Photo: Ryno Quantz

Marketing to youth in a new way

As Ericsson tries to reach younger consumers, traditional marketing techniques are no longer effective. Instead, the company has chosen to focus its efforts on sponsoring the MTV European Music Awards and conducting direct marketing using "Street Teams" to target young people in their own environments such as cafés. **8–9**

This year's MTV European Music Awards is being held in Dublin. Last year Michael Stipe, of REM, won the award for best male performer.
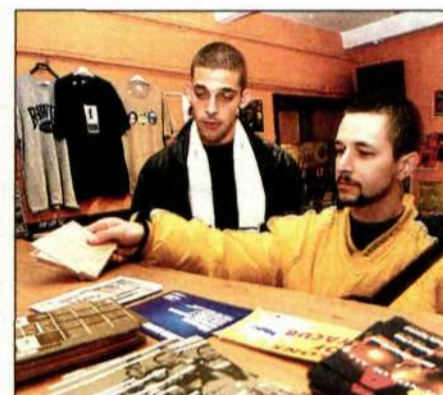
Ericsson in the limelight at MTV Music Awards

As a part of Ericsson's marketing efforts to reach the young consumers – generation Y – Ericsson is sponsoring the MTV European Music Awards in Dublin on the evening of November 11.

Ericsson will be present in many ways during the event. **8–9**

Content on the net

Internet content is one of the focuses in this issue of Contact's IT/IP supplement. Read how Internet auctions work and how you can create a web page for your car. In the U.K., Ericsson is working to create services for WAP terminals in an effort to stimulate sales.

Supplement

NEWS

Out with the old

Ericsson has created a single installation tool for AXE. Previously, the fixed and mobile sides each had their own tools. This is the result of eliminating the previous boundaries between business areas. **14**

Positioning contracts

The first two contracts for Ericsson's GSM positioning system have now been signed. One of its most important applications is the localization of people in emergencies.

4

Intranet no substitute

Managers cannot hide behind technology by simply posting information on the intranet. They also need to actively inform their employees. This according to Johan Ljungqvist.

15

Three ways to broadband

Ericsson has now determined which wireline broadband access solutions the company will focus on. They are xDSL, LMDS and cable TV. Ericsson will continue to research other technologies, however. **10–13**

