Speedier deliveries

With TTC Global Ericsson has improved the precision and speed of its deliveries. Ericsson in Finland is the market unit that has made the most progress. **11**

A digital revolution

After ten years of analog mobile telephony, it was time for a generation shift. In 1991, the first GSM system was put into operation. Read more in *Contact's* series about the development of mobile telephony. **20**

World of meetings

Having many and protracted meetings can be a nuisance. *Contact* provides advice on how to avoid inefficient and disorganized meetings. **At work, 22–23**

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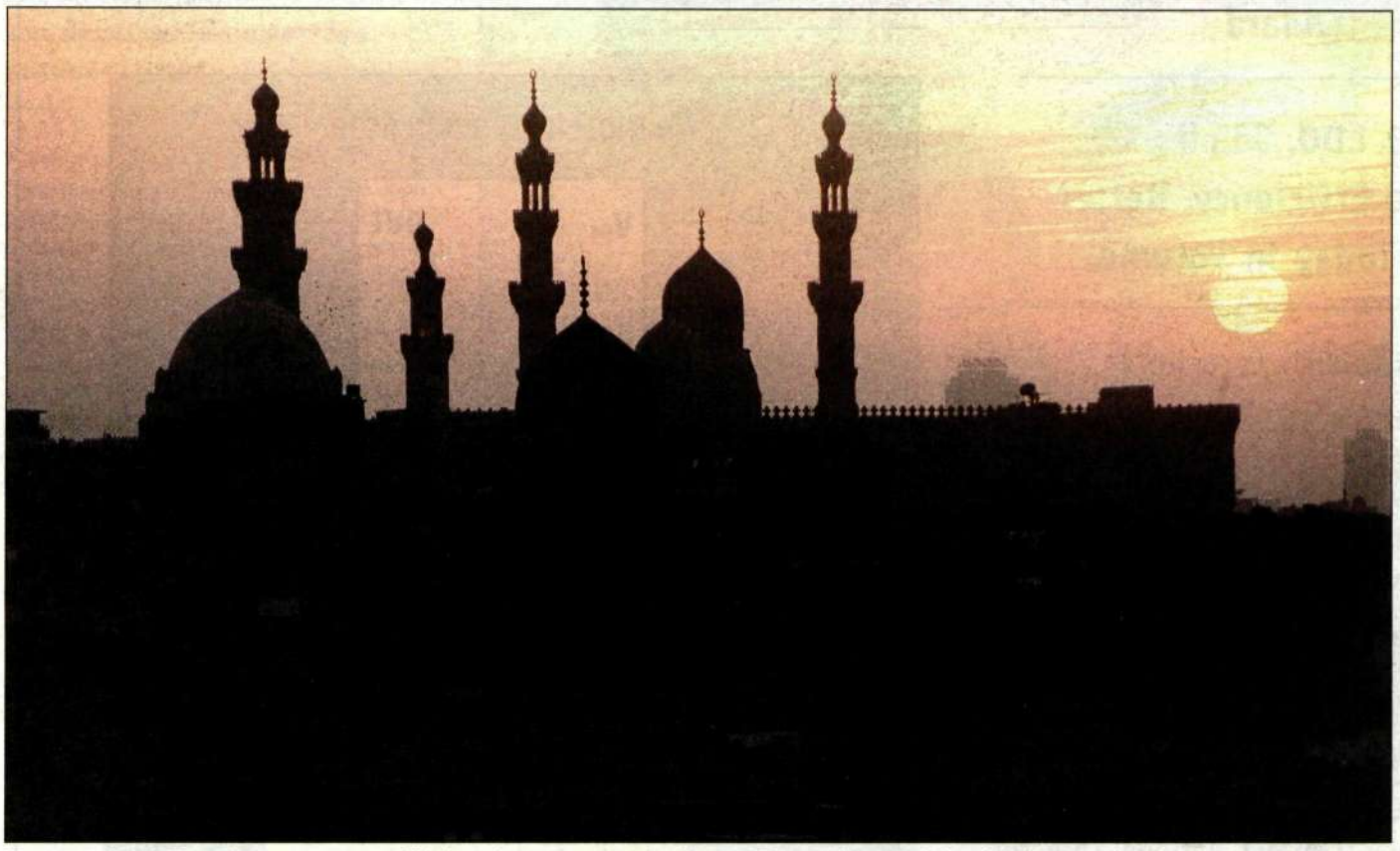

IT companies in Egypt have access to skilled workers as a new era dawns. Ericsson is one of the global companies helping to spread knowledge about the latest technology. Photo: Ecke Küller

IT wave awaits Egypt

Egypt has made major efforts to become established as the leading IT country in the Arab world. The past year of turbulence in the IT market has slowed this development, but Egypt is continuing to focus on education and new technology.

"The IT market will experience another wave of growth. And then we'll be ready," says Tarek Kamel, advisor to Egypt's IT Minister.

Ericsson is helping the Egyptian government with training programs and Ericsson's Mobile Internet Center is assisting Egyptian companies in getting started on the development of Mobile Internet. **Spotlight on Egypt, 16–18**

Savings program continues

Intensive efforts are being made to find ways to effect the cost-cutting measures approved by the Board. A seven-member project group has until April 20 to prepare a plan for savings of USD two billion.

"Responsibility for the success of the program lies with everyone in the organization," says project manager Ingemar Blomqvist. **News, 4**

Positive Flextronics deal

About 90 percent of the costs for producing a mobile telephone pertain to materials, that is, purchased components.

The fact that Flextronics can produce mobile phones at a lower cost than Ericsson is attributable to large volumes. Flextronics purchases larger amounts of components, thus securing a lower price. As a result, the manufacturing costs per phone are lower.

In a short time, Flextronics has become second largest in the world in its field.

"We were the first to risk investing in the European market, despite relatively high costs," explains Ronny Nilsson, head of Flextronics in Western Europe. **12–13**

The wonder of Bangalore

Bangalore in southern India has become a symbol of the Indian IT miracle.

Ericsson's research and development center in Bangalore hopes to be able to grow substantially and the prospects are excellent, according to Inge Garshol, Ericsson's head of research and development in India. **14–15**

WORLD WATCH

Several of Ericsson's competitors have laid off about 15 percent of their personnel. They are primarily North American players, who have found the solution to the economic downturn by making extensive cutbacks in personnel. The reason is primarily the companies' considerable dependence on the US market. **8**

TECHNOLOGY

For mobile operators, it is becoming increasingly important to make optimal use of the radio network. Lost and interrupted calls are the cause of large amounts of lost revenue. Ericsson's tool for continuous optimization in real time creates undreamt-of possibilities to control the network. **21**

AT WORK

When reality can be defined as a "crisis", it is time to act, but what management team is prepared to do this? Management has many groups to consider: employees, unions, the financial markets and the mass media, according to Maria Tullberg, organizational researcher. **24**

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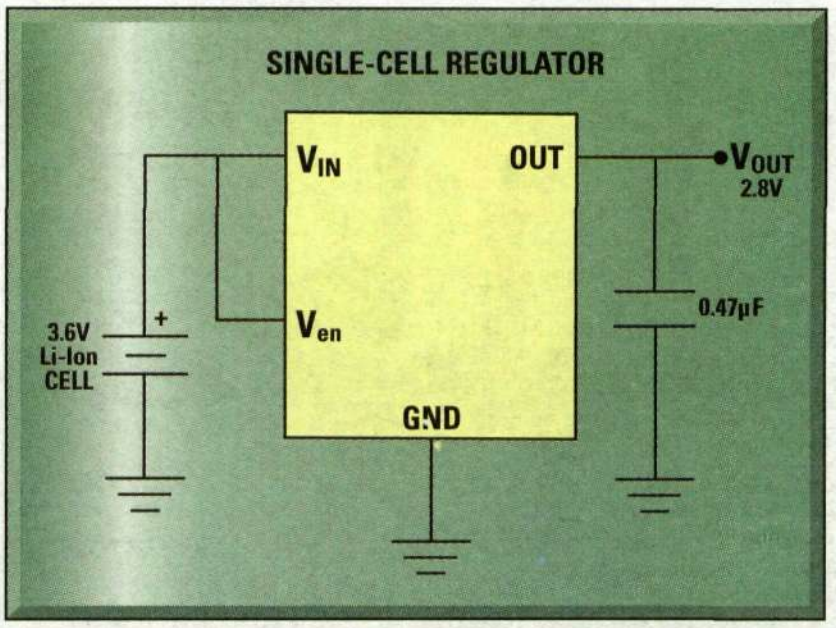
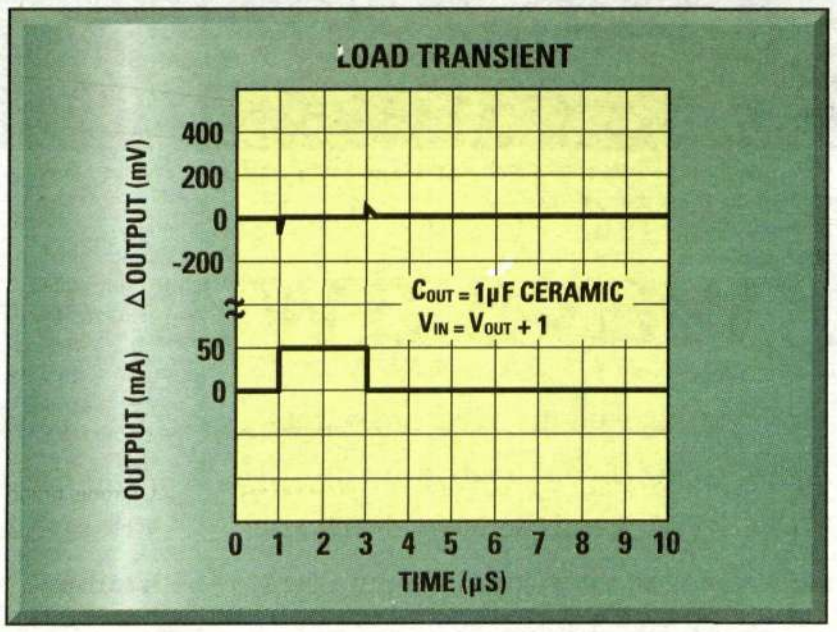
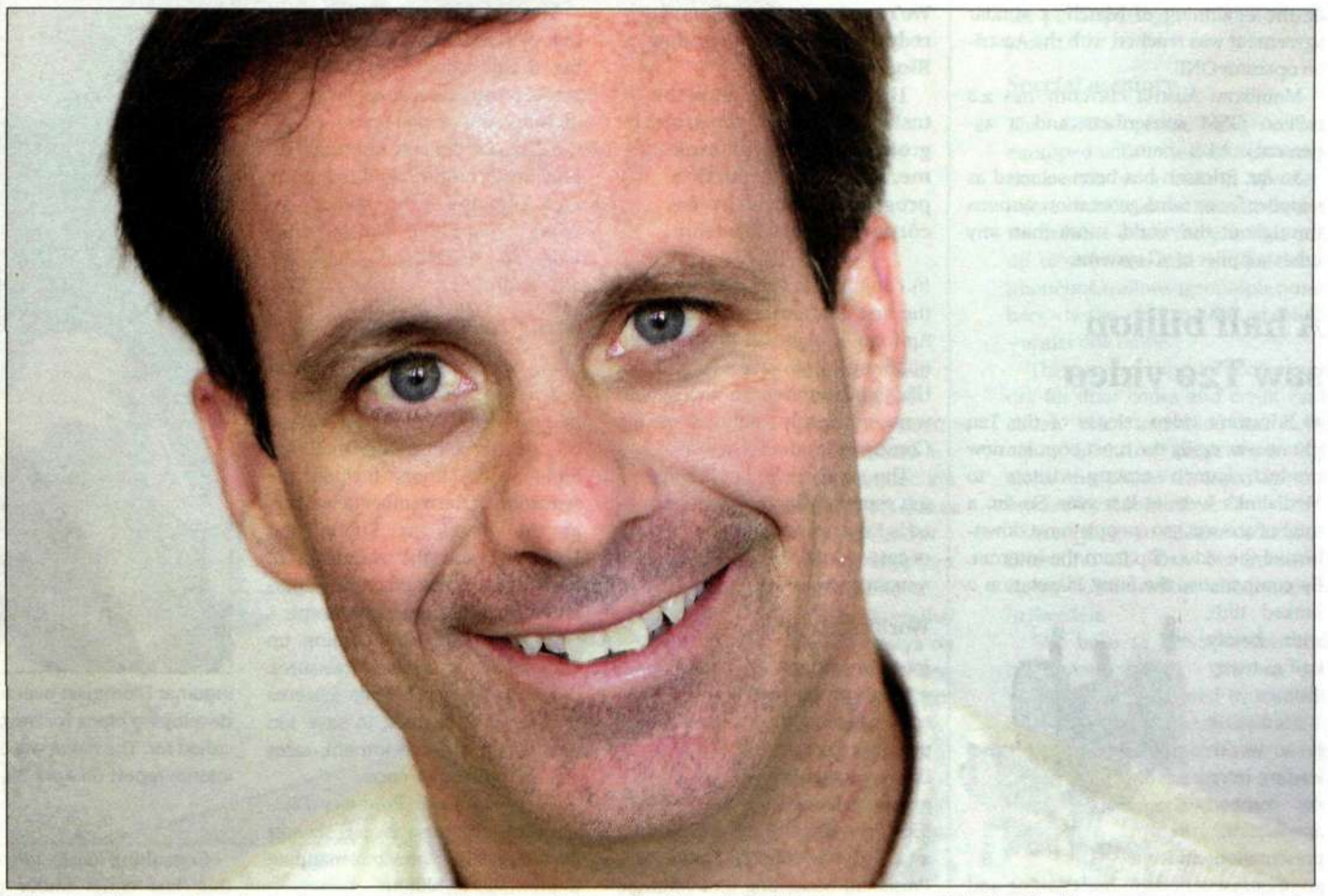




National Semiconductor
The Sight & Sound of Information

Brand reflects company's values

Branding forms the foundation of all marketing, and is built around corporate cultures and values. John Giere, Vice President, Branding and Market Communications at Ericsson, describes the process as a mixture of science and creativity.



"When building up a brand, you have to seek out the values that are deeply rooted within the company. What typifies the employees and what is the history of the company? When you find what you are looking for, it provides a very strong tool," says John Giere. Photo: Lars Åström

➤ Before a new ad campaign is launched, John Giere and his team work to create the appropriate presentation and, before each major campaign, local marketing units are provided with tools to create a local variant of Ericsson's global message.

"We have a group that oversees work with branding and marketing. We meet regularly to establish central guidelines for marketing. We've been operating in this manner for just over six months and have had excellent results," says John Giere.

Using these tools, market units create messages that are tailored to their unique local conditions. Customers must, however, always be able to recognize the core message in Ericsson's campaigns.

"We have examples of campaigns that went beyond our guidelines, and they did not always work very well. If campaigns don't follow the same design, they often don't have the same effect," says John Giere.

In addition to the greater level of control that a coordinated marketing campaign provides, there are also other advantages. It provides better economy for Ericsson since the same basic concept is used everywhere. The Mobile Internet campaign also demonstrated that such a strategy yields excellent results.

"Following the campaign, the number of articles about and references to Ericsson in the media doubled worldwide. 60 percent of the coverage dealt specifically with the Mobile Internet. This represents free marketing generated by the campaign," says a satisfied John Giere.

Ericsson currently relies on the Publicis advertising agency for campaigns aimed at businesses. The agency in charge of consumer oriented advertising is called BBH – Bartle Bogle and Hegarty. Ericsson and Publicis recently received several awards for the Mobile Internet campaign when Wireless Week announced the best advertising campaigns of the year.

"We give them a clear explanation of which audience we are targeting, the values that we have, the needs that we will fulfill for customers and so forth. We don't relinquish control to consultants. They add a creative touch that helps us get our message across."

We're not creating something new, but rather highlighting that which has always existed at Ericsson

A strong brand is fundamental in order to succeed in marketing on a global scale. Customers, the media and employees around the world must immediately have a positive association when they hear the name Ericsson.

John Giere is careful to point out that establishing a brand is not the same as creating an image. A company can create a cool image using all of the tricks of the trade, but if that image is not anchored in reality, then the campaign will not have a lasting effect. Such images fade quickly.

"When building up a brand, you have to seek out the values that are deeply rooted within the company. What typifies the employees and what is the history of the company? We're not creating something new, but rather highlighting that which has always existed at Ericsson. When you find what you are looking for, it provides a very strong tool. People buy Ericsson's products and they place greater value on them since they are also buying into part of Ericsson's positive values," says John Giere.

What does Ericsson stand for?

"Ingenuity. We're a manufacturer for the newest ideas and are a leader in those areas that we choose to pursue. Ericsson has operated in this manner since Lars Magnus founded the company 125 years ago. Ericsson has a history of innovation with global penetration. It was Ericsson, and not Bell, that globalized telephony. In the same manner Ericsson has globalized digital and mobile telephony. Now we are leading the way in the global construction of the Mobile Internet."

John Giere believes that Ericsson acted prudently in taking a cool attitude towards the hype surrounding dotcom companies.

"In the midst of that circus, we stood with our feet planted firmly on the ground, and this benefits us today. We sell products that fulfill needs, and we will be around ten years from now. When we talk about 3G, people know that we mean what we say."

What are the best brands in your opinion?

"Disney is a fantastic brand. I also think that General Electric and IBM are good examples. In Europe, names such as Bosch, Bang & Olufsen and Volvo are examples of strong brand names. The strongest of brands can endure incredible crises and still survive."

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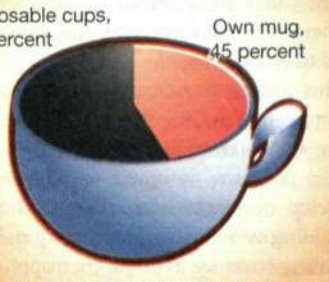
DID YOU KNOW THAT...

...more than four out of ten Ericsson employees use their own coffee mugs at the office, rather than disposable ones.



Source: Ericsson, Environmental Profile at Work

Ericsson lands order in Austria

»» Austria's largest mobile phone operator, Mobilkom Austria, has selected Ericsson to be the supplier for the company's UMTS network. The network will go into operation during the first half of next year.

This is the second 3G system in Austria in a short period of time for which Ericsson has been selected as supplier. At the beginning of March, a similar agreement was reached with the Austrian operator ONE.

Mobilkom Austria currently has 2.8 million GSM subscribers and a 45-percent market share.

So far, Ericsson has been selected as supplier for 27 third-generation systems throughout the world, more than any other supplier of 3G systems.

A half billion saw T20 video

»» Ericsson's video release of the T20 phone was easily the most popular new product launch among visitors to Medialink's website last year. So far, a total of 408,958,350 people have downloaded the video clip from the Internet. By comparison, the Sony Playstation 2 ranked fifth, with barely half as many visitors.

Medialink is a world-leading Internet company specializing in presentations and analysis of business news in both writing and image.

www.medialink.com

Stronger position in Latin America

»» Ericsson has secured a breakthrough contract in Peru from Diveo Broadband Networks, Inc.

The order, valued at USD 1.3 million, includes several radio and datacom solutions and SDH (Synchronous Digital Hierarchy).

The project is expected to be completed within three months. Diveo Broadband Networks Inc. is a market leader in Latin America for broadband techniques via radio link, and has Ericsson as its main supplier.

New agreement with Cingular

»» Ericsson will provide Cingular Interactive (formerly BellSouth Wireless Data) with up to USD 25 million in equipment and software.

Under the agreement, Ericsson will supply base stations and new systems software to triple Cingular Interactive's core Mobitex network capacity.

Ericsson will also design and develop new products and software to enhance the network's performance and functionality.

This arrangement supports several initiatives under Cingular Interactive's Operation Platinum Standard, a USD 50 million program designed to address projected dramatic subscriber growth by building overall network capacity and increasing coverage in major metropolitan areas in the US.

Intensive effort to increase efficiency

"Large, unnecessary costs exist within the organization. We're going to identify and reduce them," says Ingemar Blomqvist.

He has been assigned the task of overseeing the project group charged with implementing a cost-reduction program approved by the corporate executive team.

In conjunction with the release of the first quarter interim report on April 20, a plan will be presented outlining how to save an additional USD 2 billion over the savings that were previously required of the Consumer Products Division.

The rapid decline of the economy, especially in the US, has resulted in Ericsson accelerating the pace of cost-reduction efforts in order to remain competitive.

Working together

Intensive efforts are underway in advance of the presentation of the cost-reduction program. A seven-person project group, led by Ingemar Blomqvist, has been appointed. The group includes Britt Reigo, Senior Vice President, People and Culture and Torbjörn Nilsson, Senior Vice President, Marketing and Strategic Business Development.

Working in close consultation with the division and market unit managers, the project group's efforts consist largely of compiling the cost-reduction plans that are being developed at the company's various divisions and subsidiaries.

Ingemar Blomqvist emphasizes that responsibility for implementing these savings and achieving actual results rests largely with the divisions and market units.

"This is a difficult task that can only be accomplished if managers and employees throughout the entire organization take responsibility and contribute. This work affects all of us."

Saving ten percent

Some of the plans are currently in progress, while others have already been implemented. One example is the recruitment freeze that was announced. Others include the reduction in the number of workers at the plants in Kumla and Linköping and the shutdown of mobile phone manufacturing operations in Carlton and Scunthorpe.

Divisions are also coming up with their own savings measures. For example, the Mobile Systems Division has decided to save ten percent of its development, sales and administrative costs.

The Consumer Products Division has an even larger savings challenge, with a previous mandate to save USD 1.5 billion.

"The savings program is like a two-stage rocket. Certain parts can be set in motion immediately. Others require more planning and will be presented later," says Ingemar Blomqvist.

Ingemar Blomqvist oversees the group that has been charged with developing plans for the cost-reduction that the board of directors has called for. The plans will be presented in conjunction with the first quarter interim report on April 20. Photo: Felix Oppenheim

Consulting costs are one area that has come under particular scrutiny. Ericsson currently relies on some 15,000 consultants, at considerable expense to the company.

"Björn Boström, Senior Vice President, supply and IT, has met with every major consulting firm to review the situation and describe what Ericsson should look like in the future. Consultants are a considerable expense, so we feel that we can do a lot in this area."

Cost-reduction useful

Additional savings can be made in the area of computers and software, according to Blomqvist.

"We want to make these operations more uniform. Currently, we're using several systems with numerous versions of software, and all have different support contracts. It has simply become much too expensive."

Ericsson's overall costs have increased in recent years, and according to Ingemar Blomqvist, a cost-reduction program would have been needed regardless of the economic situation.

"Personally, I believe that this kind of overview is essential in any case. There is always an ongoing need to review one's situation; the expansion that we've experienced has led to an organization that is currently less than cost-efficient. It can be difficult to act during a substantial upswing when demand requires rapid expansion, but we have to learn for the future," says Ingemar Blomqvist.

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A staffing company will assist laid-off workers in developing individual plans of action, in order to find a new job as quickly as possible. Photo: Jack Mikrut/Pressens Bild

Lower consultant fees requested

As part of its efforts to halve the number of contracted consultants, Ericsson will be focusing on collaborating with close partners and preferred suppliers. Other consulting service suppliers will be phased out.

Recently, Ericsson arranged a meeting for consulting firms during which they were asked to present downwardly revised fee schedules. The new prices are to be ready by Easter.

A comprehensive evaluation of all products involving consultants is also being conducted. Only the most important ones will continue and, to the extent possible, the tasks in question will be performed by Ericsson's own employees. Purchase orders will be required of all consultants in the future. Ericsson will not pay invoices without them.

Most of Ericsson's 15,000 consultants work in research and development or in the operation of the company's support systems.

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GPRS phone now in stores

Ericsson's new GPRS mobile phone, the R520, is now available in stores as promised, during the first quarter. This makes Ericsson one of the first suppliers to offer a phone that provides an always-on connection.

People have been talking about always-on mobile phone connections for a long time – now it is possible to buy a mobile phone that offers just that.

The transition to GPRS packet-data technology is probably the most significant thing to happen to mobile telephony since the transition to digital standards, such as GSM.

Roger Bolander

"In Sweden, Geab and Europolitan recently received the phones, and subsequently shipments have continued to all major markets worldwide," says Roger Bolander, head of sales and marketing of mobile phones in the Nordic region at Ericsson in Sweden.

Instant access

Europolitan has been offering GPRS services for the past month, the first operator to do so in Sweden. Telia and Tele2 are also planning to offer GPRS services later this year.

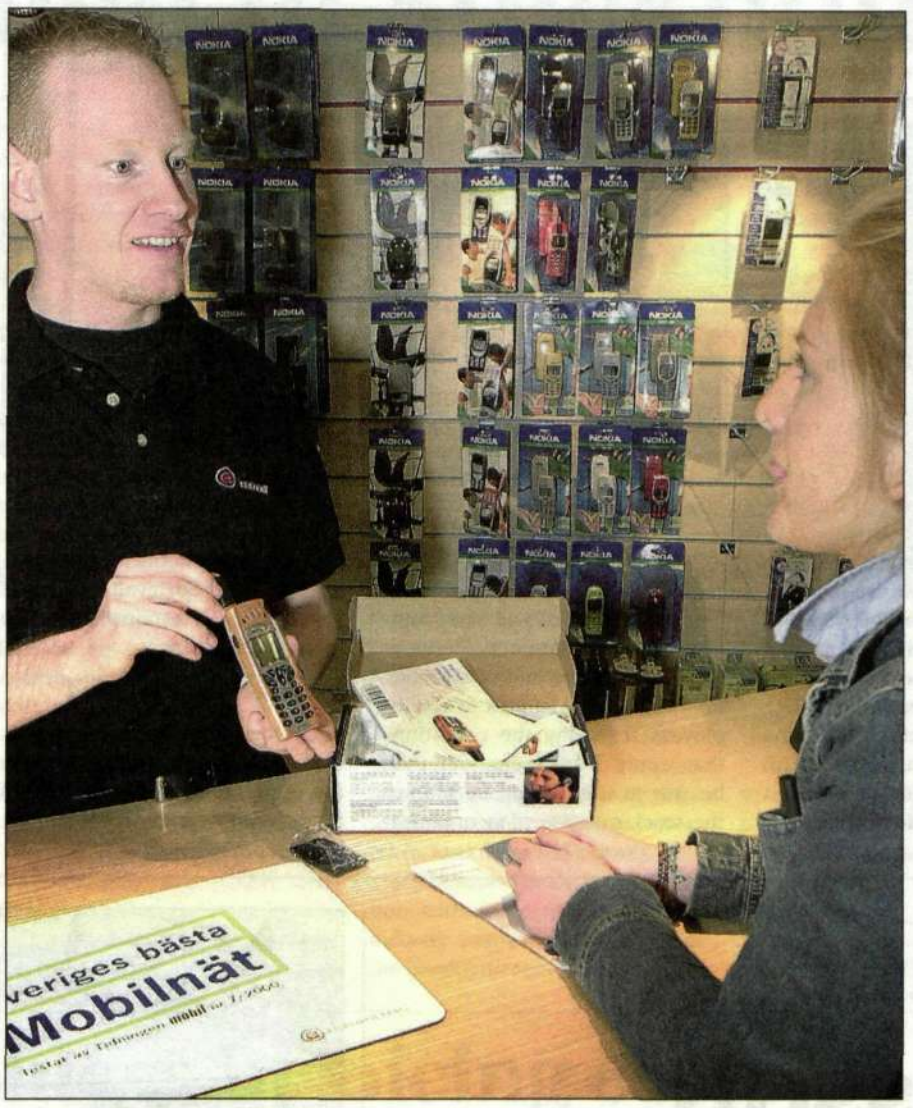
Ericsson's first GPRS phone, the R520, offers an always-on connection to the Mobile Internet and higher data transmission speeds than before.

