitable."

Services for individuals

It is expensive to expand and upgrade systems and networks and to install new base stations to provide coverage for the new technology. That's why it's not enough to simply target companies that clearly have a profit to make from wireless Internet – firms with many employees who travel, construction companies and so forth. Ideally, suppliers and operators would like it if we all had access to 3G. But individuals who do not stand to make any money from the new technology need to be enticed by services that make life simpler or more fun.

Jens Zander can, for example, envision a system where the Stockholm public transport authority would provide its customers with small computer terminals that would always show current traffic information. The terminals

would know where a person was located and could inform them how to find the quickest way to the nearest stop. It could also say whether a bus was delayed and when it was coming.

Perhaps you are in a hurry. In that case, the terminal could suggest the fastest mode of transit. If there was a traffic jam you could avoid the bus and instead take a quick walk to the nearest subway station, and so forth.

Such a system would actually be feasible as soon as it became more profitable to offer the service instead of printing and distributing new timetables every year.

Easy to find restaurants

It would also be possible to offer travel guides in a similar manner. Your terminal would sense that you were standing on the rue Saint Germain in Paris and be able immediately suggest several good restaurants or empty hotel rooms nearby.

What sort of equipment will we need in order to have access to this new wireless information? Jens Zander sees two alternatives. Either we'll carry around numerous credit card sized terminals that have specific functions: transit guide, travel guide, phone book and so forth, or we'll have a larger device that functions as a computer/telephone that can download different services.

The first is problematic in that there would

be many things to keep track of. On the other hand, people try to avoid carrying large devices around with them.

Small device – big screen

"As users, we want our devices to be small," says Jens Zander. "But at the same time, we want the displays to be as big as possible. That's why people are considering paper-thin screens that can be rolled out."

Another variation is that we will have eyeglasses that function as displays. You could walk along the street and receive information in the middle of your field of vision. When you walked past a grocery store, a small box would pop up with current sale prices. A few meters before reaching an accident-prone intersection, you would perhaps receive a warning about a fast-moving car approaching from the left.

Work at "virtual desk"

If you needed to do some work, you could call up a virtual desktop in your field of vision and then point at the documents you wished to open.

"It would be easy to make this work by having a motion detector and a Bluetooth link in a

watch or ring," speculates Jens Zander. "Although those around you would perhaps think you looked a little strange".

He explains that using Bluetooth or similar technologies, you could create a Body Area Network where the glasses, terminal and earphone could communicate wirelessly with each other and the outside world.

But enough about technology. What is needed now is to focus efforts on intelligent, profitable services. Jens Zander doesn't even dare to hazard a guess as to which application area will have the biggest chance of success within the next few years.

Fill a need

"Anything is possible as long as one can keep costs down," he believes, remaining convinced that wireless access to the Internet or intranet fulfills a need.

"Just imagine what one could earn by having the right information," says Jens Zander. "Imagine that you're sitting in negotiations for a huge contract. With wireless Internet access to the home office you could be continually fed current information. Your colleagues could check whether the offers you were receiving were reasonable, if the numbers checked out and so forth. That would give you an incredible advantage."

Maria Paues



Jens Zander

WHAT WILL WIRELESS INTERNET? DO FOR YOU?

Oguz Demirel,
Designer, Ericsson Australia

"Wireless Internet is a step towards merging markets in such areas as telecommunications, IT, banking, TV and commerce. Sooner or later it will replace today's mobile phones, portable personal computers, ATM Cards and newspapers."



Ulf Vikström,
Systems developer, Ericsson Finland

"One possibility is to check on timetables, events, opening hours of amusement parks, and so on, while on a vacation trip with the family. A prerequisite is that the user interface of mobile phones is substantially improved."



Kenneth Österberg,
Systems developer, Ericsson Finland

"I look forward to wireless e-mail, banking, and access to various types of information and services, such as phone catalogues. As a small investor, I also need real time access to stock market information and brokers."