Resigned to get a life

Anders Aronsson left his position as local manager for a good life. **7**
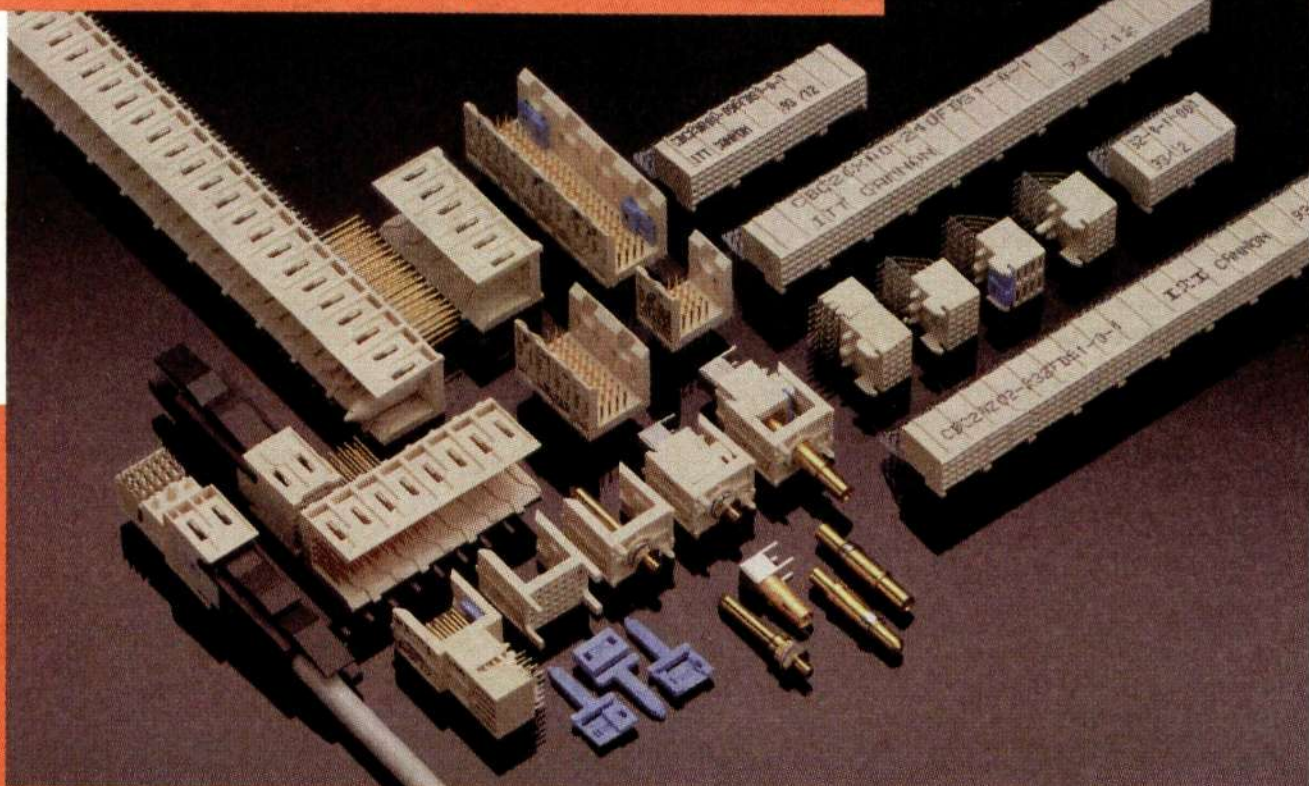
ERIC & SON

What a perfect way to fall asleep. **17**

Crucial to maintain expertise in an expanding market

GSM Systems, Ericsson's largest business unit, is facing great challenges. While existing customers are expanding their GSM networks, interest in new third-generation mobile system technology and new solutions such as GPRS, Edge and UMTS, is growing rapidly.

"In order to continue being the leading supplier, with over 40 percent of the market, we need a new marketing and sales organization, which we have just created," says Per-Arne Sandström, head of the GSM Systems business unit.

The GSM market is expected to grow by 100 million new subscribers during 1999, and of those, approximately 40 million will be making calls using equipment supplied by Ericsson. That translates into more than one new subscriber every second. Prepaid subscriptions provide one explanation for this rapid increase. Prepaid has been very successful and accounts for up to 90 to 95 percent of the increase in subscriptions for some European operators. While prepaid subscriptions have not yet caught on in Asia, similar developments are expected there within the next couple of years.

Clearer mandate

"The decentralized Business Management organization implemented at GSM Systems has, along with our marketing units, experienced a sevenfold increase in sales. That's a fantastic achievement," says Per-Arne Sandström.

As a result of the previous reorganization, market units with Key Account Managers and New Account Managers, have taken on greater responsibility and received a clearer mandate to oversee expansion operations and to court new licensees. This means that the key account organization is now taking greater responsibility for GSM operations.