It also provides instant access to e-mail, WAP pages and the option of synchronizing e-mail and scheduler functions with PCs.

In addition to utilizing GPRS (General Packet Radio Service), the phone also supports HSCSD (High Speed Circuit Switched Data), which allows for faster data transmission in networks where GPRS is not yet available.

The phone is also equipped with a built-in Bluetooth chip for wireless communications over short distances and operates on three GSM frequencies: GSM 900, 1800 and 1900.

Starting in May, about a hundred Eurocard customers in Sweden will be given the opportunity to pay directly using their phone in stores, via Bluetooth. The R520 replaces the credit card and the customer approves the purchase with the phone. Five stores in Stockholm are participating in this pilot project.



Ericsson's first GPRS mobile phone, the R520, is now available in stores around the world. This makes Ericsson one of the first suppliers in the world to offer a phone that has an always-on connection. Here, Markus Stenudd demonstrates the phone to a customer.

Photo: Ecke Küller

Special memory

The GPRS phone also comes equipped with a host of new functions such as a built-in speakerphone, which automatically lowers the volume when the phone is put up to one's ear, and a hierarchical phonebook, allowing multiple numbers – home, work, mobile, et cetera – under one name.

There is also a special code memory for door codes and credit card codes. Voice activation has been equipped with a "magic word" that alerts the phone to listen for the owners' next command.

According to Roger Bolander, Ericsson will also be initiating closer collaboration with retailers in Sweden.

"We have to better understand how retailers work – the way our products are presented in stores is critical in determining how much we sell. For us, this involves taking responsibility all the way to the customer," says Roger Bolander.

A few recalled

A small volume of R520 that was mainly for the Swedish market has been recalled, due to a setting problem in the factory. The way the problem shows is that the phone's standby- and talktimes aren't as high as they are supposed to be.

The Ericsson information center stresses that the problem will soon be fixed and that customers who have already bought a R520 can contact their retailer to exchange the phone.

Ulrika Nybäck
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FACTS/**R520 IN BRIEF**

Size: 130x50x16 millimeters
Weight: 105 grams
Price: Approximately USD 450
Talk time: Up to 11 hours
Standby time: Up to 300 hours
Color: Streaking Silver and Copper Le Mans
New features: GPRS, HSCSD, Bluetooth, WAP 1.2.1, speakerphone, hierarchical phonebook, improved voice control with "magic word," etc
Bands: GSM 900, 1800 and 1900

New tools for e-service developers

Ericsson has developed the first commercial tool for developing e-services. It is hoped that the solution will give a creative boost to the industry.

The Application Developers Package 2.0 (ADP 2.0) is a complete solution that includes software, training and support. It is aimed at developers of e-services for consumers and businesses.

Service developers install ADP 2.0 on their computers and can, using an e-service gateway, create and test drive their own e-services. An essential aspect of the design of ADP 2.0 is that it is based on a standard for network delivery of e-services created by OSGi (Open Services Gateway initiative).

The solution was launched by Ericsson Business Innovation in conjunction with an e-service seminar recently held in Stockholm. According to product manager Lars Meurling, there is a great deal of customer interest.

"ADP 2.0 is the first development environment launched for commercial use, and we hope that developers themselves will become involved in creating e-services," he says.

ADP 2.0 runs on broadband networks but can also be integrated into future wireless 3G networks. In order that customers get a quick start, two e-services developed by Ericsson are included with the package.

"They include a control service that enables individuals to, for example, control outlets and various sensors in their home from a computer at work. Another is an entertainment service that can convert mp3 files, allowing users to listen to music on their stereo system in real-time while downloading from the Internet," says Lars Meurling.

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www.ericsson.com/ebox

www.osgi.org

Breakthrough for fiberoptic cable

Ericsson Network Technologies have signed an agreement with the Internet operator KPNQwest. Ericsson will deliver fiberoptic cable to 15 countries in Europe for the operator's data network.

"This is a breakthrough and offers great possibilities of growth, not only for us, but for all of Ericsson," says Per Thorkildsen, Business Manager at Network Technology's office in Great Britain.

KPNQwest is a joint venture formed by American Qwest and the Dutch operator KPN. The company is an Internet operator with its own data network. Ericsson has been chosen as supplier of fiberoptic cable to seven "rings" that will cover Europe in a so-called Intercity network. The contract is worth around USD 30 million. Deliveries have started and will continue all through the year. The contract is the result of a strategic collaboration between Network Technologies and Ericsson in the Netherlands.

The growing supply of services has created a demand for broadband to people's homes. After the rollout of the Intercity network, the cable network in urban areas will be expanded. The chances are good that Ericsson will also deliver these fiberoptic solutions.

"As minor players in this area, we are flexible and open to change. This is one of the reasons for us being chosen over our larger competitors."

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Incentive program starts

At this year's Annual General Meeting, the Board of Directors' proposal to create an incentive program for all employees was approved. Now these plans are being put into motion. Initially, 50 million stock options will be distributed among 12,000 employees. The other half of the program, an employee stock purchase plan, will start up towards the end of the year.

It was in December 2000 that the company's Board of Directors suggested that a global incentive program be initiated for all Ericsson employees. There are two parts to the program, a stock option plan and a stock purchase plan. The first distribution of options will occur on May 14. Some 50 million options will be distributed among 12,000 employees at Ericsson, in this, Ericsson's largest options plan ever.

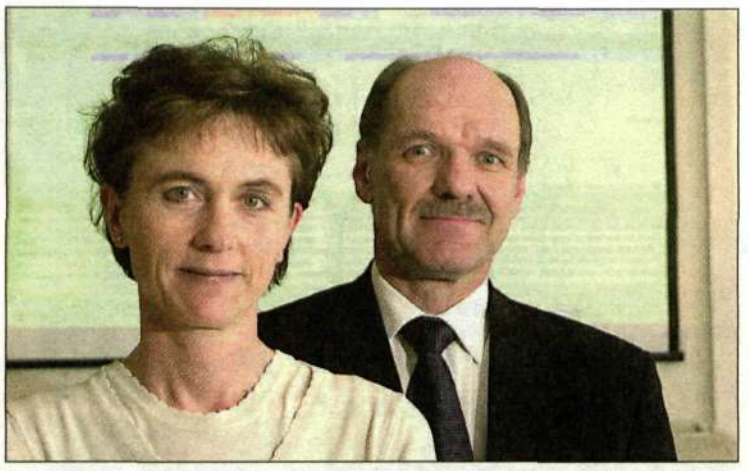
"Work is in progress to determine who should be included in the plan. By the end of April, country representatives will have provided us with the names. Some are senior managers, but most of the people to receive options are regular employees who are considered to be especially important to the company's development," says Bo Eriksson who has been charged with designing the stock option plan.

The options plan extends for two years and includes employees in some 90 different countries. A new larger distribution will occur in May next year.

Before years end

It will be towards the end of the year before the second part of the program, the stock purchase plan, can be implemented. One reason is that so many more people are included in it. Ultimate responsibility for ensuring that the plan is implemented lies, however, with each individual company in every country.

"We've now contacted all of the country representatives to inform them to set up project groups that will be responsible for implementing the shareholding plan in each respective country, and to draw up plans for how that will be accomplished, taking into consideration local laws. At the end of summer, information will be sent to all employees regarding the conditions that apply. Employees will then be able to start saving, as soon as the stock purhase plan organization is working in the local company," says Anna Surtevall, Corporate Legal Counsel, responsible for the incentive program.



Anna Surtevall and Bo Eriksson are working on the design of the Global Stock Incentive Program. Photo: Ecke Küller

Earnings can be invested

When the stock purchase plan goes into effect, employees will be given the opportunity to invest some of their earnings in Ericsson shares. The maximum permissible contribution is 7.5 percent of an employee's gross salary. Once shares have been held for three years, employees will receive an equal number from the company.

"We expect that approximately 60 percent of Ericsson's employees will participate in the offer. In some countries, such as Sweden and the US, that figure will probably be even higher. At the same time, we also know that the plan will not be implemented at all in certain countries due to local laws," says Anna Surtevall.

A total of 120 million shares have been allocated to the stock option plan and 35 million to the stock purchase plan. Some of these have been set aside to offset the social security payments related to the incentive program.

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http://inside.ericsson.se/incentive_program

Star Alliance keeps Ericsson flying high

Every working day, 725 Ericsson employees are in the air, on business trips within, or to and from Sweden.

The first pan-European airline agreement signed last week by Ericsson and Star Alliance will provide Ericsson travelers not only with better prices, but also increased safety, availability and comfort.

Star Alliance is an association comprising several airlines, including SAS and Lufthansa. Under the terms of the agreement, Ericsson employees will book their business trips with Star Alliance airlines as first choice for travel within Europe and, in exchange, the employees will be assigned a priority customer rating.

The agreement is valid in 14 countries in Europe. In five of these countries – the UK, Sweden, Spain, Italy and Germany – the terms of the agreement have applied since October 1, that is, throughout the negotiation period.

Nine more countries were added beginning in February.

Brigitte Ringdahl, business travel manager at Ericsson, was the person with client responsibility for the negotiations with Star Alliance. She is extremely pleased with the agreement.

"This is a win/win situation for both parties. We fill the planes for Star Alliance, and they offer us good prices and service."

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As a result of the new agreement, Ericsson travelers can expect even better safety and comfort.

GM32 is a GSM-based product that, among other things, enables you to check on the condition of your car. Photo: Bertil Ericsson/Pressens Bild

Link up with your car

GM32 is a new GSM-based product that supports wireless communications between different machines. Ericsson has high hopes for the solution and expects to sell 10 million units over the next two years.

"GM32 is a small communications unit that can be integrated with different machines in the home or other places in the community," says Thomas Anderfelt, who works at Ericsson's M2M Com business unit in Spain, which developed the new product.

GM32 looks like an ordinary small box, but users can call the unit to access information. A motor vehicle is a typical application area.

"You connect the module to your car and call anytime to check on the condition of your car. If the car is burglarized, for example, a signal is sent to the police or a security company and, at the same time, the owner receives a message via SMS. Using a mobile telephone, the owner can also turn equipment on and off in the car – an engine heater, for instance," says Thomas Anderfelt.

Other possible applications areas are fixed alarm systems, industrial machines and measuring equipment.

GM32 is part of Ericsson's focus on Wireless M2M, wireless communications between machines or machines and people. GM32 operates over 900 and 1800 GSM-networks and is functional with both SMS and voice. Later this year, Ericsson will launch Wireless M2M solutions that support CSD (Circuit Switch Data), GPRS and Bluetooth.

Ericsson Wireless Communications management personnel are convinced that Wireless M2M will become a very significant market in the near future.

"We work in close cooperation with customers, and we have noted enormous interest in M2M throughout the industry. In a few years, we believe Ericsson will have sold 10 million GM32 units alone. This isn't wishful thinking – it's a very realistic goal," says Gunilla Nordström, manager of M2M Com.

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Wireless technology campaign in Stockholm

Both Stockholm and Sweden will be acquiring an even more distinct profile as a place for the development of mobile phone technology. Private industry and the Royal Institute of Technology (KTH) in Stockholm are combining forces to collaborate on a wireless technology research center.

Ericsson, Microsoft, Telia and Nokia are all contributing both financially and intellectually to the creation of the new center.

"This is the biggest campaign we've ever undertaken in this field. We expect to have revenues of approximately USD ten million per year," says Claes Beckman, who oversees Wireless@KTH.

Center attracts

Ericsson's head of research, Håkan Eriksson, regards this as a development of the close collaboration that Ericsson has had previously with KTH.

"It's important that a center of this nature has been formed, as it will attract top level researchers. Since it involves research collaboration at an early stage, it is natural that we collaborate with our competitors as well," says Håkan Eriksson.

Claes Beckman explains that the purpose is to create a basic understanding of the field of wireless technology, and to educate more and better trained engineers. Already by the autumn semester, students at KTH will be able to choose an educational program focused entirely on wireless systems.

Six teams

When it comes to research, it is focused on wireless information management and communication.

Initially Wireless@KTH will consist of six teams of researchers, each overseen by a professor.

"We're already in contact with researchers from such places as Stanford, Berkeley and UCLA San Diego," says Claes Beckman.

Operations are housed both at the KTH campus in Stockholm and out in Kista. For companies in Kista, this means they have a gathering place where they can participate in conferences, workshops and lectures.

KTH has previously, in collaboration with other universities and industry partners, been active in the development of 3G.

"Now we aim to be involved in defining the fourth-generation mobile system," says Jens Zander, head of research at Wireless@KTH.

In collaboration with the Royal Institute of Technology in Stockholm, with its motto Science and Art, a new center for wireless technology research is being formed. Photo: Bengt Vängstam

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e-Flow reduces invoicing costs

Ericsson has taken another step closer to the paperless office. Supported by a web application called e-Flow, invoices are now being sent electronically. The new arrangement saves both time and money.

In February this year, Ericsson Shared Services AB launched the new e-Flow electronic invoicing system.

All supplier invoices are now entered digitally and processed in the supplier accounts before they are sent for review and approval. They are then sent via e-mail with a link to the invoice, which can be processed in Internet Explorer. The system eliminates the need to send paper invoices back and forth via internal mail, which is more expensive and time-consuming.

"With the new system, we have reduced average lead-times in our invoice processing procedures from four weeks to about one week," says Jörgen Elovsson, the man behind the e-Flow project.

For the time being, the system is only being used to process the invoices of Ericsson Shared Services. If everything goes as planned, however, all Shared Services customers will install e-Flow systems this year. Hopefully, the first ones will be introduced in the system by July 1.

Tonya Lilburn

Latin America welcomes Contact

Soon, Ericsson employees in Latin America will be able to read Contact in their native language. Contact magazine in Spanish and Portugese versions will replace a number of local publications.


contact

Mexico en alza

The first issue of the Spanish language version of Contact will be published in April.

The Latin American version of Contact will have a circulation of 10 000 and will be issued 10 times a year. A magazine in Spanish is launched this month, and will shortly be followed by a Portuguese version. The plans for this project started about a year ago.

"*It says on the cover of Contact that* it is a publication for Ericsson employees all over the world. However, when I started traveling around the Ericsson offices in Latin America, I noticed that most countries had their own internal publications and that Contact was not being read. Employees thought it was easier to read in their own languages," says Silse Bloise, Corporate Communications Manager in Latin America.

The Latin American Contact means that a number of local publications will be discontinued, and the resources used to produce these channeled in to the new magazine. However, local issues will continue to be covered.

"The main content of the magazine is the same as the English version of Contact, but we will also include country pages so that local information is still considered important," says Silse Bloise

Argentina, Colombia and Mexico are countries that will have their own pages with regional news coverage, produced in the area.

"Contact should be a part of every employee's life in Latin America, just as it is in Europe," concludes Silse Bloise.

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Ericsson's success in China continues

Ericsson continues to harvest successes in China. Last week, another multi-million dollar contract was secured, strengthening Ericsson's position as a market leader in telecommunications in Cina.

The contract is estimated to be worth USD 400 million and primarily involves delivery of GSM equipment and a backbone network for multimedia service (IP Backbone) to the capital city Beijing as well as the Shandong, Hebei and Yunnan provinces. Ericsson in China currently employs 4,000 people at 24 different offices.

"I'm proud that Ericsson was once again selected to be the main partner in the ongoing development of telecommunications in China. These GSM and multiservice projects are further proof of the stable, long-term collaboration that has been established between Ericsson and the Chinese telecom operators," says Kurt Hellström, President of Ericsson.

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Ericsson in sync with the future

›› Ericsson is the first mobile phone manufacturer to SyncML certify two GPRS phones. SyncML is an open synchronization standard that makes it possible to remotely synchronize regardless of network, server or device. Remote synchronization is a new and important application especially for GPRS and 3G networks.

It enables consumers to keep their calendars and phone books always updated regardless of where they are. The 1.0 SyncML specification is a result of a cooperation between several mobile technology leaders such as for example Ericsson, IBM and Nokia. Ericsson will have products supporting SyncML in the market during 2001.

Sale generates large return

›› Ericsson has sold its remaining assets in Juniper Networks. The transaction will generate a capital gain of approximately USD 550 million for Ericsson, assets that were not reported in the company's revised earnings forecast issued on March 12.

Ericsson and Juniper will continue their collaboration to supply IP infrastructure that has the same reliability and quality as the telecom network.

Discussions on the establishment of a joint company are continuing and these plans are expected to be realized during April.

Linking W-LAN and 3G networks

›› Ericsson and Norway's largest mobile phone operator, Telenor Mobil, will investigate how wireless technology for local networks, W–LAN (Wireless Local Area Network) can be used to complement 3G networks in places with high traffic volumes, such as airports and conference facilities.

The project will focus on the technical and commercial aspects of integrating a wireless local network with very high capacity, such as the Hiper LAN2 (up to 54 Mbps) and local points in a 3G network with WCDMA technology. Users should be able to roam freely between the two networks. Early adopters could include company employees who frequently find themselves away on business and in need of accessing their local network.

Three platforms under one roof

Effective April 1, the Cello Packet Platform is included in Ericsson Utvecklings AB. This means that three of Ericsson's most important technology platforms – AXE, CPP and TSP – are now gathered under one roof. These three complement each other. A rough description could be that AXE manages voice and circuit-switched traffic; CPP handles ATM and IP traffic in 3G mobile networks through nodes in the core and access network, while TSP is a service platform for network control and applications.

Until April, the Cello platform belonged to Wideband Radio Networks in the Mobile Systems division.

No change of location is planned.

In the future, Cello will also be developed at Nacka Strand and in Älvsjö, in Stockholm, as well as at the local companies in Finland and the Netherlands.

Nokia financing orders

»» Aided by offers of substantial customer financing, Nokia won two large orders for 3G equipment at the beginning of April. The orders – from Orange and Hutchison respectively – have a combined estimated value of slightly more than USD 1.8 billion distributed over a number of years.

The contracts were not won free of charge, however, since Nokia was forced to lend nearly USD 2.5 billion to the customers within a matter of only a few days. Orange and its principal owner, France Telecom, will be able to borrow more than USD 1.8 billion to finance the expansion of the 3G networks in the UK, Germany and France. Nokia will also be lending USD 600 million to Hutchison to finance the Hong Kong-based conglomerate's network expansion in the UK. As a result, the Finnish mobile telephone giant has approved loans totaling considerably more than the actual value of the orders.

Nokia also booked another 3G order at the beginning of April from Optus, an Australian operator controlled by majority owner Cable & Wireless. The order is valued at USD 450 million.

Operator launch 4G in 2006

»» NTT DoCoMo of Japan, which will launch the world's first commercial 3G network in May, is already planning for the next generation of networks, popularly called 4G. The year 2006 is the target date for the launch of its 4G network, with a projected maximum capacity of up to 20 megabits per second. Until now, the time schedule for the launch of 4G was set for 2010 but, by forcing the introduction, DoCoMo hopes to take the lead in standardization work.

3G cooperation in Germany

»» Due to concerns over the future of Europe's telecom industry, the authorities in Germany have invited the six operators that purchased 3G licenses for record-high prices to a series of discussions, according to The Financial Times. The discussions are expected to result in increased cooperation to facilitate the build-out of 3G networks on German soil.

According to the newspaper, the four smaller operators – Viag Interkom, E-Plus, MobilCom and Group3G – have already held informal meetings to discuss a joint build-out plan.

Two different standards

»» It's becoming increasingly probable that 3G in the US will consist of two different standards, since the country's largest mobile operator, Verizon Wireless, has ordered a 3G network based on cdma2000, which is compatible with second-generation TDMA networks. The order was awarded to Lucent Technologies. Other mobile operators, including Voicestream, Cingular and AT&T Wireless, are expected to choose WCDMA, which is compatible with GSM.

Major cutbacks by US telecom giants

Large cutbacks are now being made in the labor forces of most companies in the telecom industry, particularly among the American players. Nortel has announced plans to reduce its payroll by nearly 16 percent.

The reasons for the rationalization measures are distinctly different between European and American players. American telecom players are strongly dependent on their domestic market, which is the main reason for the comprehensive cutbacks on the other side of the Atlantic. When demand in the domestic market declines, it has serious effects on all players, including companies such as Lucent, Cisco, Nortel and Motorola.

This is the view held by Bo Edvardsson, a telecom analyst based in Pittsburgh, who monitors the US market for Fischer Partners, a Swedish securities brokerage company.

"Pressure from the financial market is much stronger in North America than anywhere else. It is also easier to lay off workers in the US, compared with many other countries," he says.

Outsourcing operations

Lucent and Motorola were the first two players to feel the effects of market decline. Lucent has already laid off or plans to lay off 10,000 employees, and plans to eliminate 6,000 other jobs through outsourcing to subcontractors. The plans for cutbacks will mainly affect the company's production units.

Lucent also plans to cut costs by nearly USD two billion during 2001. Most of the cutbacks will be made in sales and marketing departments and management positions.

"In view of the decline in sales, we are cutting back in the areas where volumes have declined," stated Debbie Lewis, spokesperson for Lucent, to Communication Week.

Motorola's reasoning has followed a similar line. The American mobile telephone giant has issued a series of earnings warnings, with subsequent personnel cutbacks, over a relatively long period of time and most recently in March, when the company announced layoffs affecting 4,000 more workers in the broadband division and wireless operations. The total number of layoffs has now risen to 23,000.

"Motorola has been the most forthright company in terms of statements released on personnel cutbacks and other cost-reduction measures. Sales of the company's mobile phones have been extremely weak, and its production of semiconductors is declining. The company is cutting back across the board, and in all parts of the world."

Nortel of Canada, which reported weaker results from operations as recently as Q1 2001, announced layoffs that will affect 10,000 employees. In March, the number was increased to 15,000, and the company plans to eliminate another 5,000 jobs by the end of June.

Cisco, one of the darlings of the financial market, has also been forced to announce cutbacks this year. Cisco announced at the beginning of March that up to 8,000 employees, or slightly more than 16 percent of its total labor force, will have to go. A clearly discernible slowdown has also been noted in Cisco's former frenetic pace of acquisitions of strategically important small companies.

European players have greater geographic diversification, notes Bo Edvardsson.

"Ericsson has a completely different global presence that makes the company less sensitive to fluctuations, although the American market is also important for the Swedish telecom giant."

Safety nets

According to Bo Edvardsson, however, Ericsson, Nokia, Siemens and Alcatel are positioned later in the economic cycle.

Nokia recently announced layoffs that will affect several hundred employees in its broadband division and another 800 persons in the Finnish company's mobile telephone production plant in the US. Alcatel of France has also initiated personnel cutbacks affecting 1,100 employees in its US operations. Until now, Ericsson has announced layoffs that will affect 2,600 persons in Kumla and Linköping, in Sweden.

As a result, a combined total of 66,900 persons will have to start looking for new jobs following cutbacks in the telecom industry, including 62,000 jobs lost in the US. Safety nets for persons affected by layoffs are a generally unknown phenomenon in the US.

"At best, persons affected by layoffs are offered one or two months' pay," says Bo Edvardsson.

Buy isn't it difficult for them to find new jobs?

No, says Sandy Aitken of PriceWaterhouseCoopers.

"Layoffs don't necessarily mean the former employees were superfluous, but rather that some other company needs them. Many of the people affected by the layoffs will find jobs in the companies that accept outsourced production operations from companies that let them go," he says in an interview with Communication Week.

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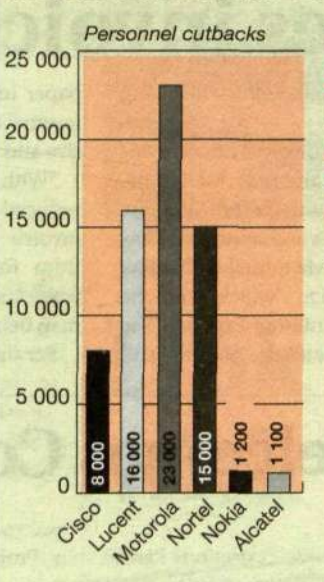
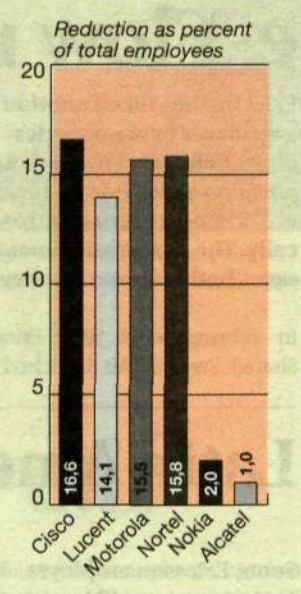
LAYOFFS IN TELECOM INDUSTRY

All players forced to reduce labor forces; the figures for March/April 2001:



Number of employees	
Cisco	48 000
Nortel	94 500
Lucent	113 400
Motorola	47 500
Nokia	60 048
Alcatel	116 000*



*Older data (Dec. 31, 1999)
Source: CNN Financial Network

Illustration: Björn Hägglund

Motorola's losses larger than the market expected

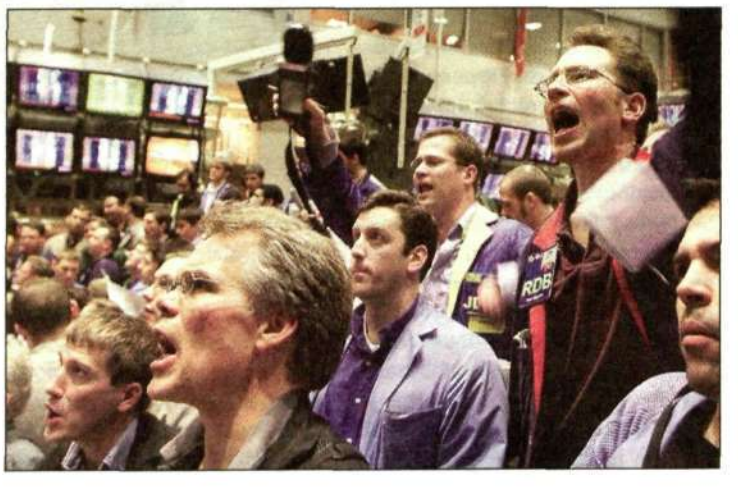
Motorola reported a loss of USD 0.09 per share for the first quarter of the year, which is two cents more than the market's already low expectations.

Motorola's loss for the three months ending March 31 amounted to USD 208 million.

This is the first time in 15 years that Motorola has not shown a first-quarter profit and the result contrasts sharply with the figure for the corresponding period in 2000, when the telecoms giant earned USD 0.21 per share.

Mobile phone sales, which represent 55 percent of the company's total sales, are declining, as are sales of integrated circuits.

Motorola has previously issued two loss warnings and has started a comprehensive savings program, featuring considerable layoffs that will affect about 15 percent of the total workforce (se article above).



Following the first quarter report, trade in Motorola options was hectic, here at the Chicago Board Options Exchange.
Photo: Pressens Bild

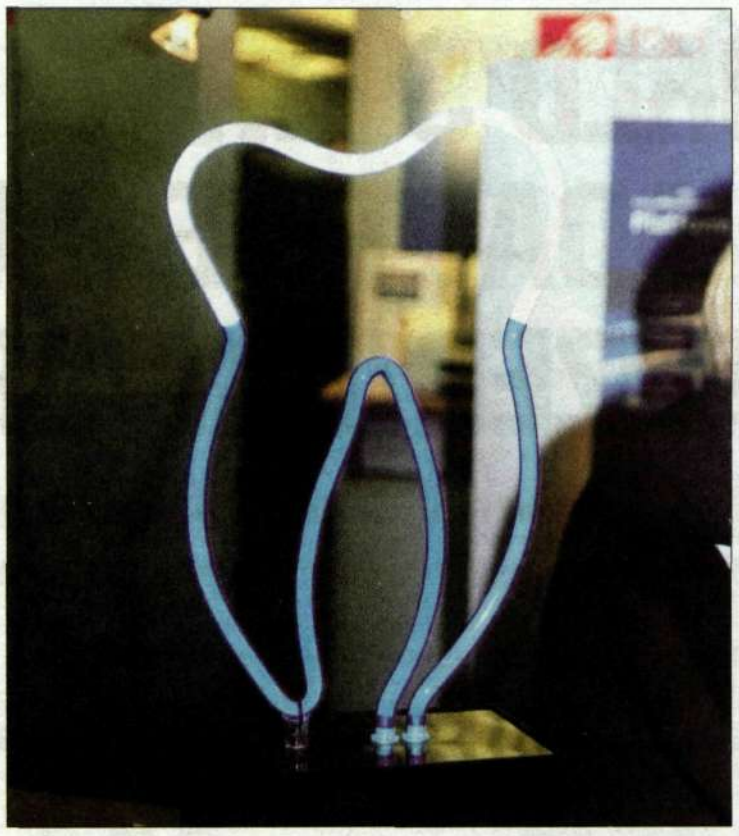
An appetite for Bluetooth

Bluetooth, Bluetooth and more Bluetooth. The exhibition directory from the CeBIT Fair listed more than one hundred companies under the Bluetooth heading, which is probably an all-time record.

Visitors were never far from a stand with a Bluetooth display at this year's fair in Hanover. Malicious rumors alleged it was merely a rerun of last year's CeBIT. There was one major difference, however: rumors of products in the pipeline are now becoming a reality. According to most indications, we are finally going to see practical applications of Bluetooth, perhaps as early as this year.

All of the market's major manufacturers of mobile telephones had Bluetooth phones on display. Ericsson's stand included the R520 model, which has already been launched, as well as the T39, scheduled for launch this summer, and the T68, which will be introduced toward year-end 2001.

Handheld computer manufacturers are promising new models with built-in Bluetooth. Compaq, for example, plans to introduce a Bluetooth version of its iPAQ toward year-end, provided everything proceeds as planned. Bluetooth cards are already available for most handheld computers. The biggest names in portable computers naturally showed models due for market rollout in the near future, including Fujitsu and Compaq.



Visitors were never far from a stand with a Bluetooth display at this year's fair in Hanover. According to most indications, we are finally going to see practical applications of Bluetooth, perhaps as early this year.

Photo: Patrik Lindén

No place for pessimists

Although optimism is a natural element at trade fairs, there was still some low-key grumbling that the standard still cannot guarantee that all of the different Bluetooth devices can communicate with each other.

The CeBIT Fair, however, is not the right venue for technology pessimists. Almost anything and everything is possible, at least in a controlled demonstration environment. This year's CeBIT also offered a strong element of highly creative applications that included Ericsson's wireless web radio with Bluetooth capabilities.

Ensure Technology of the US displayed an ID tag with built-in Bluetooth, in which users can enter their passwords and identities. As they approach their computers, they are already logged on. This could be a good product for people who easily forget their passwords or leave their e-mail service open. Bluetags, a Danish company, showed a similar solution that helps users keep track of their luggage, or even their children, with the help of electronic nametags with Bluetooth and a mobile telephone.

It was also obvious at this year's CeBIT Fair that Bluetooth has outgrown the "cable-cutting" image used in the past to project the Bluetooth technology, which was to replace all the cords and cables between headsets and mobile telephones and between computers and printers, the mouse and so on. Today, there are countless other ways in which Bluetooth can be used.

Creativity

A large number of companies showed how the technology can be used for advanced local mobile networks, an area confined in the past to the 802.11b W-LAN technology. The advantages of Bluetooth include the technology's reduced power consumption, which meets the requirements of handheld computers and mobile telephones better than classic W-LAN.

Lesswire of Germany had equipped all of Hall 13 with 130 Bluetooth base stations, or access points, which enabled CeBIT visitors to access positioning and navigation services via their handheld devices and access the Internet.

Similar solutions were also displayed by Axis Communications of Sweden and Red-M of the UK. Siemens of Germany also had a similar display at its gigantic exhibition stand. Several other companies showed simpler solutions for wireless home networks based on Bluetooth.

There was certainly no lack of creativity from the manufacturers. In our role as ordinary consumers, it's only a matter of time before we are allowed entry into this wonderful new world of Bluetooth.

Patrik Lindén
freelance journalist

Growing market in ring signals

The market for downloadable ring signals for mobile telephones is expanding, but there is still no generally accepted standard. As a result, the market is fragmented and consumers are confused.

Companies such as Jippii, Iobox and Ringtones sell downloadable ring signals with popular music via the Internet. It's a growing market, as reflected in the number of ads for these web services in the mass media. Consumers pay only a few dollars to download complete sets of ring signals. Nobody is prepared to speculate on the actual size of the market, however, according to Roam, a trade magazine.

Manufacturers of mobile telephones have still not established any form of cooperation or initiated efforts to create a uniform market for ring signals. Nokia uses a program of specific devices for ring signals that was introduced in 1997. The most important ingredient is the ability to transmit ring signals over SMS.

Ericsson, on the other hand, offers end consumers the opportunity to download ring signals via its own web service, Ericsson Mobile Internet.

Ericsson has also voiced its support for an industry standard via EMS (Enhanced Message Service), which is a further development of SMS and a step toward MMS (Multimedia Message). If the standard is recognized by an independent organization, for example 3GPP (Third Generation Partnership Project), a new field of play could be created, believes Colin Ellis, head of Ericsson's consumer products in the UK.

"It will become a more equitable and much larger market for all the parties involved," he said recently to Roam magazine.

To further complicate the picture, many mobile telephone manufacturers have equipped their phones with sophisticated applications that make it possible for users to compose their own melodies. These products are particularly popular in Asia, where a large number of web services offer instructions for consumers to compose their own music.

Telecom operators also offer web services that include ring signals. Vodafone charges customers for similar services available via its Fone Fun service, while Orange offers melodies free of charge to consumers who register as subscribers.

Mats Lundström

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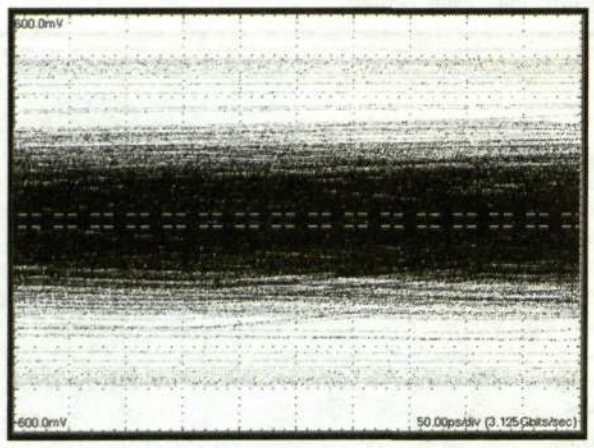

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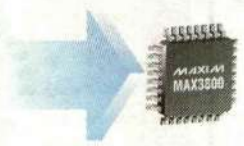

ACTUAL SCOPE DATA

3.2Gbps MAX3800 OUTPUT

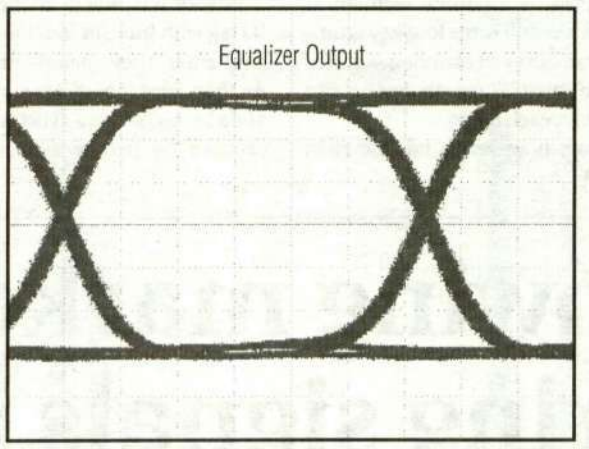

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Illustration: Björn Hägglund

Increased order speed with shopping cart

Ericsson in Finland is the market unit that has made most progress in work on the handling of orders and deliveries with a concept that uses product packaging. When its customers want to purchase a radio base package, they only need to place it in a digital shopping cart and e-mail the order to Ericsson. The shopping cart system has even brought back former customers.

➤ With TTC Global (Time To Customer Global), Ericsson has improved the precision and speed of its deliveries. The equipment is supplied in standardized packages that are ordered on the basis of capacity/coverage. The package is delivered directly to the site where the base station is to be installed.

When customers can order base stations according to features, they avoid having to think about minor technical details. With TTC Global, the local companies' need for engineers is reduced and they no longer require their own costly inventories. Orders go to Ericsson's Flow Control Centers, which, in turn, handle contacts with subcontractors, put together the package and organize delivery to the site.

As a part of the Mobile Systems division, the Site Solutions unit has worked for a long time on the development of standardized packages and deliveries direct to site for radio base stations. Their work formed the basis for TTC Global.

In recent years, Site Solutions has developed a system for product orders that has been called Shopping Cart.

"Customers need only to put the package we recommend into the shopping cart. It's just like shopping at the local supermarket," says Ulf Holmin, who is responsible for Site Solutions.

"Customers need only to put the package into the shopping cart. It's just like shopping at the local supermarket"

Ulf Holmin

Progress in development

Ericsson's local company in Finland is the market unit that has made most progress in the development of the shopping cart system. In collaboration with its customers, the GSM operators Suomen 2G and Sonera, it has created about 25 different radio base packages that can be used to cover the operator's needs. Each of the packages has a "shopping cart name." When the customer needs a radio base station with a certain capacity, an order is sent by e-mail to the local company. The code is then passed on to the Flow Control Center in Gävle, where the package is assembled.

"The customer doesn't even notice when the electronics in the package are changed, since the cart names are always the same. They only have to think about the characteristics of the package. It took a long time to work with the customers on planning and establishing the configuration for each package, but once this was done, everything moved smoothly," says Olli Sirkka, product manager at Ericsson in Finland.

Suomen 2G opened its mobile network a few months ago and is Finland's third largest national operator. The company signed a contract with Ericsson 18 months ago and used the cart system from the very beginning. To date, Suomen 2G has supplied more than 1,500 orders using carts.

"Our customers are extremely satisfied. This makes order management easier and faster, and there is less risk of something going wrong. There are fewer people involved in the orders," says Maria Hellström, logistics manager at Ericsson in Finland.

Returned to Ericsson

Sonera was the first mobile operator in Finland to use Ericsson as a supplier. Having worked with other suppliers for a period, the company recently returned to Ericsson.

"This is partly due to price and Ericsson's technical quality, but it is also important that it is simple to order our products and that delivery times are short," continues Olli Sirkka.

In the contract with Suomen 2G, Ericsson promises a delivery time of a maximum of 25 days from the time the order is sent to the time that the equipment is on site. The package is often delivered in 15–17 days.

"We have had visits from several other market units that want to see how we work. The goal for Ericsson is to standardize packages, and the cart system is an efficient way of achieving this. I believe that this will spread within the company," concludes Olli Sirkka.

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Flextronics grows most in industry

The many long hours that Flextronics and Ericsson spent round the negotiating table are over and a contract has been signed. The transfer of operations and activities is now beginning. In mid-April, Flextronics will start to conduct production operations in the plants.

➤ "The negotiations went well. Ericsson is very professional and knows exactly what it wants from us. They were the first in the industry to commission production partners in the area of fixed telephony, with several other major companies following suit. They're not starting at square one. They have plenty of experience in this area," says Ronny Nilsson, President of Flextronics in Western Europe.

There is feverish activity in the company's sales office in Stockholm, with phones ringing and meetings in progress, although several desks are noticeably empty.

"A lot of new people will soon be moving in here to join a new unit that will coordinate activities with the plants that we are taking over from Ericsson's Consumer Products division. Both partners need to adapt their organizations to handle the new procedures and processes required for collaboration. Getting everything working properly is a huge undertaking," says Ronny Nilsson.

Positive experiences

Four years ago, another major deal was reached between Ericsson and Flextronics, involving the manufacture of business switches.

Since then, several other manufacturing units in Europe and China have been outsourced to Flextronics. It is these previous positive experiences with Flextronics that are forming the foundation for the current comprehensive partnership with the Consumer Products division.

"The contract is enormous," says Ronny Nilsson, "measuring almost a decimeter from cover to cover, and encompassing several units in various countries and a large number of employees. That makes the deal both comprehensive and exciting. It's a project with great potential."

Ericsson is Flextronics' largest client, but far from its only one. The American contract manufacturer collaborates with virtually every major telecom company and many companies in the datacom industry, including Siemens, Motorola, Cisco, Palm and Microsoft. Flextronics' product offerings are just as broad as Ericsson's. Over the past three years, the contract manufacturing industry has experienced a period of strong growth. It has moved from mass-producing circuit board assemblies to offering customers product packages, in which the companies assist in the development of products and take full advantage of their global buying organizations to purchase components.

Products are then manufactured and packaged before finally being delivered, and in some cases installed, on behalf of their client's customers.

Fifty percent of Flextronics' USD twelve billion sales revenues each year consist of telecom and datacom products, such as mobile phones, switches, base stations and more.

The remaining 50 percent involve other consumer electronics.

In just a short period of time, Flextronics has become the second largest company worldwide in its field of operations. Last year, it grew by 60 percent, twice the current industry average.

The factors underlying its growth include several new customers in Europe and the fact that Flextronics grows when its existing customers expand.

"We were the first in the world to risk investing in the European market, despite relatively high costs," says Ronny Nilsson. "But we have derived other benefits from our strength in Europe, which we have been able to pass on to our customers. That is how Flextronics has captured new market shares. We're good at building relations and have a solid network of contacts in Europe, thanks largely to our well established relationship with Ericsson, which has been a valuable reference."

Clear in its demands

Ronny Nilsson believes that a good manager produces results through others and has the ability to listen. At the same time, it is necessary to be clear about what is required. Taking over an existing plant and its employees through outsourcing subjects management to considerable demands.

"As an employer, it is especially important to be receptive to new employees and respect their needs. They have to understand and believe that Flextronics needs their expertise in order to successfully conduct this new operation, and that they are all warmly welcomed," he says.

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Production partner reduces costs

Consider the fact that Ericsson manufactures 50 million mobile phones per year. Imagine saving 1 USD on each phone, or total savings of USD 50 million. Saving 2 USD per phone would yield USD 100 million and so forth.

It is by working with large volumes that Flextronics is able to manufacture mobile phones at a lower cost than Ericsson and other telecom suppliers.

➤ "We have numerous telecom customers in addition to Ericsson and manufacturing a product for many companies at the same time provides us with major economies of scale," says Ronny Nilsson, President of Flextronics in Western Europe.

Materials, meaning components, account for some 85–90 percent of the costs for mobile phones and other telecom equipment.

When Flextronics purchases components, it could well order 100 million units at a time, which enables it to command a significantly lower price from the manufacturer compared with a company that orders 10 million units of every part.

"You have to remember that we don't have any products of our own, which means we don't have to invest resources in marketing and product development. The aim of all of our investments is to boost our efficiency and increase our production output, which is our core operation," says Ronny Nilsson.

"Ericsson simply can't prioritize production in the same way, because it's not its core business. There are several other areas where it is, and needs to be, best in the world."

Ready for production

Once a product has been developed and industrialized, it is ready for mass production. It is at this stage that Flextronics shifts production to facilities where costs are low. Its largest plants for mass production are located in Hungary, China, Brazil and Mexico.

"Usually, between 2,000 and 4,000 people work at these industrial parks. Materials manufacturers and other subcontractors frequently set up operations nearby, making our collaboration flexible and saving time and money for our customers."

Under the new partnership with Ericsson's Consumer Products division, Flextronics will assume complete control of Operations. This includes responsibility for the industrialization of products and major aspects of purchasing and logistics, which include packaging and delivery of mobile phones directly to Ericsson's customers.

When the products have entered the inventories of its customers, Ericsson invoices them directly. This is a more competitive way of distributing products to the market than if Ericsson were to conduct manufacturing and delivery in-house.

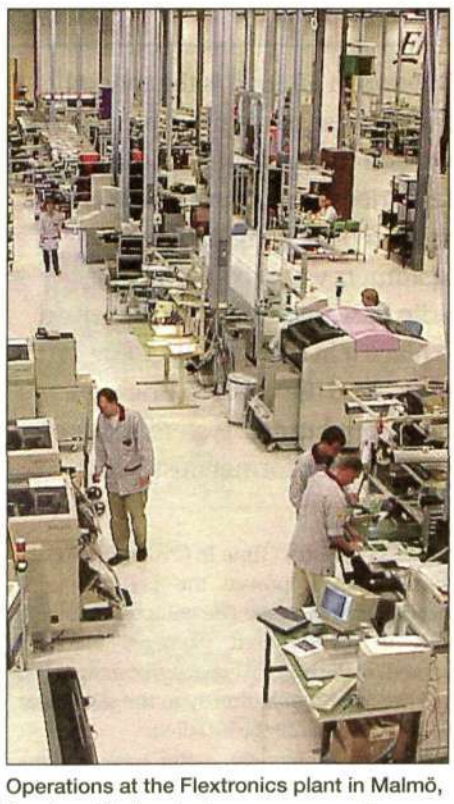
An expanding market

The global reach afforded by a large manufacturing partner is another advantage to this arrangement. Flextronics has operations in 29 countries, with 100 plants and 80,000 employees. Part of its strategy is to locate its manufacturing facilities as close as possible to consumers.

"China is an expanding market, and we already have almost 20,000 employees there. Compare that with the number of employees we have working in our facilities in Europe – about 26,000.

Flextronics is just one of the partners with which Ericsson cooperates in order to receive help in the manufacture of various products. Other major production partners include SCI, Solectron and Elqotec.

Lena Widegren



Operations at the Flextronics plant in Malmö, Sweden. Flextronics has numerous other clients besides Ericsson. Manufacturing the same product for many companies simultaneously results in considerable economies of scale.

"Ericsson are not starting at square one. They have plenty of experience of commissioning production partners in the area of fixed telephony," says Ronny Nilson, President of Flextronics in Western Europe. He sees collaboration with Ericsson as a positive development. Photo: Mats Arnström

The aim of all of our investments is to boost our efficiency and increase our production output

Ronny Nilsson

All details must be worked out

The transition to Flextronics will not occur overnight. At Ericsson Mobile Communications in Kista, a special group of 50 people will spend the entire year ensuring that the transfer goes as smoothly as possible.

➤ Ericsson's decision to allow Flextronics to assume control of production and delivery of its mobile phones raises a long list of questions.

In addition to the 4,200 workers who will be changing employers over the course of the year, a number of technical and administrative problems also have to be resolved. The Ericsson Transition Team in Kista has been very busy since Ericsson announced the agreement on January 26, 2001.

So far, the biggest question has been how to go about integrating Flextronics with Ericsson's computer-based SAP business and ordering system.

"Since Flextronics will be taking over the entire chain of production, except for the inflow of orders, we've had to divide our SAP system between Ericsson and Flextronics, and then synchronize the two with each other," says Roger Eriksson, head of the Ericsson Transition Team.

Common interface

The extent of this work has also resulted in pushing back the official transition date from April 1 to April 17.

Roger Eriksson

"Quite a bit of reprogramming work has been necessary to find a common interface between the two systems, but we have the details under control now and are completely on schedule in our planning," says Roger Eriksson.

The contract with Flextronics includes a transitional period that extends until December 31, 2001. Ericsson and Flextronics have until then to work out the new routines. After that, the goal is for Flextronics to be able to manage production on its own.

Other major issues that need to be resolved in the coming months include purchasing and technical plans.

"We have to reach an agreement on the lowest combined price for components and other goods that are needed in manufacturing, as well as decide what the technical plans should look like and when they should be established," says Roger Eriksson.

Only advantages

Despite all the work that still lies ahead, Roger Eriksson and his colleagues have no doubts about the advantages of the Flextronics transaction.

"Flextronics' large manufacturing volumes mean that the manufacturing cost per mobile phone will be much lower. That said, we won't necessarily automatically reap all the profits from this deal that we anticipated," says Roger Eriksson.

"In order to fully succeed, we need to keep listening to each other so that collaboration has an opportunity to develop and deepen," he says.

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India's Silicon Valley

Quality, flexibility and on-time deliveries. That is the general opinion of software development in India. Nevertheless, Ericsson's head of software development in India remains modest.

"We're a normal development center within Ericsson, one of at least 50 in 25 different countries," says Inge Garshol, Ericsson's head of research and development in India.

➤ There is truth to what Inge Garshol is saying, except on one point – in India there is a large reserve of academic expertise, something that is unusual from a global perspective. Specialized telecom expertise is lacking, however, just as it is in other parts of the world.

Ericsson's operations in Bangalore date back to 1997, when the makings of a development center were established.

Since then, operations have expanded in both breadth and depth, with some 100 people now employed. They include Indians from all parts of the subcontinent, from Kerala in the south to Punjab in the north. Operations have also grown from a purely physical perspective, now occupying several floors in a building on Mahatma Gandhi Road, the main thoroughfare in Bangalore. Inge Garshol, of Norway, hopes that operations will expand to employ several hundred within just a few years.

"We have all the necessary ingredients for growth," he says.

It is hard to disagree with that. The development center is already working on several major projects. The biggest of these is GSM Release 9, which employs about 50 people. One of them is Raghavendra Joshi, who is a group leader. His background is fairly typical of employees at the center. He grew up in Bangalore, received a Master's degree (M-Tech) in Engineering, and previously worked at Motorola before coming to Ericsson about two years ago.

Raghavendra Joshi

"I've been given much greater responsibilities and oversee a group of six or seven people. I'm learning more and more about telecom design. There are actually major differences compared with the regular software industry," says Raghavendra Joshi.

"The products we deal with are specialized, so we can't simply bring in recently graduated engineers. They have to complete another long training period before they are fully conversant with what the work involves," he says.

Hans Bromander, head of OSS development in Bangalore, concurs. It's known as "domain knowledge", which means that employees receive greater insight into the big picture and are therefore able to contribute ideas that extend beyond the relatively simple coding work. He also believes that increased domain knowledge instills greater loyalty towards the employer.

Raghavendra Joshi has had the opportunity to travel extensively, including a three-month stay in Linköping. He believes that his work has developed.

"It has also become more complex. Operators want more and more functionality, and systems are becoming increasingly complex. The amount of code increases dramatically for each new version."

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New billboards with new offers. Bangalore is a fast-paced city. Photo: Lars Åström

FACTS/ERICSSON R&D CENTER IN INDIA

- The Research and Development Center has three areas of operation. The biggest is the development of various Ericsson products including OSS (Operation Support System) and GSM on the Net, to name two.
- The OSS group works primarily on Performance Management for systems such as PDC, GSM, GPRS and UMTS.
- The R&D Center also assists in establishing contacts when product units within Ericsson want to contract out software development to Indian companies.
- A third area involves research collaboration with universities in India.
- Assignments come from a number of product units, including IPNEA (IP Network Edge and Access), Network Core (UAB), and Wideband Radio Systems.
- A smaller R&D center, employing roughly 50 people, is located in Hyderabad.

An international attraction

The numerous large advertising billboards lining the streets of Bangalore, India are painted by hand when it is time to change their message. The photographer and I look on in fascination to see how this artistic work is done. Slowly, Bill Gates' profile is painted over, replaced by an offer for an inexpensive Internet connection from a local supplier.

➤ After visiting Bangalore for several days, we become increasingly fascinated with the numerous IT advertisements. Few places in the world are so dominated by such a diverse offering of IT services.

Of course, there is a reason for this, which can be summarized in two words: software development. In Bangalore, at least 60,000 programmers are busy writing line after line of code, which is combined to form applications. Each year, the state of Karnataka – the capital of which is Bangalore, a city of five million – graduates some 20,000 engineers.

Talented engineers

Despite the number of qualified engineers, it is not difficult to find work. Recruitment companies comb educational institutions for "freshies," local slang for recent graduates and inexperienced software developers.

Inge Garshol

"There are so many talented engineers here in Bangalore, although the competition is becoming tougher as more companies open offices and research laboratories," says Inge Garshol, Ericsson's head of research and development in India.

Many international companies have established a presence in the city over the past decade. All of the American software giants are here. Some of them, such as IBM, have built facilities of their own. A large number of Indian software companies have also emerged, with names such as Wipro and Infosys – both of which are listed on the NASDAQ stock exchange in the US and have sales in the millions.

Competitors in place

Ericsson's competitors can also be found in Bangalore – from Motorola, Lucent and Cisco to Nokia and Siemens.