New technology

While existing operators, many of which are also Ericsson customers, are expanding their networks, they are increasingly 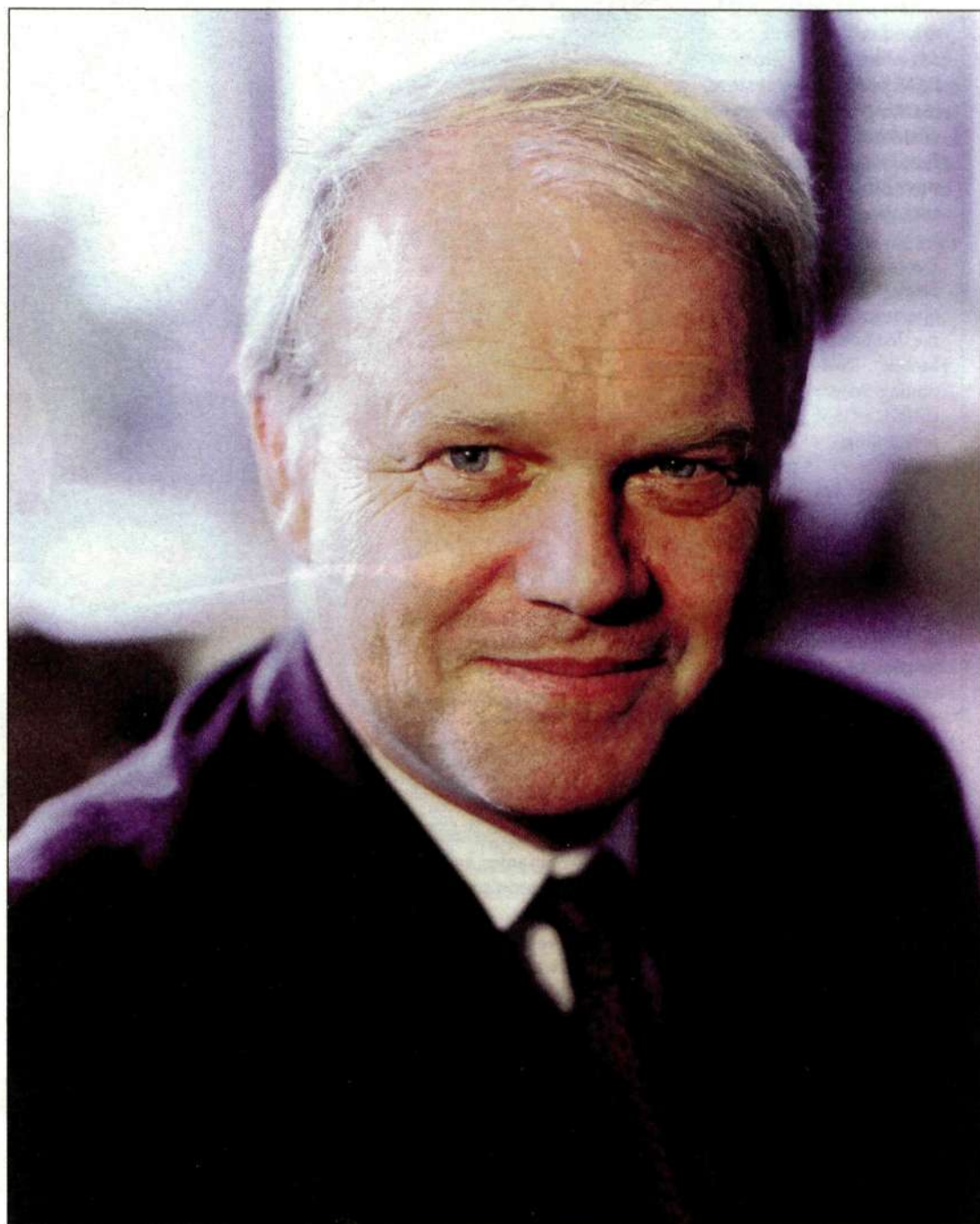focusing their attention on new technologies. These same operators will be generating new business deals during the next few years.

Per-Arne Sandström is the head of GSM Systems, Ericsson's largest business unit. This year, Ericsson's GSM network is expected to expand at a rate of one subscriber per second, even as interest in next-generation systems continues to grow.
Photo: Per Myrehed

"If we can't provide these customers with the attention they expect, we'll have a difficult time keeping competitors at bay," says Per-Arne Sandström. "The latest battlefront now involves signing business deals in new areas with existing customers. We have to be able to work on expansion orders for existing customers, while at the same time looking for new customers – in other words, business as usual."