Microsoft, however, has chosen Hyderabad in the neighboring state of Andhra Pradesh, for its headquarters. Hyderabad and Bangalore are fiercely competitive when it comes to upgraded digital infrastructure and more hospitable business climates.

Many of India's other regions have discovered what a fantastic resource the nation is sitting on in the form of expertise. As a result, development units and Indian software companies are popping up all over the country, including Mumbai (formerly Bombay) and Chennai (formerly Madras).

If development continues at this pace, management consultants at McKinsey predict in a report that one third of India's exports will consist of software products by 2008. Considering that India is a third-world country, that forecast is nothing short of astounding.

Why are there so many well-educated Indians living in Bangalore? One reason is that high-tech operations have, by tradition, been concentrated in that city. Bangalore is home to both India's aviation industry and the government-sponsored space research program. These operations are supported by a number of universities and other educational institutions.

Another reason for the city's popularity is its climate. Although it is warm in Bangalore, the city is situated at a relatively high elevation, making the climate temperate and green compared with many other parts of India.

Mats Lundström

Academic tradition lies behind success

What is driving the boom in Bangalore? If the head of the Indian Institute of Science (IISc) is to be believed, this success is due to Bangalore's longstanding academic traditions.

➤ We are sitting in Goverdhan Mehta's office at a campus that could just as easily be located in California. The Indian Institute of Science is truly an elite school – and one of the world's most successful.

The professor explains that each year they search for talent across the whole of India, selecting only a few hundred students from among more than a million. It is a proud academic tradition that Goverdhan Mehta describes.

With globalization and increased interest in India in general, and Bangalore in particular, the Institute has also become a target for business collaborations.

Goverdhan Mehta

"We've formed a new faculty, the Society for Innovation and Development (SID) for collaborating with foreign companies. Links have been established with companies from numerous areas within the fields of communications, information technology, medicine and biotechnology."

SID is overseen by Professor H.P. Khincha. Relationships with companies vary, from sponsorship of research projects to setting up research laboratories at the Institute, which are operated by either the company or the Institute.

"There are numerous forms of collaboration and we are willing to take on projects where we can develop technology, but for us it is important to also be able to share our successes with our collaborative partners," says H.P. Khincha.

Ericsson's head of software development in India, Inge Garshol, explains that a collaboration with SID is in the works.

"We hope to have an agreement in place by summer that will also involve Ericsson Research," says Inge Garshol.

Outside interest in the Institute has also had some influence on the focus of its programs. While academic quality has remained intact, greater emphasis has been placed on teaching entrepreneurship.

"Our goal has never been to reach entrepreneurs, but rather to seek out talented individuals who want to have a career in science, technology or engineering. The fascination with India at the moment is due to the fact that there is so much talent here."

Are there any differences between Indian entrepreneurs and those from other countries?

No, not according to Goverdhan Mehta. In his opinion, entrepreneurship is not tied to a nation but to individuals.

"There is a strong tradition of entrepreneurship in India, but it was lost during the colonial era. Over the past 50 years, we've been politically independent, but not economically. Now I'm seeing a change, with a government that is focusing on liberalization of the economy. As a result, we can see dramatic changes when it comes to entrepreneurship in India. It's all about building up this country.

"True entrepreneurial spirit comes from the lower levels of Indian society, from the shanties and slums. We have a young, vibrant population that is just waiting to be given free rein," says Goverdhan Mehta.

Mats Lundström

FACTS/INDIAN INSTITUTE OF SCIENCE

- The Institute was established by J.N. Tata in 1909. The Tata family operates one of the country's most important trading companies.
- The Institute is focused solely on graduate-level academic training. The school's students include 1,000 doctoral candidates, with the remaining 700 earning their master's degrees.
- There are approximately 500 teachers, resulting in a student/teacher ratio of three or four students per instructor, a unique situation.
- The Institute has two faculties: the Faculty of Science and the Faculty of Engineering, which in turn consist of some forty different departments.

Young Indians find work options

One is 24, the other 25 years old. One comes from the state of Kerala in the south, the other from Bangalore.

Both are "freshies", recently graduated computer science engineers. Anita Raimaiah and Suchitra Varma were recently hired at Ericsson's software center in Bangalore.

➤ Their stories are typical of other newcomers to Bangalore's IT industry, and are not unlike those of skilled young programmers in the West. They come from middle-class backgrounds and have attended university. Over several years they have learned how to write computer code with precision, primarily in the C++ programming language. And they are offered jobs even before graduating.

"What is happening is that recruiting firms are coming to universities a year or so before students graduate and offer them jobs," says Suchitra Varma.

She received her degree from the university of Cochin in the state of Kerala, after attending a four-year program. It is not all that common for students to leave before completing their degrees, according to Suchitra, whose expression makes it clear that this would be unthinkable.

"No, you just don't do that. You need to have a degree," she says.

From India to Sweden

What differentiates Anita Raimaiah and Suchitra Varma from their code-writing brothers and sisters in the West is that they have grown up in a developing country. We sit in an air-conditioned meeting room at Ericsson's development center in central Bangalore, a completely different environment from the lively street scene outside the office building. Suchitra Varma says that everyone who received a degree at her university found employment. We discuss how it was that she came to work for the Swedish telecom giant.

"It was mostly by chance. It wasn't essential for us that we should end up working for an American company," they say.

They have only been working at Ericsson for about six months and have not yet been able to get a feel for what the company is like. Their first few months were devoted to internal training.

Suchitra Varma, from the Indian state of Kerala, and Anita Raimaiah, from Bangalore, are starting their careers at Ericsson.

"During those three months, we learned the Java programming language, which is another version of C++. We also learned more about the Unix operating system," says Suchitra Varma.

Bright future

How do they view their futures? Well, the prospects seem bright. They hope to be able to get involved in their work and become productive as soon as possible. When I inquire whether they would like to travel, they reply somewhat evasively that they have not even had the chance to get used to the possibility of being able to travel. So far, that is not a priority for either Anita Raimaiah or Suchitra Varma.

"First we need to learn more about how Ericsson operates," they say.

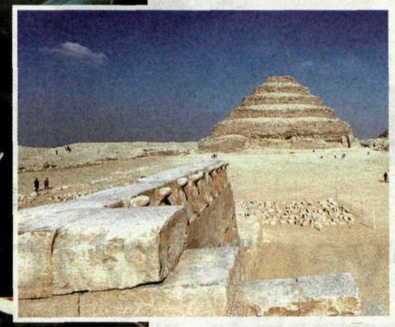
Mats Lundström

Among phones and pharaohs

Deregulation in order to organize the telecommunications market was Ahmed Nazif's first action as IT Minister in Egypt. He asserts that the country's young population is its most important asset. It will put Egypt on the IT map.

The Minister of Telecommunications and IT-related Issues, Ahmed Nazif, visited Ericsson's stand during the Telecom Egypt fair in Cairo in January. Joseph Nour, head of the Mobile Internet Center at Ericsson in Egypt, took the opportunity to demonstrate the latest Mobile Internet services designed by the Center in Cairo.

Photo: Ecke Küller



➤ In October 1999, Dr. Ahmed Nazif was named Egypt's Minister of Telecommunications and IT-related Issues. Energetic and full of new ideas, he mounted a major campaign in that area. Deregulation was one of the first measures taken.

The mobile phone market is competitive. Click GSM and Mobinil are two equally strong operators who have been fighting for subscribers since 1998.

The fixed network is operated by Telecom Egypt, a profit-making company that was established in 1998, replacing the government agency that previously supervised operations.

Egyptians can choose between some 40 different Internet service providers. Currently, there are 500,000 Internet subscribers in the country, including 300,000 new ones during the past year alone.

Mobile phone subscribers number 2.2 million, equally divided between the two operators. In 2000, the number of subscribers doubled.

"These figures are encouraging to us. No other sector in the country can match them," says Ahmed Nazif.

Deregulation and competition are generating a dynamic market, which is attracting foreign companies and investors to Egypt. Nevertheless, Ahmed Nazif believes that the country's young population is its most important asset. Fifty percent of the population is under the age of 25.

Education levels are, generally speaking, very high and in order to attract talented individuals into the IT sector, they are being offered telecom courses. The courses are the result of collaboration between the Egyptian government and telecom-related companies. Ericsson is one of the companies involved in the project. Some 18,000 people have participated in various training programs around the country since May 2000.

Young, well-educated workers can earn more money if they seek out employment overseas, and many academics have left Egypt over the years.

Tarek Kamel, advisor to the Telecommunications Minister, is not worried that a brain drain will derail the country's IT training efforts.

"Even if some people leave the country for a few years, we still profit from having trained them. They will always remain Egyptians, and sooner or later they will create added value for us. Many return home to start up businesses in Egypt after a few years abroad," says Tarek Kamel.

In order to attract foreign companies into the country, they are also offered heavily subsidized land.

Egypt's start-up companies are focusing on the development of software and international companies are offering them assistance. Ericsson's Mobile Internet Center is one example.

Although the country's investments in new information technology and telecom are starting to yield results, the global volatility in the IT market has eliminated some of the positive effects that the Ministry had anticipated. The government had planned to sell 10–20 percent of its shares in Telecom Egypt last November, but decided to postpone that sale until the market stabilized. Nevertheless, Tarek Kamel is not worried that they are investing in the wrong area.

"The IT market will experience another wave of growth. And then we'll be ready."

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FACTS/**EGYPT**

Form of government: Republic
Population: 65 million
GDP per capita: USD 1,260
Growth: 4–5 percent per year
Exports: Oil, textiles, gas

Two million new lines each year

"When a government agency wants to transform itself into a profit-making service company, it's not enough to merely change your logo," says Akil Besheer, President of Telecom Egypt, which operates Egypt's fixed telephone network.

The company has a challenging task ahead of it. Currently, between one and two million Egyptians are waiting to receive subscriptions, and 800,000 people per year are expected to apply for Telecom Egypt subscriptions in the future.

➤ Since the goal for this year is to eliminate the waiting list, Telecom Egypt plans to make use of state-of-the-art technology.

"We expect to install two million new lines this year. This is a very aggressive plan, and in order to succeed, we need to utilize the best technology. Soon, the entire network will be digital. In those places where we don't have wires in the ground, we'll be utilizing solutions, such as Wireless, in a local loop. Today, many people don't bother to apply for subscription due to the long wait, and only 9 percent of the population has a regular phone," says Akil Besheer.

He says that the reason for the low number of subscribers is that Egypt is still a relatively poor country.

Past rollouts of new service have been extremely slow, with some people waiting up to 20 years to get a phone.

It is not only technological advances that will transform Telecom Egypt into a modern company, however. Following deregulation, the government agency was transformed into a profit-making company.

Marketing campaigns and efforts to make employees more service oriented will be the key. With 55,000 employees, Telecom Egypt is the country's largest company. It has yet to be exposed to competition in the field of voice telephony, but this will happen eventually.

Although the company is still state owned, there are plans to sell 10–20 percent of its shares. A sale was scheduled for November 2000, but it had to be postponed due to stock-market volatility. Akil Besheer expects that the sale will be effected this year.

"We're also planning to bring in a strategic partner – for the purpose of adding expertise, not for further funding. Apart from Vodafone and France Telecom, which are collaborating with our competitors, there are many other interesting alternatives."

In December 2002, another operator will be granted a GSM license. In all likelihood, it will be Telecom Egypt.

"The established mobile phone operators already have many subscribers. In the face of that kind of competition, we really have to be able to offer something special," says Akil Besheer.

Jesper Mott

"The goal is to make people use WAP"

Next year there will be approximately two million WAP phones in Egypt. Ericsson's Mobile Internet Center (MIC) is dedicated to ensuring that there are also two million users of Mobile Internet, by creating services and supporting third-party developers. Three months after startup in April last year, MIC received its first major assignment from a local company.

➤ Ericsson's MIC is a driving force in the development of Mobile Internet in Egypt and the surrounding area. The main aim of MIC activities is to stimulate the market for Mobile Internet by giving companies access to Ericsson's technology and expertise.

"Much of our work involves business development. We survey the market, then we contact the companies and tell them about our ideas," says Joseph Nour, manager of the Mobile Internet Center.

Ericsson also offers companies the opportunity to rapidly distribute WAP services to customers, by developing everything from applications to complete solutions by themselves. Only a few months after startup, the MIST company, which provides Internet-based financial information, selected Ericsson as its partner for developing WAP services.

Comprehensive packages

The MIST contract is just one of MIC's agreements in this field. Joseph Nour also mentions agreements with Internet supplier Menanet, which provides simpler services such as e-mail and calendar functions, and mobile operator Click GSM. Using a mobile phone in Egypt is still expensive. Joseph Nour believes that banking and financial services will help stimulate the use of Mobile Internet.

"The goal is to make people really start using the WAP services. MIST has good prospects, since its services target segments with considerable purchasing power. For these customers, the value of the services outweighs the high cost. We will never have a mass market among young users unless prices decline. So banking and financial services are crucial at present," says Joseph Nour.

Nevertheless, he thinks that Mobile Internet will eventually penetrate the entire society.

"The Internet is not that widely spread here, so Mobile Internet may become a substitute for the key services that people would otherwise find on the Internet. The mobile market is growing quickly, and we believe there will be more than two million WAP phones in Egypt by year-end 2002. Moreover, a large proportion of the population is young and interested in technology."

Members number 200

The technology and expertise that the Mobile Internet Center can offer are highly attractive to companies. Today, approximately 200 corporate members are registered in the Center's database. There are three membership levels available to them.

Companies can become members and obtain basic information and access to the Center's website free of charge.

On the second level, companies can pay for an account and access to information from other companies in the industry via a global network. They can also test their applications on Ericsson's equipment. Ericsson's business partners receive the best possible support and service, for everything from concepts to customer presentations.

Joseph Nour explains that Ericsson does not aim to independently develop all services and applications. There is room in the market for many third-party developers. However, for business transactions involving operators, Ericsson does want to develop the services itself.

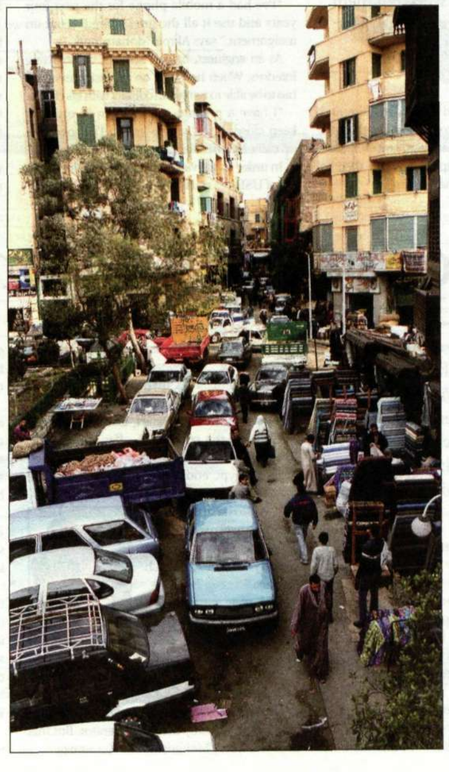
The Cairo center is important to development throughout the Arab world. Other Ericsson offices turn to MIC for help and advice, as do WAP developers in the region. A key part of the operations is to stimulate services in Arabic.

"We're now testing the first services in Arabic. I believe that many services will be bilingual or perhaps trilingual in the future," says Joseph Nour.

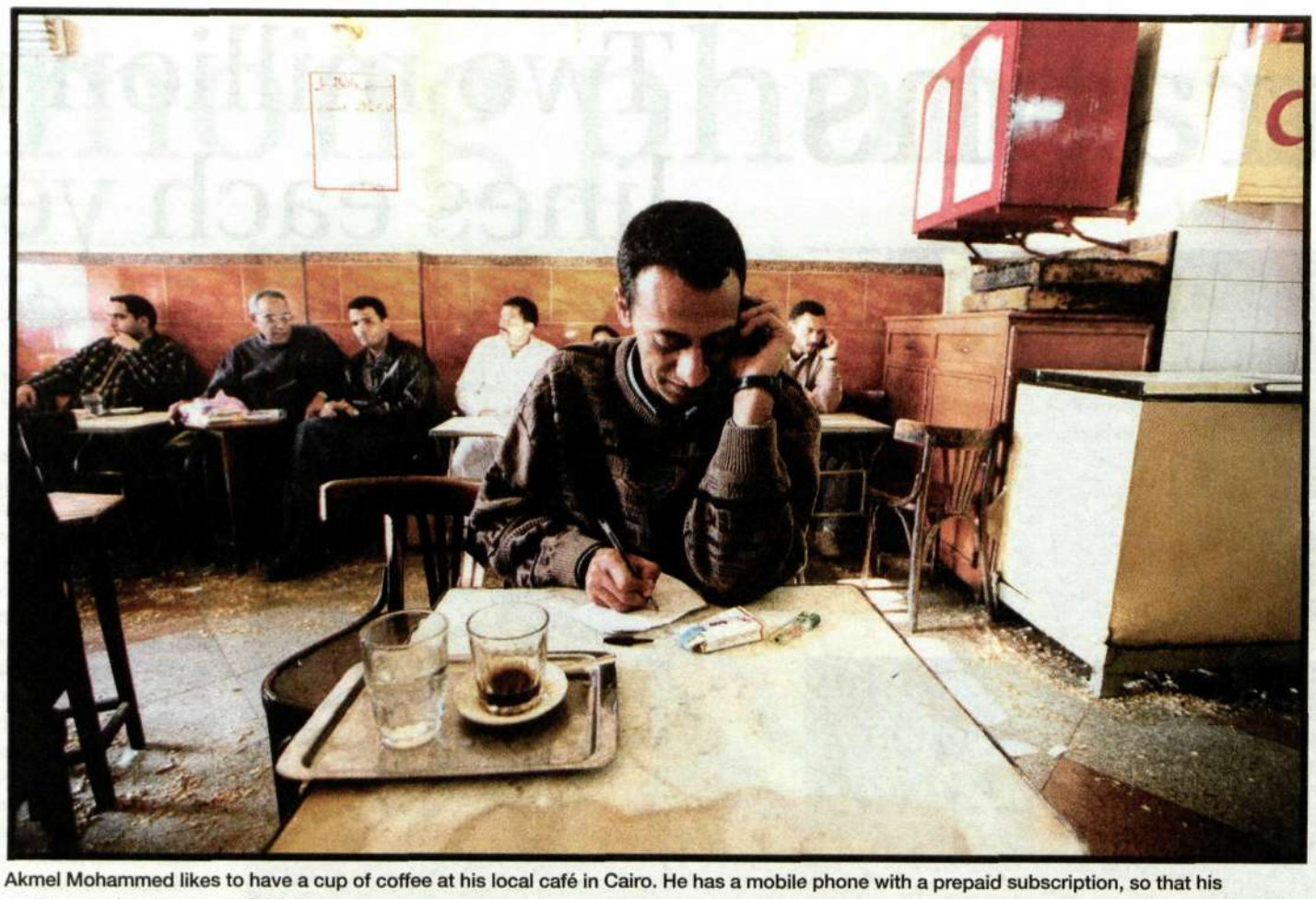
Jesper Mott

FACTS/**ERICSSON IN EGYPT**

- In 1897, Ericsson sold the first manual switch in Egypt.
- In 1959, a local office was established, and in the 1960s and the 1970s, Ericsson was the sole supplier of switches and telephones to Egypt.
- In the 1980s, the Swedish government ceased its support for the development of telecommunications in Egypt and other suppliers entered. However, in the early 1990s, Ericsson obtained a contract for 100,000 lines and has subsequently developed this base.
- Today, Ericsson accounts for ten percent of Telecom Egypt's six million fixed telephones lines.
- Since 1998, Ericsson has been a supplier to Click GSM, one of the country's two mobile operators, which has approximately 1.2 million subscribers.



The chaotic traffic in Cairo has helped Egyptians became accustomed to queuing. Even those wanting a phone subscription are forced to wait. However, Telecom Egypt aims to build out its network this year to enable the two million Egyptians on the waiting list to receive their phones.



Akmel Mohammed likes to have a cup of coffee at his local café in Cairo. He has a mobile phone with a prepaid subscription, so that his customers always can reach him.
Photo: Ecke Küller

The mobile – an everyday tool

Following the introduction of prepaid subscriptions, many Egyptians decided to buy a mobile phone.

Both Akmel Mohammed and Nasir Hsmeat have prepaid subscriptions and use their phones to assist them in their work. For them, voice telephony remains the most important service.

➤ In Cairo, men sit around in cafés, smoking and drinking strong, muddy coffee, just like they did a hundred years ago. These days, however, their conversations are interrupted now and then by the sound of mobile phones ringing.

Akmel Mohammed sits at a table at a café in central Cairo. His mobile phone pressed against his ear, he quickly notes down a message on a piece of paper. When he is ready, he smiles apologetically and offers a cigarette. Bubbling sounds emanate from water pipes, their sweet smoky aroma mingling with the smell of coffee and woodchips, which are spread out on the floor.

"I've had a mobile phone for the past four years and use it all the time when I'm out on assignment," says Akmel Mohammed.

As an engineer, his job involves constructing interiors. When he is out on an assignment, he has to be able to remain in contact with his clients.

"I have a prepaid subscription in order to keep closer track of how much I'm spending on calls. Nevertheless, it still costs quite a lot."

In order to activate a prepaid subscription, a fee of USD 120 must first be paid.

"More and more services are being offered, but they are all expensive. People hesitate to use them. More competition would perhaps make them less expensive."

Akmel Mohammed has access to the Internet at home, which results in steep bills every month. He would be interested in mobile Internet if he had a use for it in his job. Currently, he is able to do all his recreational surfing on his home PC.

The Khan El Khalili bazaar is situated a few blocks away from the café. The location is strongly associated with the image of Cairo as a lively, Arabian commercial center. The sounds of mobile phones can also be heard here, and they are not only in the hands of tourists.

Nasir Hsmeat stands in one of the city's many small gold shops. A steady stream of fastidious tourists peek into the shops every day, and the salespeople have to be quick if they are going to make a sale.

When Nasir Hsmeat is out buying merchandise, his shop assistant has to be able to get in touch with him. That prompted him to buy a mobile phone a few months ago, making it much easier for him to conduct business.

"When somebody wants to buy a lot of gold, we can offer them a discount. First, however, they call me up to make sure that it's okay. These days, I must have my mobile phone with me in order to conduct business," he says.

Just like Akmel Mohammed, Nasir Hsmeat would be interested in the Mobile Internet if it could help him conduct business.

"The most important factor for me is being able to make inexpensive calls."

Jesper Mott
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Stiff competition on the market

Click GSM was the second mobile operator to establish itself in the Egyptian market. With Vodafone as its majority owner and Ericsson as sole supplier, Click quickly succeeded in catching up with its competitor, Mobinil.

➤ Mohamed A El-Hamamsy, President of Click GSM, explains that now that the company's build-up phase has been concluded, the focus has been switched to improving network quality.

When Click GSM launched its operations in 1998, it was assisted by hundreds of experts from Airtouch and Vodafone. Today, Click has 1,500 local employees and only 20 contracted experts.

"We have invested a great deal of money and energy in training our employees in technology and marketing. Our network has the best quality, and surveys show that our call center is the best in the Middle East," says Mohamed A El-Hamamsy.

Due to Ericsson's involvement, Click was able to offer prepaid subscriptions to its customers right from the start, and was the first operator in the country to offer this service. Click GSM covers 95 percent of the inhabited parts of Egypt, and its network includes more than 200 cities.

"We also have 180 roaming partners worldwide, which is important for a country with so much tourism."

Mohamed A El-Hamamsy

Next year, competition in the mobile market will intensify, since a third mobile operator will be given the opportunity to became established.

The license will probably be granted to Telecom Egypt, the only wireline operator. But this does not worry Mohamed A El-Hamamsy.

"We have twice as many subscribers as we expected. We will be competitive, and able to take advantage of Vodafone's experience from other markets."

Since Click GSM does not have its own data and transmission network, it leases network capacity from Telecom Egypt. To date, the company has not determined whether constructing and owning its own network would be profitable.

"If we do not want to lease from Telecom Egypt, there will be more carriers to lease from soon, as the market becomes further deregulated."

Ericsson and Click GSM signed a Declaration of Intent at the end of last year, in which the companies reached an agreement regarding delivery of a complete WAP solution. The solution includes WAP Gateway, an application server, applications and design.

Mohamed A El-Hamamsy says that use of WAP services has been sluggish.

"Perhaps it's because we have so few Internet users in Egypt, or perhaps there are too few applications with local content. Still, we believe that GPRS and the new phones will speed up mobile data services and multimedia. WAP technology is a logical next step."

Simpler mobile-data services, such as SMS, have been enormously successful. At one point, Click was offering free SMS to encourage its customers to use phones for data services.

"This resulted in a sudden surge in traffic volume. We were obliged to limit phone use to ten messages per day and subscription. When we started charging for the service, usage declined, of course, but it's still very high."

Mohamed A El-Hamamsy believes that wireless telephony will continue to grow and attract customers. Certain factors, however, are inhibiting expansion.

"Network capacity is a limiting factor. Another is the fact that Egypt is not a rich country, and a charge reduction would mean a great deal."

Jesper Mott

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	TS187x	400µA	1.6MHz			1.8V supply voltage / Iout typ. 65mA Low distorsion/noise
	TS92x	1mA	4MHz	2.7 to 12V		Iout typ. 80mA / Low distorsion/noise
	TS93x	20µA	0.1MHz			Micropower
	TS94x	1.2µA	0.01MHz			Ultra-micropower
Rail to Rail Comparators	**TS86x**	6µA	NA	2.7 to 10V		Micropower / Push pull 0.5µs response time
Voltage References	**TS4040-2.5**	65µA to 15mA	NA	NA	SOT23-3 TO92	2.5V Fixed Output Voltage Micropower / Precision 2%, 1%
	TS4041-1.2	65µA to 12mA	NA	NA		1.225V Fixed Output Voltage Micropower / Precision 2%, 1%, 0.5%

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TS4872*				Flip Chip

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More Intelligent Solutions

This is the second of three articles on Ericsson's role in the development of mobile telephony. This installment describes the 1990s and the system that had the greatest impact – GSM.

The digital explosion

➤ Following its introduction in Saudi Arabia in 1981, NMT 450 conquered the mobile telephone markets in the Nordic countries, the Netherlands, Switzerland and two Asian countries: Thailand and Malaysia. By the late 1980s, Ericsson was one of the leading suppliers of AMPS systems in the US and a major TACS supplier as a result of a contract with the British operator Vodafone in 1985.

Ericsson achieved considerable success and was often the only supplier that could deliver complete networks for all standards. However, Ericsson was also the leader with respect to technical development.

Very early in the 1980s, it became apparent that a future mobile telephone system would have to meet several new requirements:

- Capacity had to be significantly greater than in analog systems.
- Both base stations and phones had to be less expensive and smaller.
- The phone needed to remain operational for a long time on a single battery charge.
- The new systems must be compatible with the first generation systems.

Frequencies reserved

As early as 1978, CEPT, the European Post and Telecommunications Conference, decided to reserve new frequencies for mobile telephony in Europe, consisting of two 25 MHz blocks in the 900 MHz band. At the CEPT conference in Vienna in 1982, it was proposed that a new standard for mobile telephony should be created, and a working group called Group Spéciale Mobile (GSM) was appointed. The first GSM meeting was held in Stockholm in December of the same year.

When the European Telecommunications Standards Institute (ETSI) was established in 1988, GSM activities were transferred to the new body. This resulted in a number of changes. ETSI members included not only public telecom authorities, but also other operators, user groups and representatives of the manufacturing industry.

One of the GSM system's defining features is its open interface. This means that operators have free access to the GSM specifications and can choose subsystems from different suppliers. Standardized interfaces guarantee that the subsystems are compatible.

The objective of GSM was to create prerequisites for seamless international mobile telephone networks and to open the market to competition and open tenders. The GSM group had decided on a digital system in which radio transmission would be digital and voice signals would be sent at a rate of 16 kbit/s.

As early as 1977, SRA (now ERA) and Televerket (now Telia) started a joint research and development program for digital mobile telephony.

An important aspect of this work was the choice of access technology, which means the method by which subscribers are connected to the network. The choice was between frequency multiplexing and time multiplexing.

Two technical demonstrations were created between 1985 and 1986 that showed that narrowband TDMA (Time Division Multiple Access) had clear advantages:

- Greater traffic capacity in the network.
- The technology permitted frequency hopping.
- The handover function could be controlled by mobile terminals.

TDMA also held the promise of significantly reduced cost, weight and volume.

In late 1986, the GSM group tested and evaluated eight different experimental systems, four of which were based on narrowband TDMA. The result was that a large majority of the European countries voted to base GSM on this technology.

By spring 1987, the GSM group had established the following parameters for TDMA systems:

- 200 kHz channel bandwidth.
- Digital speech transmission at a rate not to exceed 16 kbit/s.
- Time multiplexing by a factor of eight, with a future enhancement for multiplexing by a factor of 16 when a second generation of speech coders for lower speeds were defined.
- Slow frequency hopping.

One year later, the first GSM specifications were completed, and manufacturers could begin developing products. Ericsson was in an advantageous position, since the company had been working for some years with the technology that had been chosen for GSM and because the final specifications were very close to the demonstration systems already built.

Operational in 1991

The first GSM systems were taken into operation according to plan in 1991 in Denmark, Sweden and Finland. Since then, GSM has advanced steadily. Ericsson also emerged as the victor in the battle for the important and complex US market. TDMA eventually became the name of the system that was originally delivered for a new American standard, a digital version of AMPS (D-AMPS). The strength of Ericsson's solution was that it could be grafted on to an analog AMPS network.

Yet another piece of the confusing puzzle of acronyms should be put in place and explained: CDMA. The acronym stands for Code Division Multiple Access, which is a technology introduced by the US company Qualcomm. According to this standard, each radio link within a certain frequency band is labeled with a unique code. In the US, the first D-AMPS network was taken into operation in 1992, while CDMA started in 1997.

International roaming is one of GSM's key services. GSM operators have roaming agreements with their counterparts throughout Europe, as well as with operators in other parts of the world. It is common that GSM operators sign roaming agreements with several competing operators in a given country and that subscribers can then choose which operator to use.

The subscriber is identified by a SIM (Subscriber Identity Module) card that contains the subscriber's identity, a service profile with information about the subscriber's services and possibly a preferred GSM operator in various countries.

Bertil Edin
freelance journalist

FACTS/DIGITAL MOBILE TELEPHONE SYSTEMS

	GSM	D-AMPS (TDMA)	PDC
System start	1991	1992	1993
Frequency band, uplink	890–915 MHz	824–849 MHz	940–956 MHz
Frequency band, downlink	935–960 MHz	869–894 MHz	810–826 MHz
Channel bandwidth	200 kHz	30 kHz	25 kHz
Multiplex	8-channel TDMA	3-channel TDMA	8-channel TDMA
Carrier (bits per frequency channel)	270 kbit/s	46,6 kbit/s	42 kbit/s

GSM: In GSM (Global System for Mobile communication), both traffic and control channels are digital. Today there are three different GSM standards, GSM 900, GSM 1800 and GSM 1900, designated according to the frequency band (MHz) that each uses. GSM 1800/1900 is primarily intended for areas with high phone density and is one of many ways of utilizing the limited frequency spectrum available for mobile telephony.

D-AMPS: (Digital Advanced Mobile Phone System) is a version of AMPS to which digital traffic channels were added. Because of the access method used (TDMA, three time slots), three traffic channels can be accommodated on a 30 kHz channel. This system, which is now called TDMA, allows both analog and digital channels in the same network and in the same cell. The standard is used in roughly the same countries as AMPS.

PDC: Personal Digital Cellular was specified by RCR (Research & Development Center for Radio Systems) in Japan together with eleven different manufacturers. The radio interface is open and resembles D-AMPS, while the network architecture and services are more similar to GSM.

(Source: "Understanding Telecommunication 2", 1998)

FACTS/GSM SYSTEM ARCHITECTURE

MS: Mobile Station – all types of terminals, installed in vehicle or handheld.
BSS: Base Station Subsystem includes a Base Station Controller (BSC) and a Base Transceiver Station (BTS) with receivers and transmitters.
MSS: Mobile Switching System includes a mobile telephone switch (Mobile Switching Center, MSC) and the databases for the Home Location Register (HLR) and the Visitor Location Register (VLR).
OSS: Operations Support System is the system that is used for network operation, call charging and administration of mobile equipment.

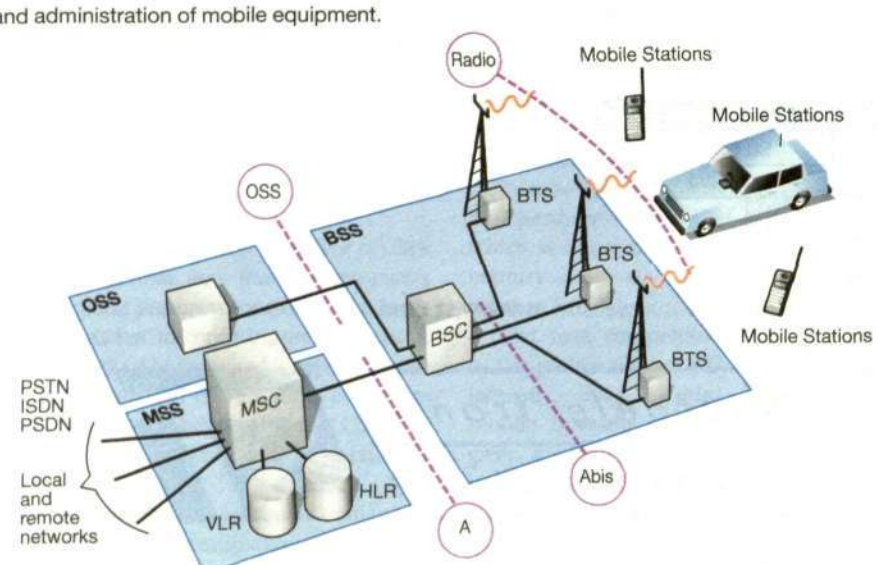


Illustration: Claes-Göran Andersson

FACTS/SOME TERMINOLOGY

Frequency multiplexing: A technology that allows a large number of subscribers to use a frequency band simultaneously by allocating different frequencies for the radio links.

Handover: A function for handing over a call in progress without interruption when a mobile user moves from one radio cell to another.

Roaming: The functions that transfer a call in progress when a mobile subscriber moves from one MSC area to another.

Time multiplexing: A technology that allows a large number of subscribers to use a frequency band simultaneously by dividing it into different time slots.

Maximizing network use with automatic optimization

As radio traffic increases due to new data services in mobile networks and competition heats up, it is becoming increasingly important for operators to utilize the limited radio frequency optimally. At Ericsson's Local Design Center in Linköping, Sweden, tools are being developed that automatically and in real time ensure that networks are optimally configured.

➤ Optimizing radio networks is difficult. Until now, a small number of highly trained optimizers have had to trim hundreds of parameters manually in the Base Station Controller (BSC). It takes two people a week to trim a single BSC, of which there are many in a mobile network.

Radio Network Optimization (RNO) is about coverage, capacity and quality and about software that controls such parameters as frequency and the relationship between neighboring cells in the network. This means that when the network is heavily loaded, it is in principle possible to re-direct traffic between base stations so that an optimal number of calls can be connected.

This is a cumbersome manual task, however, that only results in a rough average optimization. It is also not sufficient when traffic increases significantly. For the operator, the ideal is therefore to be able to optimize the network automatically and in real time as traffic increases.

"Our new tool supports near real-time network updates," says Åke Sundelin, manager for the department that is developing tools for radio network optimization in the OSS (Operations Support System). Fresh data are gathered continuously from the network and improvements are made automatically. Human optimizers can control the network at a higher level.

Self-configuring

The department began working with radio network optimization as early as 1996, but tools for self-configuration are a relatively recent development. These are called NOX, which is a Neighboring Cell List Optimization Expert that identifies the best neighboring cell, and FOX, a Frequency Optimization Expert that identifies the best frequencies. These tools collect data from all active mobile units and base stations and update the network once each day. This is sufficient for frequency and neighboring cell optimization, but it is not real time. Not until release R9, which is the next generation of the GSM system, will the R-PMO Real Time Performance Monitoring tool be added to the product portfolio.

"Great effort is now being devoted to giving R-PMO a graphical user interface," says Anna Rimhagen, who is working with usability issues. "All the operators that we have talked to are looking forward to being able to correct problems on a computer screen."

Today operators must wait several hours to get the equivalent information. In the future (starting with R10), the operator will only have to set a few general parameters. These will be transformed by expert algorithms into a number of parameters that control the radio network. Although users will be able to monitor and control how the expert systems work, they will be able to devote their attention to other things.

Credibility

"The problem in selling our tools is not technical. Instead, it's a question of convincing operators and their network optimizers that they can trust them," says Åke Sundelin.

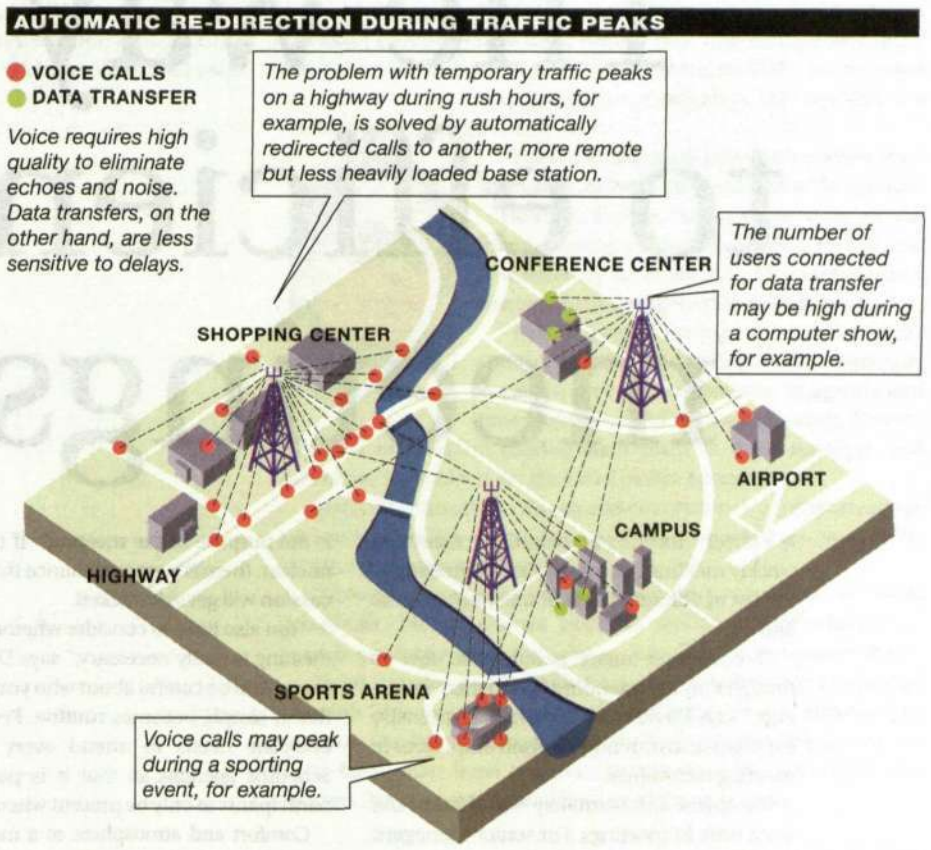
"We believe that Ericsson is very far ahead in this area. As far as we are aware, none of our competitors have anything like this," says Anders Lundin, section manager in the department. "However, as operators approach the limits for what the networks can handle and seek their own solutions, this is an increasingly hot topic."

Ericsson has conducted demonstrations and usability tests of its real-time solutions with operators and completed a successful field test with SmarTone in Hong Kong. Two workshops focusing on credibility were also conducted with Telenor and Tele Danmark, with an additional workshop planned with Swisscom. Hopefully, these will result in partnerships with one or more operators.

One of the strengths of the system developed in Linköping is that the work was conducted in close collaboration with the BSC developers in Guildford in the UK. This is particularly important, since the GSM standard lacks an open interface between the OSS and BSC. The real-time tools are now being industrialized for GSM, while they are entering the research phase for future WCDMA systems. Of the total of 120 Ericsson GSM customers, about one fourth have purchased the existing RNO tools.

Lars Cederquist

www.lmera.ericsson.se



Reducing the number of dropped and unconnected calls represents significant revenues for operators. Ericsson's new real-time tool R-PMO will optimize the network automatically and control traffic optimally so that calls are re-directed to a more distant base station if the distribution of users so requires. Illustration: Martin Gradén

Research linked to university

➤ At the Local Design Center in Linköping, about 1,000 persons work with the development of GSM and WCDMA products. Ericsson Research also has a branch here called LinLab, where just under 30 researchers are working to simplify and automate as much as possible in the areas of radio network control for WCDMA and control of IP traffic.

"Automation and usability are the watchwords here," says Martin Rantzer, who heads LinLab.

"Systems should basically take care of themselves, but it is also important that users feel that they have control over what the system is doing. We work a lot with prototypes for visualizing the radio network and work closely with Ericsson customers to verify that we are automating the right things in the right manner."

LinLab works with both local product development and Linköping University. Many research problems are solved by eager graduate students, primarily in the field of system and automation technology.

"The next major research challenge is self-configuration for WCDMA. The turbo effect that our new adaptive radio network algorithms provide may well be what distinguishes Ericsson's systems from the competition," concludes Martin Rantzer.

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Wireless LAN access with a 3G feeling

The wait for 3G doesn't have to be so long. Ericsson's Virtual Office, EVO, can already provide employees with significantly faster and more secure wireless access to their intranets when they need to connect outside the office.

➤ The primary applications are e-mail, web browsing and downloading of files. Long connection times of 20 to 25 minutes can be reduced to 30 to 35 seconds. Downloading data is also three to five times faster than GSM's 9.6 kbit/s limit, thanks to various compression tricks. The hardware required for EVO is a PC server in the office.

"We are providing a bridge to the future and showing what is possible with today's wireless technology," says Christer Freander, manager for the unit working with EVO.

Ericsson's Virtual Office, EVO, saves time. Long connection times are reduced to a matter of seconds.

Foto: Ecke Küller

EVO targets employees who need to access their local network (LAN) while outside the office. E-mail access is fast, since only a list of received mail is transmitted initially. The user can choose to delete or open received messages, which are then transmitted as compressed files. Security is higher than with a conventional modem, since it is encrypted all the way from the server out to the portable computer and keys are used to ensure the user's identity. EVO is currently used internally within Ericsson. Servers have been installed, and the service is ESOE-certified. EVO, which requires RACOM, is an Ericsson product that was first tested internally before being sold commercially, most recently as EVO 3.0 for GPRS. Contracts signed include one with BT Cellnet for its GPRS network.

EVO is platform-neutral and supports many types of clients, including portable PCs, PDAs such as the Palm V, Pocket PCs and the MC218. Several thousand Ericsson employees use EVO, and heavy users can save thousands each month.

Lars Cederquist

http://evo.ericsson.se

Meetings, meetings, meetings – how will I get anything done today? Does that sound familiar? Contact has met with employees from around the world to discuss the positive and negative aspects of meetings.

The way to efficient meetings

➤ Project meetings, planning meetings, weekly meetings and information meetings – the list of different kinds of meetings goes on and on.

"I encounter many people who feel as though they are attending far too many meetings," says David Norman, who has extensive experience instructing Ericsson employees in meeting techniques.

We spend approximately one-third of our work time in meetings. For senior managers, that figure can reach 80–90 percent.

At the same time, on average, we find 30 percent of that meeting time to be inefficient. In the worst cases, meeting participants think that 70 percent of the time is poorly spent.

"I attend quite a few meetings and I often find them to be inefficient," says Britta Berggren.

She works on preventing stress during pressing projects. Part of this involves structuring meetings so that they are efficient and meaningful.

"Often there is a lack of engagement, people come and go. It's crazy, really," she says.

When David Norman, who is President of the training company Key, starts his courses, he often begins by listing the issues that course participants experience as problems.

Meetings that do not start and finish at the appointed times is one recurring irritation.

"You should start at the scheduled time, even if some people are late," says David Norman. "Otherwise you run the risk of having that behavior spread. Perhaps you can start with one of the agenda items that does not require everyone to be present."

Scheduling important

Another piece of advice is to think in advance about how long each item should take, and then appoint a timekeeper whose job it is to keep track of time and let people know if they have become stuck on a certain point too long.

"If one still cannot finish, it is important to ask everyone whether or not it is okay to run a little over the allotted time. Otherwise you need to wrap things up and schedule another meeting."

Much of this has to do with planning. What is the purpose of the meeting? If the goal is unclear, there is a greater chance that the discussion will get sidetracked.

"You also have to consider whether or not a meeting is really necessary," says David Norman. "And be careful about who you invite, so that it simply becomes routine. Perhaps not everyone needs to attend every meeting. Schedule agendas so that it is possible for participants to only be present when needed."

Comfort and atmosphere at a meeting are also important. That can include everything from ensuring the space is aired out and cleaned up from previous meetings, to ensuring that ground rules have been clearly laid out.

For example, the use of mobile phones should be agreed upon in advance.

"Personally, I don't think that they belong in a meeting," says David Norman. "But if someone is expecting an important call, he or she can inform the others in advance."

Everyone responsible

The chairperson clearly has an important role to play. But David Norman emphasizes that it is everyone's responsibility to ensure that the meeting is a good one. This includes making sure that it isn't just the same few people who are talking all the time, while others sit quietly and passively. Delegate tasks so that everyone participates.

When dealing with issues that need to be discussed, it can be helpful to divide up into smaller groups so that everyone has a chance to talk.

Finally, meetings need to be concluded in a positive manner. David Norman suggests that a summary be given before splitting up – what measures were decided and how should the meeting be followed up?

Furthermore, he believes that one should evaluate one's meetings in order to make improvements to them.

"Naturally, you can send e-mail and try and reduce the number of meetings in other ways," says Britta Berggren. "But you can't forget that people have a need to meet. There will always be a need for meetings."

Maria Paues
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No language problems in India

➤ Black coffee is the name of a famous Ericsson commercial. Since I have never seen the ad, our guide at Ericsson's local company in India wants to show it to me. The TV is in the conference room, where an informal discussion is under way, but that is no problem. We all take a look at the advertising film. When we leave the conference room, the discussion continues.

Illustration: Ebba Strid Udikas

Does this tell us anything about the culture of meetings in India? No, this was the only TV available and there were a group of people having internal discussions in this room due to lack of space in their work area.

When I subsequently meet Fatima Pais, who works with Corporate Communications at the local company in Delhi, to put some questions to her about the culture of meetings, she says that it is strict, without being excessive.

Fatima Pais

"The same rules apply here as everywhere else – you have to arrive in time and stick to the agenda."

However, Fatima Pais says that there are different meeting-cultures depending on the level at which they are being held. Meetings at senior management level generally have to be stricter.

"This is because managers from all over the country atend such meetings. These obviously require a very strict adherence to agenda and time besides careful advance planning. Reporting and information sharing takes place at these meetings and therefore the subjects are allocated well in advance."

At monthly meetings of units and departments, or other meetings at lower levels, the atmosphere is more relaxed, but the general discipline of meetings still applies."

"Naturally, people joke a little during meetings, but we avoid small-talk. Mobile phones must be turned off beforehand, but people expecting important calls can leave the room to answer them."

There is no language confusion because everyone speaks English fluently. This means that anyone who wants to can express their opinion. On the other hand, there are few women in the organization.

"I have often been the only woman at these meetings," says Fatima Pais – by virtue of beeing one of the organisers.

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Preparation is the key

Having a clear goal for a meeting, following an agenda and being well prepared are some of the important features of an efficient meeting, according to Craig Clapper and Stacy Stephenson, who work at Ericsson in Richardson, Texas, in the US.

➤ "Having a goal is paramount. There have been times when we have spent too much time chatting about the things we should be doing. But it is just as important to discuss how you are going to accomplish them," says Craig Clapper, manager for Planning and Business Strategy at Ericsson in Richardson.

The number of meetings required varies from one project to the next. Craig Clapper is usually occupied in meetings all day, while Stacy Stephenson tries to solve certain meeting-related questions via e-mail and on the phone.

Stacy Stephenson

"The group that I belong to has decided that we're not going to schedule too many meetings. Recently, it has also been difficult to get enough people together since we have all had so much to do," says Stacy Stephenson, a communications expert at Ericsson in Richardson.

"In my previous job, I spent a great deal of time attending meetings, which has made me accustomed to spending most of my days in meetings. I don't see this as a problem. But the workdays tend to get longer if I have to accomplish other things during the day," admits Craig Clapper.

The two of them agree that meetings are usually better if there is someone to oversee and run them.

Craig Clapper

"If no one leads the meeting it tends to become unstructured. If a senior manager is involved, they are usually shorter, since managers are often in such a hurry. But sometimes you need to have more informal meetings, with a looser format, so that you can brainstorm new ideas," says Craig Clapper.

What the meeting room looks like is also significant. It should be fresh and modern and equipped with the latest technology, such as a LAN connection. Coffee and cookies at a meeting are always a good thing, although less commonplace. Lunch meetings are more common in the US.

"Lunch meetings are good if you don't know the meeting participants that well, since there is usually more time available to talk about matters other than work," Stacy Stephenson continues.

The unit where she works will be moving to a new office facility and virtually everyone will be sitting in an open office landscape.

"It will be exciting to see how meeting routines will change following the move," says Stacy Stephenson.

Ulrika Nybäck
ulrika.nyback@lme.ericsson.se

Many rituals to observe in Japan

➤ There is a detail on mobile phones in the Japanese market that says a lot about the culture of meetings in Japan. Nearly all mobile phones have a "manner button" – a button that puts the phone into discreet mode. There are many situations in Japanese society where this function is necessary, including meetings.

The culture of meetings in Japan is special. It is so different that Ericsson employees coming to Japan for the first time are recommended to attend a special course in order to keep up.

These skills are needed particularly at external meetings, which can be difficult to interpret, and include a number of protocols for apparently simple procedures, such as presenting a business card or arranging the seating in a conference room.

"It's all about avoiding unnecessary misunderstandings," says Hiroshi Nakamura, head of recruiting and competence development at Ericsson's HR division in Japan.

Hiroshi Nakamura emphasizes the consistency between external and internal meetings. Meetings between employees at Ericsson have their codes, but the general framework is the same at Ericsson in Japan as elsewhere. It is extremely important to arrive on time, although the finishing time may not always be adhered to. It is also crucial to be prepared.

Hiroshi Nakamura

"The quality of a meeting is determined by whoever is chairing it. The demands for preparation and focus increase at higher levels," Hiroshi Nakamura continues.

A significant factor at internal meetings is level of communication. Low involvement will cause a serious problem. Language skills such as English and Japanese will help to refrain from misunderstandings.

"It can be difficult, particularly at meetings where there are participants of many nationalities, mainly because it is difficult to make yourself heard if your English isn't strong. But this can also be resolved by better mutual understanding and trust," Hiroshi Nakamura believes.

Mats Lundström

When major changes occur, it is good to provide information early on, allowing time and scope for questions and to tell people which rules will apply and how information will be distributed. "Executive management and other managers must dare to confront the anger and fears of employees," says Maria Tullberg, organizational researcher. Photo: Lena Paterson

How to face a downturn

Share prices are falling, discontent is growing, people are perhaps afraid of losing their jobs. Management gets the blame when a company is not doing well. How should management respond during a downturn so that employees feel as good as possible?

Contact discussed the topic with organizational researcher Maria Tullberg.

➤ ***Do you have any advice to employees now that the company is experiencing a downturn?***

"Of course, those individuals who have been given notice feel terrible. But for employees in general, it's important to try and look beyond this. Management has many things to take into consideration: financial markets, the media, unions and employees."

"Now I don't mean to suggest that people should feel sorry for management. This is what they are paid for. What I mean is that when a major corporation finds itself in volatile waters, much is done externally to satisfy financial markets and the media. It remains to be seen, however, what the reality will be in terms of layoff notices and other measures."

Nevertheless, this causes anxiety within an organization, leading to inefficient work, according to Maria Tullberg.

Of course it is always worrying when a company has to make personnel reductions. "There's really no way to get around it. Perhaps the problem is that companies would rather avoid cutbacks and wait until the last minute."

Must deal with anger

Maria Tullberg believes that executive management and other managers must dare to confront the anger and fears of employees. It is important to provide information early on, allowing time and scope for questions and to tell people which rules will apply, who is responsible for what and how information will be distributed – in other words, provide as much structure as possible.

She explains that the absolute worst thing to do is to provide information indirectly, late on a Friday afternoon or right before a holiday or vacation, and then handing over all arrangements to professionals.

Employees would prefer to have the information as early as possible, whereas managers often have a tendency to wait.

"It's been my experience that managers often want to get everything ready prior to making an announcement. They want to be able to answer all the questions. They want to feel as if they are prepared and are in control. There are twice as many demands on managers. They need to provide information early on and also have a list prepared of measures to be taken."

Maria Tullberg explains that management usually places blame on issues such as business cycles or misfortune during a downturn, in other words environmental factors that could not be predicted or prevented.

"This is no doubt true and is probably also the same reason for increases, although they would rather attribute the latter to sound decision making. Neither small nor large companies have the control over their environments that many would like to believe they do. If the task of management is to maintain a semblance of control and convey that security to employees and owners, it will be difficult if confidence has been lost."

Follow market trends

During downturns, Tullberg believes a good starting point is for owners and management to have confidence in themselves and each other – so that they will not panic or fall prey to quick, ill conceived outside demands.

It is also important that they can accept uncertainty and take advantage of expertise within the organization.

"There's always the risk that companies will end up in vicious circles. The media is shortsighted. Financial markets also seem to be shortsighted. Consequently, there is a risk that large companies will start acting in the same manner."

Maria Tullberg describes how managerial roles have changed.

"Many managers feel insecure. The turnover rate for managers is high. Much needs to be accomplished in order for management to feel confident."

It is not unusual that employees idealize their management. In those cases, it is easy to become pessimistic when a company has a problem.

"It's actually all about various shades of gray," says Maria Tullberg.

"It's understandable that some giants such as Ikea and Tetra Laval have chosen not to become listed on the stock exchange. That creates a different kind of calm within a company."

Negative publicity in the media can be difficult for employees.

"Conversely, it is likely that positive press helps generate pride in one's employer."

Cecilia Sandahl
cecilia@pauesmedia.se

vacancies AT ERICSSON

This is a selection of vacancies at Ericsson.
You can find these and more at:
www.ericsson.com/jobs. To advertise, mail your adverts to: employment.adverts@lme.ericsson.se.

CONTACT NO. 7 2001 **UPDATED 6 APRIL**

JAMAICA – MU CARIBBEAN

Market Unit Caribbean covers an area of 15 countries and 15 dependencies with some 27 million people. The telecom markets in the area is in the process of deregulation with a number of possibilities within mainly cellular and datacom networks.

Local Support Engineer

● We have an interesting challenge for you within our new GSM contract in Jamaica. The main responsibilities for this position will be to provide technical support for resolving complex problems at highest technical level. The responsibility will also include TR/CSR handling and being on emergency service.

The competence requirements are: Degree in Computer Science, Electronics or Telecommunication Engineering. Minimum of 5 years working experience on AXE (mainly BSC). RBS 2000 of which at least 3-4 years experience should be on CME20 BSS systems in verification and/or support environment. Some knowledge in WAP and GPRS is desirable. Candidate should also have good English communication skills,

Contact: Martin Paquette, ELS Mgr, Caribbean, +1 787 7711700, Ake Ohnback, KAM, +1 876 7548659.
Application: Noelia Borrego, HR Representive, noelia.borrego@ericsson.com.

ERICSSON TELECOMMUNICATIE B.V., RIJEN, THE NETHERLANDS

Goal/Challenge: The Ericsson Global Support (EGS) within the division Business Line Customer Services is having a strategic role within Ericsson's Global Customer Support. The EGS is the escalation point for all local support organisations, the local support offices (ELS), the support group for global operators (GSCO) and also the supply organizations.

The EGS makes Ericsson-expertise worldwide available. At this moment the EGS gives 2nd line support on Wire-line Public Networks products.

The EGS is located in 3 different regions (Asia-Pacific (AP), The America's (AM), Europe, Middle-East and Africa (EMEA)) thus 24-hrs support, 7 days a week.

We work with normal office hours, where high priority cases are handed over at the end of the day.

The activities will be executed in an international environment.

Support Engineer (AXE-APT)

● Tasks: To handle trouble reports and CSR's (Customer Support Requests), to write and provide the customer with solutions, to write emergency corrections.

Required competence: Knowledge of AXE (switching), knowledge of Plex, ASA and preferably C++ & HLPlex, knowledge of outage handling, experienced trouble-shooter, familiar with tools like MHS, Primus, GS3, immune to stress, work precise, both working in a team as well as independent, good communication skills in English, prepared to work some weekends, minimum 5 year experience on AXE within Ericsson.

Background: Verification, Testing, Field Support. To apply: The home base is Rijen. However work abroad for both work and training is one of the possibilities.

Contact: Agnes Brier, HR Officer, +31 161 247516.

LM ERICSSON (NIGERIA) LTD.

We have interesting challenges for you in Nigeria. We are currently building two GSM networks, and need support engineers who will also assist in integration and acceptance tests. The main responsibilities for the positions will be to investigate and trouble shoot activities in all areas at the highest technical level and to address customers' expectations/needs.

In addition, you will be expected to provide technical competence for resolving complex problems in the radio networks, and provide technical advice and assistance to engineers and managers. Curiosity, interest and an ability to learn features/functions are important. You also need to participate periodically in the 24h emergency support.

BSS/SS Support Engineers CME20

● The main responsibilities for the BSS Support Engineer positions will be to investigate and trouble shoot activities in the BSS area at the highest technical level and to address customers' expectations/needs. The minimum of 4 years working experience on AXE 10 applications systems, of which at least 2 years experience should be on CME20/CMS40 systems, preferably verification and/or support/supply. A minimum of 2 years working experience with RBSs is a must. Candidates with excellent trouble shooting skills and experience on other mobile application systems/product lines will also be considered for this position. Experience with loading correction packages and upgrades are a must, and good knowledge of ASA/PLEX is desired. Candidates need to have excellent human, inter personal and multicultural skills. The candidate must have a good command of English, both spoken and written.

The main responsibilities for the SS Support Engineer positions will be to investigate and trouble shoot activities in the SS area (MSC/VLR/HLR/AUC/Comverse SMS & VMS/IN) at the highest technical level and to address customers' expectations/needs. In addition, you will be expected to provide technical competence for resolving complex problems in the switching networks, and provide technical advice and assistance to engineers and managers. Curiosity, interest and an ability to learn features/functions are important. You also need to participate periodically in the 24h emergency support. Responsibilities will also include TR/CSR handling.

PPS Support Engineers CME20

● The main responsibilities for these positions will be to investigate and trouble shoot activities in the PPS area at the highest technical level and to address customers' expectations/ needs. (PPS will be critical to the success of Ericsson and these networks). In addition, you will be expected to provide technical competence for resolving complex problems in the Pre-Paid systems, and provide technical advice and assistance to engineers and managers. Curiosity, interest and an ability to learn features/functions are important. You also need to participate periodically in the 24h emergency support. Responsibilities will also include TR/CSR handling.

A minimum of 4 years working experience on AXE 10 Pre-Paid and/or IN platforms applications. Good experience of SEMA PPAS, IVR, SMS/SCE(SMAS), Comverse SMS & VMS, Unix and Sun systems, is required. Experience with loading correction packages and upgrades are a must. Candidates need to have excellent human, inter personal and multicultural skills. The candidate must have a good command of English, both spoken and written.

APZ/IO Support Engineers CME20

● The main responsibilities for this position will be to investigate and trouble shoot activities in the APZ/IOG area at the highest technical level and to

address customers' expectations/ needs. An excellent competence with CEF is required, and the candidate must be able and willing to transfer his/her knowledge to colleagues.

Experience with IOG20 is required, with a good ability to integrate it to X25/TCP/IP and other data networks. You also need to participate periodically in the 24h emergency support. Responsibilities will also include TR/CSR handling.

A minimum of 4 years working experience on AXE 10 applications systems is required. Experience with loading correction packages and upgrades are a must, and good knowledge of ASA/PLEX is desired. Candidates need to have excellent human, inter personal and multicultural skills.

The candidate must have a good command of English, both spoken and written.

Data Transcript Engineer CME20

● The data transcript engineer is responsible for the creation and adaptation of the exchange dependent data (MML) files for AXE systems. They will be responsible for creating procedural documentation and ensuring they are adhered to. They will continuously strive to improve and develop new and existing process. They will actively seek to highlight and develop improvements in data transcript tools. The engineers will be responsible for working as part of a team and with its key customers.

At least three years experience of Data transcript in AXE 10 environment preferably CME 20 or other proven testing/switching/support experience. Computer literate. Desirable;Higher technical qualification in telecom, radio or software related subject. Working knowledge of Ericsson procedures and experience in data transcript tools development.

Contact: Karl Toriola, Support Manager, Karl.Toriola@lmn.ericsson.se or Göte Hedblom, Director, Administration/Human Resources and IT, Gote.hedblom@era.ericsson.se, LM Ericsson (Nigeria) Ltd., +234-1-2690249,-50,-51.

ERICSSON RESEARCH AB, MONTREAL, CANADA

The Montreal based PU-TDMA is looking for Sales Support Managers. LMC's trade mark : drive the next generation of the mobile Internet, be bold, thrive on innovation, learn, celebrate your successes...

Working in Montreal is where the American culture meets with the Europeen one, where you can enjoy the beauty of four seasons, live near downtown but close to the country side.

You can enjoy this life style while sharing and growing your competencies as a Sales Support Manager.

Sales Support Managers

● In this role you will have to provide KAM teams for Ericsson's TDMA Customers in the world with sales support for a specific part of the TDMA product offering, through; presentations to Customer and KAM team to show value, benefits, functionality with the offering. Meetings with the Customer's technical specialist to convince them about the technical viability and benefits of the offering.

Support the KAM team through the sales-cycle. Provide response to Request for Information & Proposals. Continuously stay updated with the Customer prospects and leads in the market and together with PU Key Account Liaisons & KAMs agree on appropriate customers, strategy and timing for marketing and sales efforts.

You should also bring back feedback on the offering from the market to the Product Unit.

You must be fluent in English, speaking and writing (ability to speak Spanish, French, Portuguese is valuable), have an University degree in either Engineering or Commerce (Master is an asset). At least two years of technical telecommunications experience in the fields of O&M, RF, Switching Systems or Packed Data is needed.

Additional experience from sales of high-tech products and/or services is benefical. You are self motivated and you have good social and communication skills. You can travel at least 25% of the time.

Contact: peter.patomella@lmc.ericsson.se. **Application:** isabelle.tardif@lmc.ericsson.se

ERICSSON DE PANAMA

Support Engineer (Expert) TDMA

● The key roles in this position will be, as part of the ELS support team, to provide Technical support on TDMA and GSM Mobile system elements / MSC, BSC, RBS, Jambala HLR, AP, OSS and Prepaid systems.

This includes System upgrades, AC-As, CSR/TR Investigations, outage investigations, software fault finding, writing emergency solutions, implementing new features and helping less experienced staff.

You will also be part of the 24-hour emergency support team. Requirements: University Degree or equivalent with a minimum 4 years working experience on AXE 10 application systems of which minimum 2 years on TDMA and/or GSM systems support. A good knowledge in UNIX is expected.

Other requirements are good human skills, good English communication skills both spoken and written, Spanish (not essential but very useful) and the capability to transfer the knowledge to the local staff.

The initial contract period will be for 1 year and the position is available immediately.

Application: don.chandrasiri@ericsson.com, ELS Manager, +507 206 5152, Fax: +507 265 5194,

ERICSSON MAROC

JOB OPPORTUNITIES IN ERICSSON MOROCCO. In Morocco since 1984, Ericsson is today the leading supplier of telecom solutions, systems and equipment to both fixed and mobile operators.

We supplied the first mobile system to Maroc Telecom, and we are today expanding their GSM Systems for them in Southern Morocco.

For Medi Telecom (Morocco's 2nd GSM Operator) we are the major supplier - responsible for designing and building a complete, nationwide GSM system. Ericsson Maroc today employs some two hundred people and needs more. For further support of our teams, we are now recruiting

ND/NPI Engineers ND/NPI Sub Unit

● Morocco is a fast growing market and we are supplying services to the 2 operators and are currently working with GSM and GPRS. For this, we are looking for very well experienced cell planners or NPI engineers for a long-term contract.

You should possess qualifications to motivate and monitor the team members & good communication skills. You should ensure the local competence build-up, which is very crucial for the success of EMO.

The educational background should be at least a BA in technical fields. Good teamwork spirit and high managerial skills are your strongest points. Our office is located in Rabat.

Our major expectations on you will be: To fulfill your mission as stated above. To function as a mentor. To transfer the knowledge to the local employees. To be flexible and to adapt easily to changes as our company is growing and developing.

And, as we are an international company with men and women from many parts of the world, it is important to have an open mind towards different cultures, and people in general.

Contact: Magnus Ericsson, ND/NPI Manager, +212 7 77 69 06, magnus.erikson@emo.ericsson.se or Bouchra Mounib, Human Resources Specialist, +212 7 77 69 06, bouchra.mounib@emo.ericsson.se. **Application:** Ericsson Maroc S.A.R.L. Attn: Kawtar Lahlou 6, rue Todgha, Agdal-Rabat. Morocco, +212 7 77 69 06, kawtar.lahlou@emo.ericsson.se.

ERICSSON DEL PARAGUAY

We are now looking for an experienced Product Manager who can support the KAM in driving the sales and marketing activities; provide product strategic information and system proposals to be offered to the assigned client.

Local Product Manager

● You will provide knowledge in Ericsson solutions and products, including total responsibility for the offered solution and products, creation of technical marketing strategies, technical marketing support, dimensioning, feature content, interfaces and other questions that will be raised by our client.

You will also maintain the necessary interfaces towards the PUs and implementation projects in order to guarantee a smooth, high quality implementation of our solutions. An important task is also keeping track of the future product releases and migration to the next generation systems.

The candidate should have a good technical knowledge of TDMA Cellular Systems with a successful track record. Knowledge of 3G Mobile Technology and Ericsson´s Datacom solutions is a merit.

As for your personality, we expect you to have good communication and relation skills, drive for results, high level of personal initiative, good team working ability, dedication to customer success, ability to interpret customer requirements and market trends. Fluency in Spanish is essential.

Candidate should also have good English communication skills.

Contact: Johan Rosendahl, KAM, +595 21 228820, +595 981 558020, Asunción–Paraguay. **Application:** G. Gunder, HR, gabriela.gunder@epy.ericsson.se.

ERICSSON AG, SWITZERLAND

For the startup of a new Mobile Internet Competence Center located in Berne we are now looking for several

Architects / Designers / Senior Developers, JAVA, XML, WAP for 3G Mobile Internet Solutions

● The position involves the design, development, testing, rollout and integration of Mobile Services and Mobile Applications for GPRS and UMTS based networks. You will be involved in projects to introduce value added services based on the newest telecommunications stan-dards to the Swiss and European market. As part of our Mobile Internet Competence Center, you will be in close contact with our local and global partners, as well as with our customers.

For this challenging position, we are looking for candidates with a degree in Computer Science, Electrical Engineering or Telecommunications. A minimum of several years of industry experience in application design and development using the latest technologies is a key requirement. Good knowledge of written and spoken English is indispensable for the position; knowledge of local languages (D, F, I) is of high value. Have we aroused your interest? We look forward to receiving your written application.

Application: Ericsson AG, HR, sabine.graf@ericsson.com, Lagerhausweg 10, 3018 Bern, Switzerland

ERICSSON RADIO SYSTEMS AB, KISTA

Systems Engineer, WCDMA Base Band

Ref.no FR/H1962

● The Systems unit is participating in Ericsson's development of third generation mobile telephone systems. The technology allows better opportunities for the transmission of sound, pictures and video. The system is based on broadband CDMA. We work with the development of base stations, which are a central part of the mobile telephone system. We work to tight deadlines and a high tempo. Despite this, we work actively with skills development and our human values.

Successful candidates will have an engineering degree specialising in theory. You should also have an outgoing, positive and progressive nature. The work will entail a certain amount of travelling.

We are looking for someone to work with system development for the base station in the following areas: Overall architecture / requirements for the base station. Developing requirements and functionality at system level. Base band (signal processing). Conducting technical investigations. Arranging requirement and function allocation on subsystems. Analysing the results from system verification.

All the work will be carried out in close collaboration with the product management, design and integration & verification. We are a happy team working across national borders with an extensive range of duties. We are situated at four separate locations (Kista and Mölndal in Sweden, Nuremberg in Germany and Ensked in the Netherlands).

Contact: KI/ERA/FRJ/FC, Ingemar Sohlman, +46 8 757 2210, ingemar.sohlman@era.ericsson.se

Manager for W-CDMA RBS CM and Product Handling

Ref.no FR/H1966

● We are looking for a manager that will be responsible for our Product and CM handling section at the W-CDMA RBS development sector.The section is responsible for all CM work and Product handling at RBS Node level (including baseline handling, release work, product structure and sales object). Also, the section owns the CM process for the RBS and the Modification Handling process for PU-WRN, including the development of the tool ClearDDTS.

The duties of the section manager are also linked to ordnary line management work, such as budget, planning, employee development, headcount. Presently, the section has 12 members. We think that you have several years of experience with Product handling and CM work, that you are an experienced project leader or have been a manager for a couple of years. Furthermore, we think that you are interested in working with and through people, that you are well organised, open and appreciate working in an organisation where speed and change are some of the major characteristics.

Contact: KI/ERA/FRG/TC, Göran Svensson, +46 8 757 3054 goran.s.svensson@era.ericsson.se, KI/ERA/FR/HR, Human Resources Specialist, Åsa Djärv, +46 8 404 4429, Asa.djarv@era.ericsson.se

Modification Handler

Ref.no FR/H1967

● Job description:You will be working in projects where you have an important role w.r.t. handling of Trouble Reports (TR) and Exemption Requests (ER) within the RBS. You will a.o. be working with daily TR meetings where you distribute the agenda, take notes in the meeting and afterwards update the TR's. For ER handling you will own a mailbox from where you distribute the ER to the responsible persons. TR handling is done in ClearDDTS; ER handling is done in Ester. Where possible you will also provide a broader support to projects, together with a project administrator.

Profile: We are looking for persons with experience in the MH area e.g. handling TR meetings and participation in development projects. Being able to speak and write in English is a requirement.

You must be goal oriented and feel at home in a flexible organization. Familiarity with PC environment is a must. Knowledge of ClearDDTS and Ester is regarded as beneficial.

Contact: KI/ERA/FRG/THC, Peter van der Linden, 08-585 32610, peter.vanderlinden@era.ericsson.se

IOT Testers, Engineer, Specialist

Ref.no FR/H1968

● PU WRN System Integration & Verification department is responsible for integration and verification of the UTRAN nodes (RBS, RNC and RANOS). We will also assist our customer to verify that mobile phones inter-operate with our network.

Furthermore, new functionality that is to be launched in new releases will be tested. In the future, we will have to assure that our system can be included in a multi vendor network. We are searching for the following people:

IOT TESTERS for 3 party terminals and multi-vendor radio network, who will:Define and execute test-activities with the selected vendors and their products

ENGINEER with god knowledge of Uu, Iu and Iur interface, who will:Define generic tests from the system description. Analyse the outcome of the tests and suggest improvements.

SPECIALIST ON AIR INTERFACE and MOBILE TEST PHONES, who will:Be part of developing mobile test simulators. Assist with knowledge how to test mobile phones. Practically work with mobile test-phones.

We think that you are interested in the challenge of the new 3rd Generation system, are open-minded and like to have contacts with both internal and external interfaces. You should have knowledge about mobile phone standards or being an experienced tester from either network node/system testing or mobile testing.

Contact: Yngve Andersson, +46 8 508 77740, yngve.c.andersson@era.ericsson.se, KI/ERA/FRT/VT, Ann-Charlotte Boltshauser, +46 8 594 36872, ann-charlotte.boltshauser@era.ericsson.se.

ERICSSON RADIO SYSTEMS, KISTA

Strategic Product Management - WCDMA Radio Access Network, Management of Transport and Transmission

Ref.no FR/H1970

● We are looking for experienced persons to join our team of Strategic Product Managers for O&M specially focusing on management of ATM and IP transport and transmission related issues. As a Strategic Product Manager you will be participating in creating a competitive RAN product portfolio in the ongoing race towards 3G and Mobile Internet.

The work includes defining the products. Which includes tasks such as product strategies, profitability analyses, market communication and project ordering.

We assume that you are a person who is open-minded, independent, creative with good analytical skills and commercial orientation combined with the ability to understand technical capabilities and limitations.

You should have a university degree and some years of experience, preferably within system or product management. Experience and knowledge from operators is an advantage.

Contact: KI/ERA/FRX/DC, Anders Mårtensson, +46 8 508 791 69anders.g.martensson@era.ericsson.se

WCDMA Product Management – Strategic Planning of Multi Vendor Integration

Ref.no FR/H1961

● We at product unit Wide Band Radio Networks (PU WRN) are developing radio access network products and services for Ericsson's commercial WCDMA systems. We look for an experienced person to join our team of Strategic Product Management. You will be a key player and co-ordinator of our Multi-Vendor strategy, both within PU WRN and with other organizations at Ericsson, as well as with our competitors.

You will be positioned at the "Radio Network Controllers & RAN Functionality" department at the PU WRN product management, which has the product management responsibility for the RNC and RAN functions as well as WCDMA RAN interface responsibility (including Multi-Vendor integration).

We believe that you have natural leadership skills, you understand complex commercial and technical relations, and have experience from negotiations. Further, you should have a University degree and some years of experience in WCDMA, product management, standardization and/or Multi-Vendor Integration activities.

Contact: KI/ERA/FRX/YC, Mikael Gudmundson, +46 8 404 2583, mikael.gudmundson@era.ericsson.se.
Applications to all the above marked with Ref.no: Ericsson Radio Systems AB, KI/ERA/FR/HRA Anna Silenstam, SE-164 80 STOCKHOLM, ansokan.PU-WRN@era.ericsson.se.

ERICSSON RADIO SYSTEMS AB, KISTA

Configuration Managers

Ref.no FR/H 1890

● Ericsson's Product Unit Wideband Radio Networks is looking for Configuration Managers (CM) for our development and maintenance projects within the area of Radio Base Stations (RBS).

Job description: You will be working in projects where you have an important role w.r.t. status accounting and steering CM work according to our processes and methods. You will a.o. be working with document structuring, processes, version control, CCB handling and co-ordination of CM work with CM's in other development units both in Sweden and abroad. Our work also includes tool support and release of the RBS in PRIM.

Profile: We are looking for persons with a university degree or similar education, preferably with experience in the CM area. Being able to speak and write in English is a requirement. You must be goal oriented, analytical and feel at home in a flexible organization. Familiarity with both Unix and PC environment is a must. Knowledge of ClearCase and ClearDDTS or ClearQuest is regarded as beneficial.

Contact: Peter van der Linden, 08-585 32610, peter.vanderlinden@era.ericsson.se.

Technical Customer Support

Ref.no FR/H1671

● We are responsible for the establishment of the 3:rd line support at PU-WRN and the 2:nd line support at ASOs and SAFSCs. The work is done in close co-operation with the different design departments and the Market Units. You will be defining the processes and responsibilities for the different parts of the global support organisation.

Help Desk Administration

Ref.no FR/H1672

● We are acting as the PU-WRN interface between the Market Units and our design departments. Currently we are setting up the flow for Customer Service Requests (CSR) and we are installing the GS3 System. You will be handling the CSRs we receive, send them to the right design department, keep track of progress and assemble statistics.

Trouble Report Administration

Ref.no FR/H1673

● We are responsible for the PU-WRN Modification Handling Office (MHO). We will receive Trouble Reports (TR) in the MHS system from the Market Units. Within the PU we use ClearDDTS as modification handling system.You will be handling the TRs we receive, send them to the right design department, keep track of progress and assemble statistics.

Software Supply

Ref.no FR/H1675

● We will be delivering the software via FTP servers to production and market after it has been tested and released by design. You will be assembling software by using ClearCase, SQL commands, FTP tools and IP tools.

Configuration Handling

Ref.no FR/H1676

● We are participating in setting up the flow for how a WCDMA system should be configured. Our main focus is on how the configuration is done from a Market Unit perspective.

The work includes the complete flow from HW-near parameter definitions to Radio Network parameters. It is done in co-operation with Design, Implementation and Market Units. You will work with defining the processes, develop tools and do the SW Supply part of the configuration for each release.

Software Upgrade

Ref.no FR/H1677

● We are participating in the definition of how the upgrade of a WCDMA system should be done in a live network. Design is responsible for the upgrade on the first market and we are focusing on the rollout on the other markets. You will define the working procedures, test and participate in upgrades.

Contact: Kristina Adebo, +46 8 757 28 46, kristina.adebo@era.ericsson.se, Peter Hagren, +46 8 757 05 69, peter.hagren@era.ericsson.se, Peter von Bahr, +46 8 757 36 36, peter.von.bahr@era.ericsson.se

Test Configuration Manager RBS I&V

Ref.no FR/H1844

● Product Unit Wideband Radio Networks develops the systems of the future for broadband mobile communication based on WCDMA and ATM technology and as part of the project our unit is responsible for integration and verification of the radio base station (RBS).

Our section is responsible for TCM (Test Configuration Management) which entails total responsibility for planning, preparing, building up and maintaining the test environment for RBS Integration and Verification (I&V). This involves constant monitoring and chasing up of daily deliveries of both HW and SW in various revisions from a series of design centres all around the world.

In the role of Test Configuration Manager you will work closely with e.g. the various design centres, object managers for integration and function verification, and systems managers, as well as the overall Project Manager for RBS. Applicants should have a technical background and experience of managerial positions. You will be communicative and have the ability to co-operate. We work in an environment subject to constant changes, which is why flexibility and a feeling for orderliness are extremely important properties. You must be proficient in spoken and written English.

Contact: Anna Sterner, +46 8 757 31 09, anna.sterner@era.ericsson.se.

Integration and Verification Engineers

Ref.no FR/H1809

● You are interested in learning how a WCDMA system works? You liketo specify how to verify our system? You like to develop scripts toautomatically run the test cases? You regard it as a challenge toperform complex trouble shooting? Then you should join our I&V team!You will work with the integration of our ASIC and DSP design and theverification of our signal processing functions.

We are looking forexperienced engineers as well as for new examined engineers. Commonfor all three tasks is that your should have good English skills dueto our various international contacts. You should be a team worker aswell as a driving person who likes to take initiatives. You are aresponsible and honest persons who respects his / her colleagues.

Contact: KI/ERA/FRU/UGC, Kurt Barckhan, +46 8 764 19 54, kurt.barckhan@era.ericsson.se.

Tender Manager

Ref.no FR/H1747

● As a Tender Manager you will manage and co-ordinate WCDMA tenders at PU WRN. You will be the driving force to secure that we deliver competitive and high quality tenders. You will have many interfaces within our own organisation as well as within the UMTS M&S team and other PUs. Later on you will support Market Units in contract negotiations. As a member of the Product Marketing team you will also perform at conferences, customer workshops and exhibitions.

The position requires that you have experience from tender work, preferably within the GSM/TDMA area. You should be a team-oriented person with good leadership qualities. You have good communication and presentation skills and you are able to combine commercial and technical knowledge with a good business understanding. We believe that you hold a university degree in business administration and/or engineering.

Contact: Staffan Kvillerud, +46 8 585 336 01, staffan.kvillerud@era.ericsson.se.

Integration- and Verification Engineer, WCDMA-Base band

Ref.no FR/H1810

● We are looking for you who wants to work with integration and verification of advanced digital signal processing functions located in one of the most advanced subsystem in the WCDMA Radio Base Station. The implementation is made up by DSP:s, ASIC:s and FPGA:s.

You should have a university degree, preferable a M.Sc., with experience from previous integration and verification work. Experience from other mobile systems is a merit. Moreover you should be an analytic team player able to work focused under high pressure. You will be working with writing test specifications, performing test, develop new test equipment and trouble-shooting. Part of the design is done in design centres around Europe. You will therefore have tight co-operation with them.

Algorithm Development, WCDMA Base Band

Ref.no FR/H1811

● Do you want to develop 3rd generation digital signal processing algorithms for the base station? Interested in, for example, RAKE receiver, Viterbi/Turbo decoding and fast power control? Then we can offer the job you are seeking. You will be working in a team responsible for development of the base band algorithms in the Radio Base Station. The algorithms must meets the tuff sensitivity requirements the WCDMA standard sets and at the same time be implentable in an effective way.

You should have a M. Sc. degree or similar and have experience from algorithms development, preferable from other mobile systems. You should be analytic and ready to take responsibility and initiative for your own work. It's a merit if you have some knowledge of CDMA and also have some experience from digital signal processing implementation.

We are using tools like COSSAP, MATLAB and ClearCase. The work is carried out in close cooperation with our design centers around Europe.

Contact: Mats Tulldahl, 08-404 37 81, mats.tulldahl@ericsson.com.

Configuration Manager, RNC-WCDMA

Ref.no FR/H1928

● We now have a vacant CM position for the subproject that is developingparts of the traffic functions in the RNC node. Our subproject isdeveloping new systems and products for Ericsson's broadband mobiletelephony systems, third generation UMTS. Main tasks: Co-ordinateand steer CM activities within the project. Support and advise theproject leader in CM matters. Develop and maintain CM plan for theprojects. Release the products. Improve the used CM procedures.

You will work with document structuring, base line control, CCB handling and co-ordination of CM work with CMs in other development units both in Sweden and abroad. As our CM person you have to be independent, keep good order, be a positive person. Good co-operating and communicating ability is highly valued. It is an advantage if you have experience of product handling.

Contact: KI/ERA/FRY/BHC, Nariman Rahimi, +46 8 757 32 30, nariman.rahimi@era.ericsson.se.

Design Tool Support WCDMA

Ref.no FR/H1946

● We are searching for an applicant willing to work with the installation of HW design tools in our UNIX and ClearCase environment, which is integrated across 4 countries. Besides UNIX and ClearCase knowledge, the preferred candidate will also have good English communication.

Contact: KI/ERA/FRU/LKC, Paul Wied, 08-40 47 988, paul.weid@era.ericsson.se.

Electronic Design WCDMA

Ref.no FR/H1943

● We are looking for a digital HW-designer with a couple of year's experience of advanced digital boards. You will work in a team that designs boards with (for example) DSP:s, FPGA:s ASIC:s and up to 14-layer-PCB:s.

Contact: KI/ERA/FRU/LDC, Richard Wiedenkeller, 08-40 47569, richard.wiedenkeller@era.ericsson.se.

System Engineer WCDMA

Ref.no FR/H1924

● We are searching for an applicant with extensive experience of systematisation of HW and low level SW architectures in radio bases. The preferred applicant will have a M.Sc. degree. We work in projects, often international.

SW Designer WCDMA

Ref.no FR/H1926

● We are searching for an applicant with experience in SW design. Experience in low level SW design on Motorola PPC and/or Ti:s DSP:s is preferred.

We use OSE RTOS and develop in C, C++ (OTD/Rose RT) and assembler for the WCDMA radio bases. The preferred applicant should have a M.Sc. degree. We work in projects, often international.

Integration & Verification Engineer WCDMA

Ref.no FR/H1927

● We are searching for an applicant willing to work in integration and verification of HW and low level SW in radio bases. The preferred applicant should have proven experience in the integration and verification field. We work in projects, often international.

Object Leader – WCDMA

Ref. no: FR/H1925

● We are searching for an applicant with experience in project/object management of SW and/or HW design teams.

The preferred applicant will have high drive and be able to cope with many simultaneous tasks. Experience in SW design or HW design is preferred. The preferred applicant should have a M.Sc. degree. The applicant will participate and work in large projects, often international. Good communication skills in Swedish and English are a must.

Contact: KI/ERA/FRU/LTC, Daniel Bardvall, +46 8 585 31718, Daniel.Bardvall@era.ericsson.se.

HW-Reliability Engineer WCDMA

Ref.no FR/H1944

● We are searching for an applicant willing to work with HW-reliability, in order to make sure already at design that the boards will work in the field.

You should have experience within areas like FMEA, stress testing, reliability, producability and yield.

Contact: KI/ERA/FRU/LDC, Richard Wiedenkeller, 08-40 47569, richard.wiedenkeller@era.ericsson.se.

Project Assistant Radio Base Integration & Verification

Ref.no FR/H1923

● Recently Ericsson started to receive orders from major telecommunication operators for 3rd generation mobile systems based on WCDMA. We are now looking for a project assistant to some of our projects.

This position means that you will support one or more Project Managers with tasks, such as updating project library and web-site, assist with resource planning and forecasts, participate and take minutes from project meetings etc.

We are looking for an organised person with great sense of responsibility. Being in such a central position within our development organisation, there is every chance to grow within the job and the organisation for the right person.

Communication skills in English are essential.

Contact: Sören Norberg, 08-40 42653, Soren.norberg@era.ericsson.se.

Section Manager RNC SW Design

Ref.no FR/H1916

● Join us and you can tell your friends that you played an important part in the development of the 3G radio network infrastructure as a Section Manager at the Radio Network Handling product development department.

You will be responsible for the development of products central in the radio network handling in the WCDMA radio network. You will be lucky to manage a section with competent co-workers using the latest software development technology.

You shall have the will and ability to initiate tasks and obtains results, communicate with others, see openings and connections and have good people management skills. You will get a kick out of managing the development of your section's operation and get the gratitude from your co-workers when you manage their competence development.

You shall have worked as manager, project manager and /or team leader. Our office is in Kista and we are a part of the Product Unit Wideband Radio Networks.

Contact: KI/ERA/FRY/BC, Magnus Eklöf, +46 8 404 4136. Magnus.Eklof@era.ericsson.se.

Network Operability of 3G Networks

Ref.no FR/H 1921

● We are now looking for you who want to work with design of a Radio Access Network from an operator and overall perspective. Hence, you will be acting to achieve that the ongoing and future design of the Radio Access Network leads to functionality and maximal network operability.

The main focus is a user-perspective for all parts of the network, in order to form an well-integrated system that all user categories will perceive as optimal.

You can have a background from a number of different areas but you should possess experience, knowledge and skills from the following areas: System design / O&M design. Installation, network operation and maintenance of mobile systems. Good interpersonal, communication, influence and leadership skills.

Contact: KI/ERA/FRT/UC, Ulf Lönn, 08-585 31120, ulf.lonn@era.ericsson.se.

System Handler

Ref.no FR/H 1891

● Ericsson's Product Unit Wideband Radio Networks is looking for (Source) System Handlers (SH) for our development and maintenance projects within the area of Radio Base Stations (RBS). Job description: You will be working in projects where you have an important role working with product structures, product packages and sales objects. You will be actively driving discussions how to structure our products with other development groups both in Sweden and abroad. This work is done on the early stages of the projects. Together with Product Management you are setting up our product packages and sales objects. You will have contacts in both TTM and TTC e.g. where information in SAP is concerned.

Profile: We are looking for persons with a university degree or similar education. Several years of experience with product structuring are required. You are fluent in English, both spoken and written. You must be goal oriented, analytical and feel at home in a flexible organization. Knowledge of SAP is not required but regarded as beneficial.

Contact: Peter van der Linden, 08-585 32610, peter.vanderlinden@era.ericsson.se.

Application Support for HW Tools

Ref.no FR/H1763

● Our PU-WRN product unit develops new systems and products for Ericsson's future broadband cellular telephony systems, based on WCDMA. We use the latest, most efficient methods and tools in our design environment. We are expanding rapidly and our Design Support division for Methods and Tools (M&T) needs extra additions soon as possible.

We are looking for someone to assist in the installation, operation and some user support for the hardware design tools we use in our radio base station (RBS) development unit. Tasks include supporting our EDA managers with installation and operation of our UNIX-based tools for hardware design.

Previous experience with computer networks, UNIX and Shellscripting knowledge is required. Some experience of PERL, CGI-scripting, TCL, and Clearcase is desirable. The job requires daily contact with other design centers at Ericsson and with several tool suppliers, so good English skills are a must. Stress tolerance, independence and initiative are also critical.

Contact: KI/ERA/FRU/LKC, Paul Wied, 08-404 79 88, paul.wied@era.ericsson.se.

CORBA Design Java

Ref.no FR/H1852

● Our section is designing 3 subsystems within an operating support node in Ericsson's WCDMA radio network. We use Corba for internal distribution and as an external interface, which is why we are looking for somebody with solid Corba skills. Knowledge of Java, operating support systems and mobile telephony is also an advantage.

Java Expert

Ref.no FR/H1857

● Can you be our mentor and "heavyweight designer" in Java? We are a section comprising 25 Java designers, and we need an experienced Java expert to lean on, as a sounding board, co-designer and inspector.

If you have several years' experience of Java design and are interested in taking up an informal managerial role in a design section, tasked with developing an operating support node for Ericsson's WCDMA radio network, you should definitely apply for this job!

OO & Java Methodology and Tools

Ref.no FR/H1858

● Are you interested in object-oriented methodology and tools? We are looking for somebody to work with our development process and tools in order to develop and test Java software. We use Rational Rose, Soda, JUnit and Framemaker, connected to Ericsson's traditional product structure.

You will probably have several years' experience of object-oriented design work in the field of software. In addition, experience of Ericsson's traditional development processes, Java and Corba, is an advantage. Good proficiency in English is a requirement, as we often work in this language.

Contact: Elisabeth Axbrink, +46 8 508 794 66Elisabeth.axbrink@era.ericsson.se, Majid Zolfaghari, +46 8 764 1021, Majid.zolfaghari@era.ericsson.se.

GUI Design in Java

Ref.no FR/H1863

● As a co-worker in the WCDMA Radio Network Management department, you will be involved in developing Java software for a new operating support node, whose task is to control and monitor newly developed WCDMA base stations and radio network control nodes. You will be working with a distributed system based on Corba, object-orientation, object-oriented databases, web technology and commercial computer platforms such as NT and Solaris. We have some 50 employees working in Ireland and in Kista.

In Kista we conduct system management, design and testing, while in Ireland we conduct system management and design. We co-operate closely, and so occasional trips to Ireland may be necessary. Naturally, much of our work is conducted in English. Skill development is a natural part of our work. We train ourselves by attending selected courses, supplemented with mentors and by participating in all phases of the development work, including investigation, design and testing.

We are looking for somebody to participate in the design of the operating support system's user interface. The job involves both investigation and design work. You will probably have a few years' experience of developing user interfaces, and you will possess an understanding of usability, dominant style guides, on-line documentation, web technology and standards for graphic user interfaces. Experience of operating support systems is obviously an advantage.

Software Design in Java

Ref.no FR/H1864

● You will have a few years' experience of programming in an object-oriented programming language, ideally Java. You will be interested in object-oriented analysis and design with Rational Rose and with Corba as the distribution mechanism. You will ideally have experience of radio networks, operating support systems and graphic user interfaces.

Tools Manager and Testing Environment Manager - Java design with Rose, JBuilder, ClearCase

Ref.no FR/H1865

● This job is based on keeping our design and testing environments working, as well as handling all external contacts in order to achieve this. We have UNIX and NT both as a development environment and a target environment. The work requires experience of design work, test work, UNIX and NT. You may have worked within an IS/IT support organisation and want to take the opportunity to take a step closer todesign work.

All of the above jobs will be based in Kista.

Contact: Majid Zolfaghari, +46 (0)8-764 10 21, majid.zolfaghari@era.ericsson.se.

Strategic Product Management - WCDMA Radio Base Stations

Ref.no FR/H1797

● Join us in the ongoing race towards 3G – Mobile internet! We at product unit Wide Band Radio Networks are currently up at full speed in developing the radio access network products for Ericsson's first commercial UMTS system. The system is based on WCDMA radio technology and ATM transmission. We are receiving a lot of attention from customers worldwide.

We are looking for an experienced person to join our team of Strategic Product Managers for Radio Base Stations. We have a full range of Radio Base Station products including macro, main-remote, micro and outdoor versions.

As a Strategic Product Manager you will be responsible for creating a competitive product portfolio. The work includes defining product strategies and product requirements, profitability analysis, writing product information, product presentations and technical sales support for our product marketing unit and customers.

We assume that you are a person who is open-minded, independent, creative with good analytical skills and commercial orientation combined with the ability to understand technical capabilities and limitations. You should have a university degree and some years of experience with radio base stations, preferably within systems or product management.

Strategic Product Management - WCDMA Site Solutions

Ref.no FR/H1798

● We are looking for an experienced person to join our team of Strategic Product Managers for Site Solutions. We have a full range of Site Solutions products including antenna, transmission, and power systems.

As a Strategic Product Manager you will be responsible for creating a competitive product. The work includes defining product strategies and product requirements, profitability analysis, writing product information, product presentations and technical sales support for our product marketing unit and customers. We assume that you are a person who is open-minded, independent, creative with good analytical skills and commercial orientation combined with the ability to understand technical capabilities and limitations. You should have a university degree and some years of experience with site solutions.

Product Package Handling - Wide Band Radio Networks

Ref.no FR/H1799

● We are looking for an experienced person to help us with our Product Handling. This means that you should be interested in supporting our Product Managers in the areas of product packaging, product catalogue (PCAT), sales- and product structures.

We assume that you have some year experience in these areas. We are especially interested if you have previously worked with PCAT.

Contact: Håkan Engdahl, 08-757 21 36, hakan.engdahl@era.ericsson.se.

Team Leader, SW Design, RNC – WCDMA

Ref.no FR/H1828

● At Product unit Wideband Radio Networks, we are developing the radio network for third generation mobile telephony systems, based on WCDMA and ATM technology. Our primary task is the development of software for RNC, which demands the very latest in the choice of new technology. We are working with modern software technology such as C++, UML, RosRT and Object Time. We maintain close co-operation with design centres in Sweden and abroad.

We are looking for a team leader with a university degree in engineering, who have a few years experience of software development for integrated systems and who want to be involved in the development of third generation mobile telephony systems. Your work duties will primarily consist of planning and running the team's work, co-ordinating with other teams and units, as well as following up and producing status reports.

Contact: Nariman Rahimi +46 8 757 32 30, nariman.rahimi@era.ericsson.se.

Systems Manager, Operating Support System

Ref.no FR/H1849

● What we are offering: A position as a Systems Manager within one of Ericsson's most important projects – developing new systems and products for Ericsson's broadband mobile telephony systems, third generation, UMTS. The systems are based on broadband CDMA (WCDMA) radio technology and ATM Transmission.

What you will be working with: Product Unit Wideband Radio Networks is situated in Kista, and within the WCDMA Radio Network Management sector we develop operating support systems whose task is to control and monitor WCDMA base stations and radio network control nodes, as well as tools for design / planning / optimising radio and transport networks (ATM and IP). As a systems manager, you will be part of a group that is responsible for the overall systemisation of these systems. You will be involved in e.g. requirement definition, standardisation, software architecture, properties, function systemisation and/or user interfaces. You will be in close contact with our design centres situated at various locations around the world.

What you should be able to do: You will have several years' experience of operations and maintenance systems for telecom systems, including knowledge of applicable standards (TMN, SNMP, etc.), and ideally experience of operations centres or network planning with an operator. Alternatively, you will have several years' experience in software development and systemisation of large, distributed systems. Experience of the technologies we use (Java, CORBA, XML, HTML, IP, UML, RDBMS, LDAP, etc.) is naturally an advantage. You must be proficient in both Swedish and English.

Systems Design Project Manager

Ref.no FR/H1850

● We are developing the operating support system for the next generation mobile telephony systems. This is an entirely new system, built with modern technologies such as Java, CORBA, XML, HTML, IP, UML, etc., and it should execute on UNIX and NT computers.

We are now looking for a systems design project manager for the Radio Network Management System Design unit. Our group is responsible for the overall systemisation of the operating support system. The group works with requirement definition, architecture, properties, function systemisation, etc.

You will be the Project Manager for this group, and will be responsible for planning, following up and reporting, as well as dealing with demands and modifications. A system project manager works both with project management and system design, so a few years' experience of project management and system design would be a suitable background for this job. Experience of operating support systems and the technologies we use is naturally an advantage.

Systems Manager, Planning Tools

Ref.no FR/H1860

● What we are offering: A position as a Systems Manager within one of Ericsson's most important projects – developing new systems and products for Ericsson's broadband mobile telephony systems, third generation, UMTS. The systems are based on broadband CDMA (WCDMA) radio technology and ATM Transmission.

What you will be working with: Product Unit Wideband Radio Networks is situated in Kista, and within the WCDMA Radio Network Management sector we develop tools for design/planning/performance evaluation/optimising radio networks (WCDMA) and transport networks (ATM/IP). As a systems manager, you will be part of a group that is responsible for the overall systemisation of these tools. You will be involved in e.g. requirement definition, software architecture, properties, function systemisation and/or user interfaces. You will be in close contact with our design centres situated at various locations around the world.

What you should be able to do: You will have several years' experience within software development and systemisation, ideally focusing on the technologies we use (Java, relational databases, Windows NT, GIS, etc.). Knowledge of planning tools for radio or transport networks is naturally a great advantage. You must also be very proficient in both Swedish and English, as well as being able to co-operate with people from different cultures.

IP Security Expert

Ref.no FR/H1861

● What we are offering: A position as a Systems Manager focusing on IP security within one of Ericsson's most important projects – developing new systems and products for Ericsson's broadband mobile telephony systems, third generation, UMTS. The systems are based on broadband CDMA (WCDMA) radio technology and ATM Transmission.

What you will be working with: Product Unit Wideband Radio Networks is situated in Kista, and within the WCDMA Radio Network Management sector we develop operating support systems whose task is to control and monitor WCDMA base stations and radio network control nodes. We are also responsible for systemising the IP network that is used for communications between operating support systems and the traffic nodes (base stations etc.). You will be involved in the systemisation of this IP network, focusing on security aspects.

What you should be able to do: You will have several years' experience of setting up secure IP networks. You should possess knowledge in such fields as Firewalls, IPsec, DNS, DHCP, etc. You must also be proficient in both Swedish and English.

Contact: Ulf Larsson, 08–764 14 29, ulf.larsson@era.ericsson.se.

Script Designer

Ref.no FR/H1845

● We now have started a project with experienced personnel to build and integrate SW from several different Design Centres within the RNC node. The team will also load the SW on our target environment. The team today consists of one project manager, one configuration manager and three SW designers. We'll need one more experienced C++ or pearl script designer to join them.

Our subproject is part of one of Ericsson's most important ventures – developing new systems and products for Ericsson's broadband mobile telephony systems, third generation UMTS. The development of broadband radio is a prerequisite for e.g. a wireless Internet to work effectively. We have a number of experimental systems in operation around the world, and we are now in the process of developing our commercial systems. We will start supplying the systems to operators all around the world in less than a year. We are working with leading-edge technology such as ObjecTime, CC, OSE, C++, the RUP process and TTCN.

Our work at the design centre is conducted in design teams of 3-6 people, and each team has a team leader. We currently have five software design teams and one daily build team. If you like working in teams and enjoy a flexible environment, where there is plenty of room to use your own initiative, you will like working with us at the RNC Node Design sector in Kista. You will also be involved in developing the next generation mobile telephone systems from scratch!

Contact: KI/ERA/FRY/BGC, Håkan Toll, +46 (0)8-404 47 91, hakan.toll@era.ericsson.se.

Team Leader I&V

Ref.no FR/H1654

● As a team leader for I&V, you will be in charge of operational activities for a team's assignment. The strategy is to achieve the goal by guiding the opera-

tion through active participation, where your own lab time is maximised and administration minimised.

Team Leader Support

Ref.no FR/H1655

● As a team leader for Support, you will be responsible for building up and running our customer support. Our customers are telephone operators the world over.

What are you coming to?We work in a modern software lab using the latest technology under the motto "Building confidence in software by trying to destroy it". One goal is that the test environment must never be a limiting factor, while another is to carry out a social activity every quarter.

Another goal is to have a good mix of colleagues; at the moment there is a slight imbalance in the distribution of the sexes, so we would be happy to see more female applicants.

Contact: Per Larsson, +46 (0)8-757 30 07,per.larsson@era.ericsson.se.

Strategic Product Management - WCDMA Radio Access Network

Ref.no FR/H1957

● We at product unit Wideband Radio Networks are currently up at full speed in developing the first commercial products for Ericsson's 3rd generation UMTS Radio Access Network (UTRAN). We are looking for experienced persons to join our team of Strategic Product Managers for O&M and RANOS. You will be a key player part of a small unit.

As a Strategic Product Manager you will be participating in creating a competitive RAN product portfolio in the ongoing race towards 3G and Mobile Internet.

The work includes defining the products, which includes tasks such as product strategies, profitability analyses, market communication and project ordering.

We assume that you are open-minded, independent, creative with good analytical skills and commercial orientation combined with the ability to understand technical capabilities and limitations.

You should have a university degree and some years of experience, preferably within system or product management. Experience from other mobile systems such as GSM and PDC is a merit. Experience and knowledge from operators are an advantage.

Contact: KI/ERA/FRX/DC, Anders Mårtensson, +46 8 508 791 69, anders.g.martensson@era.ericsson.se

Product Handler

Ref.no FR/H1941

● The Ericsson Wideband Radio Networks product unit in Kista is developing products for the 3G radio network system - WCDMA. The unit 'Product Solutions' within 'RNC Product Development' is responsible for the product handling of the Radio Network Controller node products. We now need to expand our staff of Product Handlers.

The job: Involves structuring and maintenance of the source system products, as well as handling the delivery products, such as definition of product packages and sales objects. You will have frequent contacts with the Design units, Supply units and Product management and be their speaking partner in Product Handling issues in the TTM and TTC flow.

Who you are: You have a good experience in the Ericsson way of product and document handling and the tools used in this process, e.g. PRIM/GASK. You have good skills in English, both spoken and written.

We believe that you are a result oriented and open minded person who likes having many personal contacts within the organisation.

Contact: KI/ERA/FRY/X, Bengt Gestner, +46 8 757 0967, Bengt.gestner@era.ericsson.se.

Secretary to the Communications Manager

Ref.no FR/H1806

● We are looking for an experienced secretary to the Communications Department. The Communications Department is handling the WCDMA Demo Center, Events, Information and Market Introduction.

We can offer you an interesting job within a stimulating and creative international environment. The position is full-time, and includes customary secretarial tasks.

To be successful in this job you need to meet the following criteria: Have a long secretarial experience (at least five years, preferably from a Market Unit). Have a good knowledge about Ericsson and our internal routines. Be able to manage the Microsoft Office Package. Have a good ability to communicate in Swedish and English. Be familiar with international contacts, and like to cooperate in an international environment. Be a service-minded and well organized person. Have high integrity and be a positive team player.

Contact: Bengt Skörelid, +46 8 757 01 98, bengt.skorelid@era.ericsson.se.

Product Configuration Management

Ref.no FR/H1674

● We need to structure and keep track of the software and documentation we deliver. You will define the product handling, co-ordinate documentation and cater for product quality and traceability.

Contact: Kristina Adebo, +46 8 757 28 46, kristina.adebo@era.ericsson.se, Peter Hagren, +46 8 757 05 69, peter.hagren@era.ericsson.se, Peter von Bahr, +46 8 757 36 36, peter.von.bahr@era.ericsson.se

ERICSSON RADIO SYSTEMS AB, UPPSALA

Get involved in Ericsson's mobile broadband venture with a post in Uppsala! At Ericsson Radio Systems in Uppsala, we will be conducting software projects with a growing number of Java programmers. The project will design, test and supply major software packages written in Java, using Corba as the distribution mechanism. The software packages are included in third generation mobile telephony systems, based on WCDMA, Wideband Code Division Multiple Access, which will be the next world standard for broadband mobile telephony.

We employ incremental development in order to rationalise the development process and to conduct the project work in a structured way, in order to co-ordinate operations and meet the project's timetables. Good proficiency is English is required, as this is the Group language.

System Architect

Ref.no FR/H1868

● You will have many years' experience of developing real-time systems with object-oriented architecture.You will also have worked as a system architect with distributed management systems, control systems or communication systems, and as a result will have been responsible for definition of the overall structures in a large or medium-sized system. Previous experience of working with radio base stations is naturally an advantage. It is important for you to generate an overall perspective of the system, as well as having the ability to get the group to understand the overall structure of the system you are developing.

System Designer

Ref.no FR/H1869

● You will have several years' experience of SW development for technical applications in an object-oriented system. You will be working with everything from system design to implementation, which means you will be responsible for a subsystem and also be in charge of a small group. As we work with Java as our programming language and Corba for distribution mechanisms, knowledge of these is also an advantage. If you do not have experience of these, you will be offered training. You should have experience of graphic user interfaces.

Configuration Manager

Ref.no FR/H1872

● The role of configuration manager entails responsibility e.g. for defining and introducing product structures, dealing with releases and modifications during ongoing development projects. The work also includes the rationalisation of procedures and working methods, as well as evaluating tools. You will like orderliness, and you will have experience of working with one or more configuration management systems. Experience of Ericsson's product management is valuable, but knowledge of ClearCase is also an advantage.

Expert Java

Ref.no FR/H1877

● Can you be our mentor and "heavyweight designer" in Java? We need an experienced Java expert to lean on, as a sounding board, co-designer and inspector. If you have a few years' experience of Java design and are interested in taking up an informal managerial role you should definitely apply for this job!

The job is based in Uppsala, but trips to Kista will be necessary.

Contact: Lennart Johansson, +46 8 764 1328, Lennart.h.johansson@era.ericsson.se. **Applications** to the above marked with FR/H no: Ericsson Radio Systems AB, KI/ERA/FR/HRA, Anna Silenstam, 164 80 STOCKHOLM, ansokan.PU-WRN@era.ericsson.se.

ACCESS Transport Network Design 3G

Ref.no FR/H1883

● If you would like to be a part in tomorrows Transmission Network design in an environment where the pace is high we might have the job for you. Here are fewer rules than opportunities. So if you are open-minded, flexible, like to travel and take responsibility, then this could definitely be the place for you!

We are part of the organisation for UMTS Radio Network infrastructure. The development is presently going on at high speed and we are part of this unique moment! We see how the products emerge and we have the possibility to affect the final products from the perspective of our competence area.

Our group's objective is to ensure that our customers, the mobile network operators, receive excellent performing 3G networks. Act as a Competence Center in Transmission Network Design by designing their network infrastructure based on ATM and IP technologies, as well as, supporting other Ericsson departments in their work towards other customers. We also use our experience in order to continuously improve our products and services. The work is performed both from our office in Kista, as well as from any other location around the globe.

The main task of the job is: Specify and develop Transmission Services. Design and dimension Transmission Network and Services. Competence development to our internal and external customers. Network Design performance responsibility.

We need more brilliant people; we look for newly graduates from University, as well as experienced people.

Contact: Anders Eltvik, +46 8 404 5298, anders.eltvik@era.ericsson.se.

ERICSSON EUROLAB DEUTSCHLAND GMBH, AACHEN

Node Product Unit MSC (NPU-MSC) Project Office. Node Product Unit MSC (NPU-MSC) is part of the Core Networks Mobile Systems Product Unit (PU CNM), and the Core Unit Switching Products (CUSP) in Division Mobile Systems.

NPU-MSC is responsible for the product portfolio for the GSM/UMTS MSC node and has the responsibility to manage the entire MSC Global Application System (GAS) for GSM/UMTS Switching System.

The NPU-MSC Project Office has the overall responsibility for MSC level projects from TG0 to Phase-Out (PO) and UGM (UMTS GSM Mobile Application) level projects. This covers all classical GSM implementations on all frequency bands. In addition MSC Node PU is having a key role in introducing the 3rd generation mobile systems, UMTS on the world market, and is the key node under Core Network Mobile Systems (CNM).

The NPU-MSC Project Office is now looking for highly motivated people with leadership skills to work in a dynamic team leading international projects. We offer a possibility to join a dynamic, truly international organisation and to work in the forefront of the mobile systems development.

NPU-MSC Global Application System (GAS) Project Manager

● As Global Application System (GAS) Project Manager your primary task will be to manage and co-ordinate GSM MSC Node GAS product line. You will be working closely together with the project management teams for the ongoing GSM and UMTS CN (Core Network) projects.

The main tasks and objectives are to secure the Survey of Function Specifications and to define the Product Line of a GSM-MSC GAS. The responsibility also includes control and follow-up implementation of requirements, ordering data and ordering information. As a suitable candidate you have several years of Ericsson experience with good competence of AXE SW development and verification processes.

You should have some experience in Configuration, Product and System Management in AXE. Previous project management experience is an advantage. In this position you will need good planning, communication and co-operation skills.

Assistant Total Project Manager MSC CN3.0 / R10

● As Assistant Total Project Manager your primary task will be to, together with the Total Project Manager, set up and co-ordinate the planning activities for the GSM R10 MSC release, combined with the UMTS 3.0 features, in parallel with the ongoing UMTS 1.5/2.0 and the coming UMTS 4.0 projects. You will be working closely together with the project management teams for the other UMTS projects, as well as with the Core Network Total project.

The main tasks and objectives will be to support and steer the UMTS 3.0 / R10 main project teams. Planning of the UMTS 3.0 / R10 feasibility and execution phase. Follow up and report progress, time, costs and quality.

For this position we are looking for a skilled Project Manager with several years' experience of project work within an international organisation

Function Test Leaders CN3.0/R10 (MSC and UGM projects)

● We are looking for Function Test Leaders on both Total Project (MSC, Mobile Switching Centre) and Main Project (UGM, UMTS GSM Mobile Application) level. As Function Test Leader your main tasks will be to co-ordinate the test planning.

You will co-ordinate all test related problems and supervise the test execution phase. You will be part of the project team and work together with the test leaders of the subprojects and associated projects. Your main responsibility is to make sure that all new features are successfully verified until MS8 (end of Function Test).

You should have several years of experience in Function Test. You need to establish a good contact network, be very self-driven and co-operative, and have excellent communication skills. Previous experience as a project or team leader would be an asset.

Quality Coordinators CN3.0/R10 (MSC and UGM Projects)

● We are looking for Quality Co-ordinators on both Total Project (MSC, Mobile Switching Centre) and Main Project (UGM, UMTS GSM Mobile Application) level. The main responsibility of these positions is to establish and maintain the quality system for the project.

The main authorities and responsibilities are quality co-ordination within the project and to pro-actively drive quality assurance activities

Potential candidates shall have a sound background in wireless and/or wireline AXE SW development projects. Previous experience working with quality systems and processes is required.

Last but not least you should have a high interest in quality work and see this position as an opportunity for improving our products and our ways of working.

Assistant Main Project Manager UGM CN3.0/R10

● As Assistant Project Manager for the UGM (UMTS GSM Mobile Application) Main project your primary task will be to, together with the Main Project Manager, set up and co-ordinate the MSC Application part of the UMTS CN3.0 and GSM R10 MSC release.

The main tasks and objectives of the UGM team will be to support and steer the sub-project teams during feasibility and execution, and to follow up and report progress, time, costs and quality.

For this position we are looking for a Project Manager with several years of experience from project work within an international organisation. Experience of AXE SW and/or Mobile Systems would be a clear advantage.

Configuration Manager UGM CN3.0/R10

● As configuration manager for the UGM project your main tasks and objectives will be to control the necessary CM processes and documents. You will manage the Change Control (Chair CCB meetings etc.) and handle Project CM Audits. One of our main Configuration Management tools is Ericsson ClearCase, so knowledge of this would be an advantage.

As a configuration manager you will need strong initiative, good planning, co-ordination and communication skills. Experience of AXE SW and/or Mobile Systems would be a clear advantage.

Total Project Manager CN4.0/R11

● As Total Project Manager your primary task will be to set-up and co-ordinate the planning activities for the GSM R11 MSC release, combined with the Core Networks CN 4.0 features. You will be working closely together with the Core Network Total project, as well as with the project management teams for the other UMTS projects.

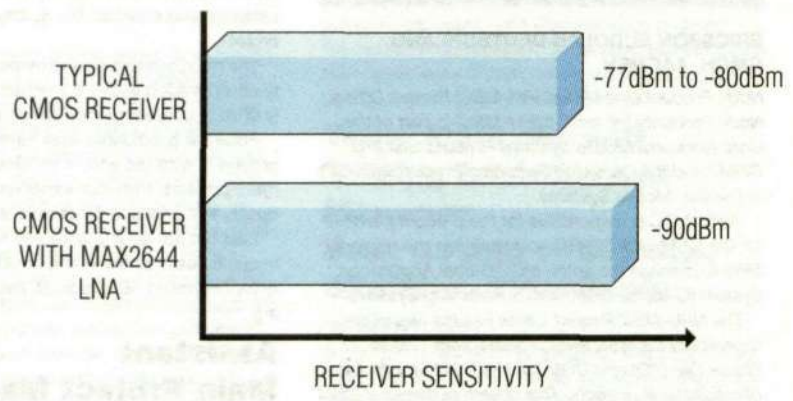
The main tasks and objectives will be to support and steer the CN 4.0 / GSM R11 MSC project from pre-study to General Availability. Follow up and report progress, time, costs and quality. Ensure fulfilment of the project goals. Interface to the Core Network total project and the Project Steering Group.

For this key position we are looking for a Senior Project Manager, with several years of project management experience within international organisations. Line management experience would be an asset.

Contact: Andreas Westh, Andreas.Westh@eed.ericsson.se, +49 2407 575 7869, Robert Mellberg, Robert.Mellberg@eed.ericsson.se, +49 2407 575 98155, Human Resources: Simon Seebass, Simon.Seebass@eed.ericsson.se +49 2407 575 163.

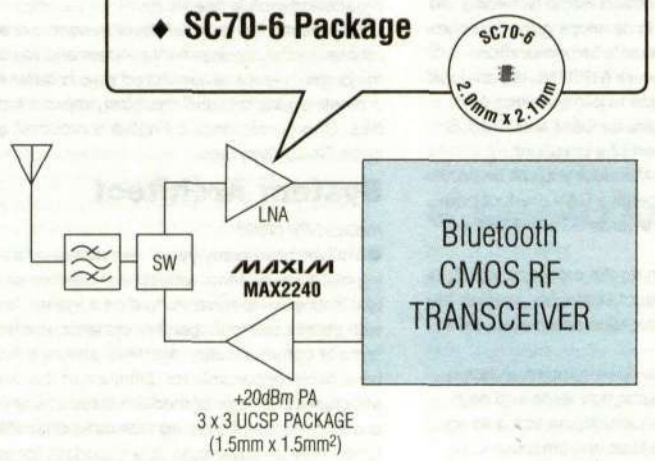
INDUSTRY'S SMALLEST 2.4GHz LNA INCREASES BLUETOOTH RECEIVER SENSITIVITY TO -90dBm

The MAX2644 2.4GHz SiGe LNA is internally matched to 50Ω at the output, saving an inductor and capacitor required in other LNA IC solutions. Total board space required is only 7mm²—ideal for space-sensitive Bluetooth™ modules.



MAX2644 LNA Features:

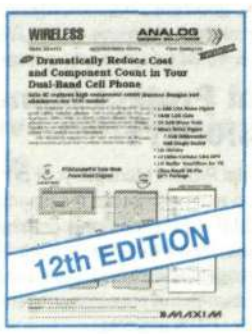
- **16dB Gain, 2dB NF, -3dBm Input IP3 for 7mA**
- **Adjustable Bias (3mA to 10mA)**
- **+2.7V to +5.5V Supply**
- **SC70-6 Package**



A Family of Six High-Performance SiGe LNAs are Available in the Ultra-Small SC70-6 Package, Covering Major Wireless Applications from 800MHz to 2700MHz

	PART	TEST FREQUENCY (MHz)	GAIN (dB)	NOISE FIGURE (dB)	INPUT IP3 (dBm)	ADJUSTABLE BIAS	APPLICATIONS
	MAX2642/43	900	16.7	1.3	0	Yes	900MHz ISM, cellular, PMR, cordless
NEW	MAX2644	2450	16	2.0	-3	Yes	Bluetooth, 802.11, HomeRF™, WCDMA, satellite radio, MMDS
NEW	MAX2654	1575	15	1.5	-7	—	GPS
NEW	MAX2655	1575	14	1.7	+3	Yes	GPS in cellular phones
NEW	MAX2656	1960	13.5	1.9	+1.5	Yes	PCS, DCS, WLL

Bluetooth is a registered trademark of the Bluetooth Special Interest Group.
HomeRF is a registered trademark of the HomeRF Working Group.



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New look for museum

Two different Ericsson anniversaries will be celebrated at the Telecommunications Museum in Stockholm on April 26. Arrangements are in progress and visitors can expect to see a museum that has undergone significant changes.

➤ Not only is Ericsson turning 125, this year also marks 50 years of mobile telephony history. Both events will be commemorated fittingly following a comprehensive renovation of the Telecommunications Museum.

"We feel that this anniversary year is a good time to add some new life to the Telecommunications Museum. Our goal is to create an experience center, where the emphasis is just as much on the future of Ericsson as it is on the company's history," says Sten Yondt, head of Ericsson Event Marketing in Kista.

The experience center will be devoted primarily to an exhibition of the history of mobile telephony. Sten Yondt does not want to reveal any details, but he promises an experience unlike a traditional museum visit.

"Visitors will get a chance to try out mobile technology themselves through experiments and practical exercises," he says.

Swedish designer and creator L G Nilsson has been involved in the creation of the exhibition.

The portion of the museum that explains the history of Ericsson will also undergo a makeover.

Ann-Marie Broms, who normally builds props for Stockholm theaters, has been given the task of recreating a late 19th century environment, including Lars Magnus Ericsson's Stockholm boardroom that was moved to the museum in 1971.

"We've succeeded in locating 19th century cobblestones and wooden flooring from the turn of the last century," says Sten Yondt.

The museum renovation is being conducted in conjunction with Telia and Telecommunications Museum, and is scheduled to be ready for the commemoration on April 26. There will be an open house on April 27 for Ericsson and Telia employees and their families. The new mobile telephony exhibition will continue until 2006.

Jenz Nilsson
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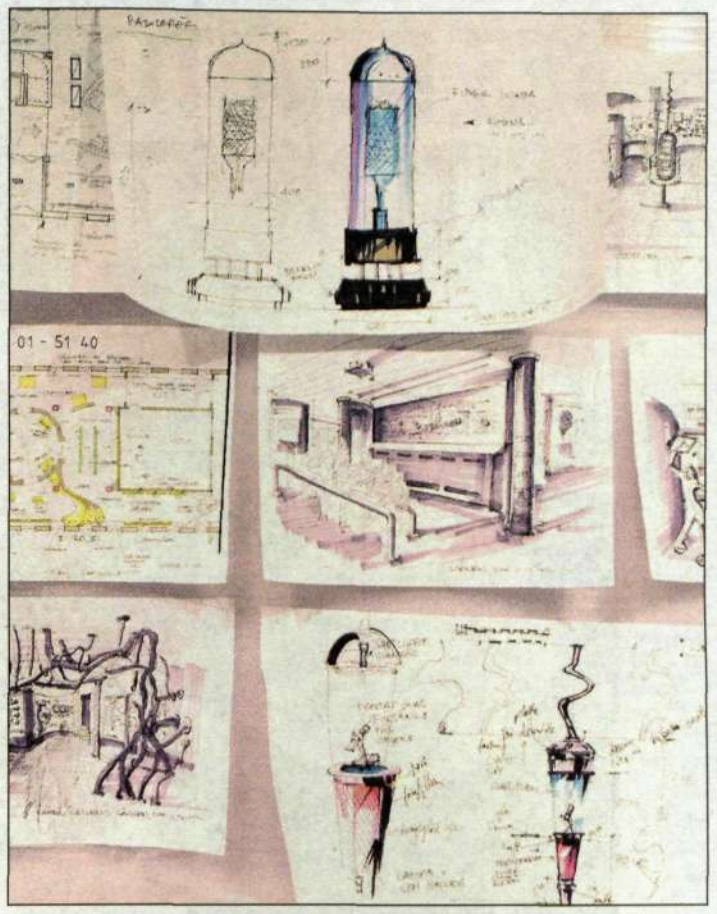


A new exhibition at the Telecommunications Museum in Stockholm is opening on April 26, partly in commemoration of the 50th anniversary of mobile telephony. Preparations are well underway and visitors are being promised an experience unlike any ordinary museum visit.
Photo: Ecke Küller

Thomas Rydberg at Evidente uses remote control to steer his boat.
Photo: Ecke Küller

Bluetooth provides safety at sea

Boat-owners can now check depths from their cabins and adjust their autopilots from the sun deck. Using Bluetooth, a pocket computer becomes a remote control for a boat.

➤ The solution is called BlueNav and has been designed by Evidente, a company whose activities involve the design of Bluetooth applications for the automotive industry.

"We have several sailors among the designers at the company. That's where the idea for some sort of remote control for boats was conceived," says Thomas Rydberg, head of software development at Evidente.

The company has linked all of the boat's instruments, including the anemometer, echo sounder, GPS and speedometer, to a central point where the details are sent to a Compaq Ipaq pocket computer via wireless Bluetooth technology.

On the pocket computer, it is possible to see all of the instruments on a color screen, while tracking the boat's position on an electronic chart that is stored on a plug-in memory board.

For about a year, Evidente has been collaborating with Ericsson Microelectronics and has been accorded the status of "Certified Solution Provider" for Bluetooth. According to Rydberg, there are large areas of application for Bluetooth, particularly in the automotive industry.

Using Bluetooth transmitter as a personal key, a car can, for example, be programmed to change seat positions and other functions, depending on who is driving.

The technology can also be used in manufacturing and servicing to take wireless readings of the vehicle's electronic system.

Lars-Magnus Kihlström
lars-magnus.kihlstrom@lme.ericsson.se

Indonesian WAP winners to Stockholm

➤ Two Indonesian students, Christ Bolung and Choki Hutagalung, have created a mobile telephony map application. The program was so good that it brought them half way around the world to Stockholm.

A contest was recently held by Ericsson in Indonesia for mobile phone applications. The contest was aimed at students at some 60 different universities around the country, with a trip to Stockholm as the first prize. Two excited winners recently came to Sweden. Christ Bolung and Choki Hutagalung – both 22 years old and attending the institute of technology in Bandung, in Western Java – won first prize with their WAP-based map solution.

With the help of their program, one can find assistance in finding the right way with maps and instructions that can be shown on the mobile phone.

Christ Bolung and Choki Hutagalung's WAP map resulted in a trip to Ericsson in Stockholm.
Photo: Lars Åström

"We worked every evening after lectures, for two and a half months, to achieve this. Digitizing the maps created the most work. The actual programming went rather quickly," says Christ Bolung.

"Interest in the competition was greater than we anticipated, with some 70 contributions being received. But the map application was the best and most practical solution," says Kusuma Lienandjada, technical manager and project manager for the competition.

Initially, maps have been made available for the students' hometown of Bandung, but it is hoped that the system will eventually cover all major cities in Indonesia. Several operators have already expressed an interest. In addition to the trip to Stockholm, they each received an R380 and the equivalent of USD 1,500.

"We want to use the money to establish a network with other technology students in Indonesia," says Choki Hutagalung.

"It was really fun to come here. A lovely city with wonderful weather – and, of course, beautiful girls."

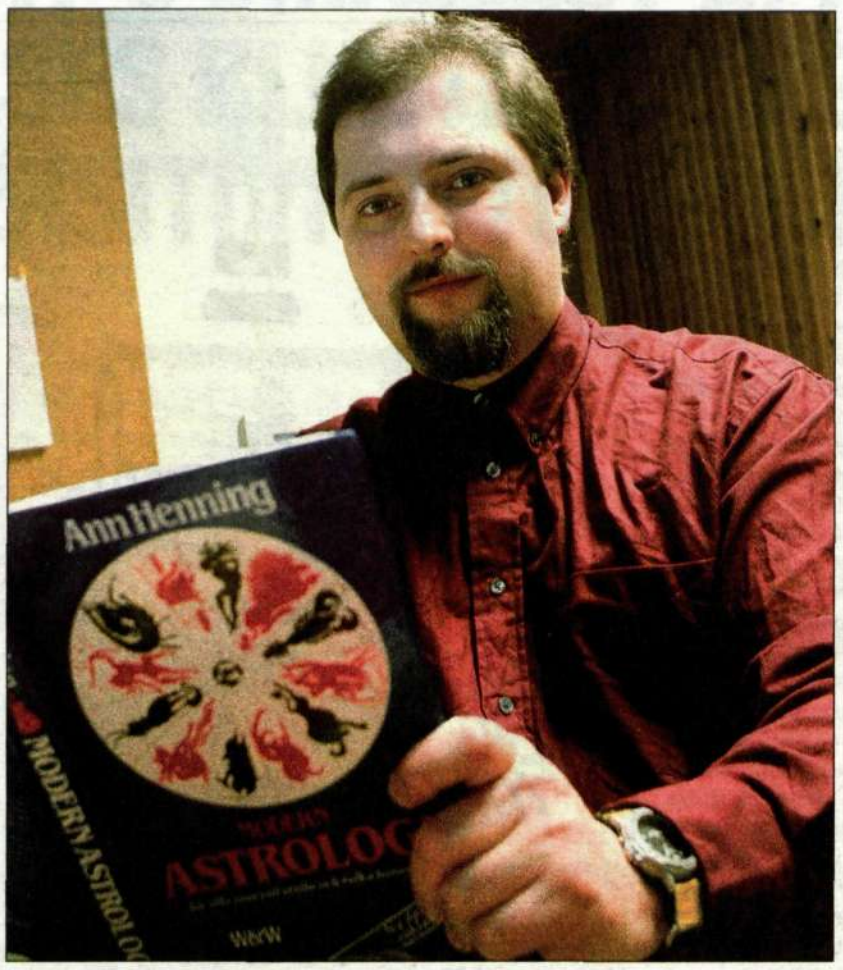
Lars-Magnus Kihlström

ERIC & SON

No. 7,
April 19,
2001

contact

Ericsson, HF/LME/DI,
Room 811023,
SE-126 25 Stockholm

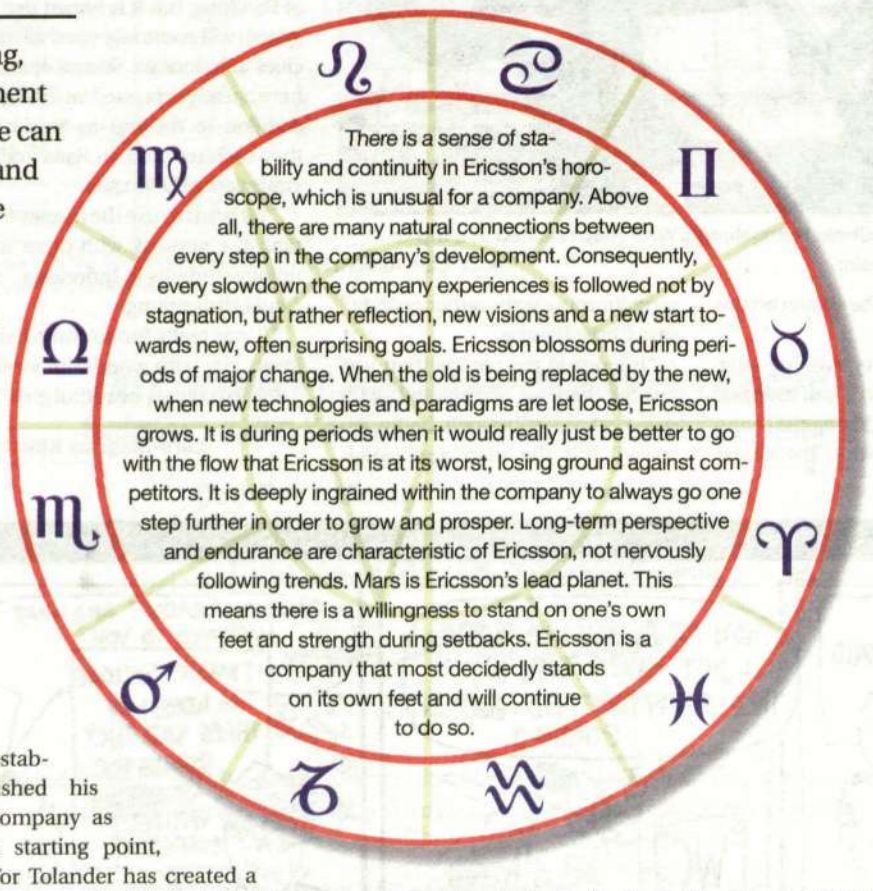


Astrologer Tor Tolander has created a horoscope for Ericsson based on the date that Lars Magnus Ericsson started the company.

Photo: Stig Eidegren

Company's fate is written in the stars

"There is a natural rhythm to everything, and a company's phases and development are no exception. By using astrology, we can figure out what that rhythm looks like and obtain a fairly detailed view of what the future has to offer," says astrologer Tor Tolander.



➤ The person that can predict, with certainty, what lies ahead in a company's future stands to make a considerable fortune in the stock market. Everyday the media reports on the advice of analysts, but is it possible to actually predict the future? Are the predictions of telecom analysts about Ericsson's future any more reliable than those of an astrologer?

Tor Tolander, who works as an astrologer, explains that business horoscopes are the fastest growing category of astrology.

"We're alone in being able to offer a little more long-term guidance regarding when a company is going to experience good and bad periods. When it comes to business horoscopes, we usually focus mostly on the relationship a company has with the world at large and the direction it is taking. Many companies want to know who the best individuals are for a certain position, or which applicant they should select."

Tor explains that business horoscopes are very popular in the US and the UK. In India, it is practically a necessity to order a horoscope before starting a business.

Using the date that Lars Magnus Ericsson established his company as a starting point, Tor Tolander has created a horoscope for Ericsson. He is impressed by the stability and continuity that characterizes Ericsson's horoscope. When it comes to the company's future, Tor Tolander has the following to say:

"Ericsson is now entering a period of stagnation. But don't panic, my advice is to remain calm, take it easy for a few years. This is not the time for any drastic decisions or changes. Ericsson should continue to invest in existing technology. A turning point will arrive in six or seven years, when a whole new concept emerges. Remain focused on 2012, the concept will be developed by then and the company will experience a new period of greatness. It involves an invention that will change the existence of humanity."

Sara Morge
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UPCOMING

April 20: Ericsson issues its first quarter interim report for 2001.

April 26: Inauguration of two exhibitions, "The Mobile Phone" and "Ericsson's first 25 years" at the Telecommunications Museum in Stockholm.

April 27: Open house at the Telecommunications Museum for Ericsson and Telia employees between 12 noon and 7pm, free admission and refreshments.

UPDATES

This year's Environmental Report has been published.

http://inside.ericsson.se/environment

The Ericsson championships in badminton and table tennis were held on April 7–8.

http://fun.ericsson.se

NEW ASSIGNMENTS

Stefan Johansson has been appointed President of Ericsson in Lebanon.

Magnus Madfors has been appointed Director with responsibility for external research information at the Technology corporate function.

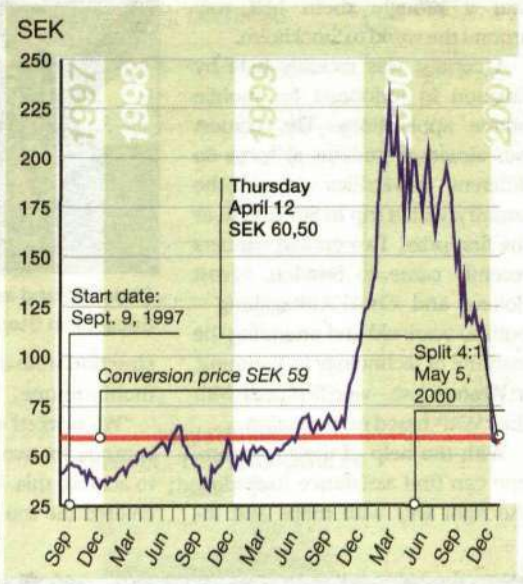
Thomas Axelsson at Ericsson Software Technology has been named an expert in the area of Telecom Networks Switching Systems.

Donal Lynch has been appointed Market Unit Manager and President of Ericsson in Bolivia.

Johan Lallerstedt has been appointed President of Ericsson in Tunisia, effective May 1, 2001.

Michael Rasmussen, presently Financial Controller for Ericsson's activities in Poland, has been appointed President for the company in Poland, effective May 15, 2001.

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 May 30, 2003. For additional information, access the website: http://inside.ericsson.se/convertibles