Gather expertise

"Products and solutions for 3G applications, such as GPRS and Edge, require that we gather and maintain the expertise that we have within the field. This is one of the most important tasks for the organization, here in Sweden. Introducing GPRS to both new and existing customers is a priority task. It's also important to put forth our advertising message and profile Ericsson in the New Telecom World," says Per-Arne Sandström.

"Within a few years, these new technologies and solutions will, perhaps, become the norm. In order to handle large orders, it might then become necessary to return to an organization more like the one we used to have."

Work has been under way for some time to market 3G, a campaign that is now in full swing. Inquiries from a number of large operators have come in, and an extensive bidding process is currently under way. The first order is expected to be placed at the beginning of next year.

As Ericsson's largest business unit, GSM Systems has an important role to play when it comes to the future and the company's entrance into the converging telecom and computer markets.

"We have to show that we're a leader, driving the rapid changes in the marketplace. Based on proposed product and marketing strategies, we now need to significantly improve our ability to convince customers that we are the best and most reliable choice of partners in the new mobile Internet world," explains Per-Arne Sandström. "Few competitors are sitting on the knowledge base that Ericsson has."

A year in England

Per-Arne Sandström started working for Ericsson 11 years ago. Among the positions he has held is division manager for aviation radar at Ericsson Microwave Systems in Mölndal, Sweden.

Six years ago, he entered the world of GSM, becoming the head of a unit that worked with GSM Systems in Western and Southern Europe. In conjunction with Ericsson's reorganization last autumn, he was assigned to be the head of the GSM Systems business unit, overseeing approximately 25,000 employees. Prior to that, he had worked in the U.K. for a year.

"I was responsible for mobile phone systems at Ericsson in Guildford. That meant many close contacts with the three main operators – Vodafone, One2One and Cellnet. It was an interesting and rewarding year, allowing me to follow major customer projects up close. More than anything, I especially valued the close customer contacts," concludes Per-Arne Sandström.

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DID YOU KNOW THAT...

that there are 577 million cellphone subscribers worldwide.
Subscribers per region, June 30, 1999.
in millions

Region	millions
W. Europe	124,1
Asia and Pacific	84,9
North America	84,0
Japan*	43,5
Latin America	28,3
Rest of the world	12,4

*exkl PHS　　0　30　60　90　120

Ericsson's display at Telecom99.

Display draws customers

Personal attention, skilled and enthusiastic employees, and a large, fun product portfolio. Judging from those responses, Telecom99 in Geneva was a big success for Ericsson.

The Ericsson display was one of the most visited, with between 5,000 and 7,000 visitors daily.

"The number of visitors exceeded our expectations by a wide margin. The stand was packed with people from morning to night, every day of the week," says CEO Kurt Hellström, who was very pleased with Ericsson's participation.

"I think that customers and members of the media can see how Ericsson has changed. We have a clearer, more unified message as to what we stand for. Moreover, we have a good selection of terminals and accessories," says Sten Yondt, project manager for Ericsson's participation in Telecom99.

Preliminary survey results show that Ericsson's display and exhibit representatives received the highest marks. The survey involved visits by ten knowledgeable market representatives to the stands of nine suppliers, including Ericsson. They appeared in their normal capacity, and were unaware that it was Ericsson who had commissioned the survey.

"When it comes to display impressions, Ericsson was the clear winner," says Lars Svanström, who is working on the survey project.

The personnel manning the stand were competent and enthusiastic, according to visitors. They provided a good overview through their presentations and were good at finding out what visitors were interested in. Visitors were personally received, rather than listening to a formal presentation from a stage.

"Ericsson's product offerings were also surprising. Some people didn't think that Ericsson had such a broad range of products," says Lars Svanström.

On the other hand, the survey concluded that Ericsson was not as visible as Nortel and Motorola, for example.

"The lasting impression after a visit to Ericsson's display is that Ericsson is a young company – and that is exactly how we wanted to be perceived," says Ericsson's CEO, Kurt Hellström.

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First two contracts for new GSM system

A new service being introduced will make it easier to save lives. Using Ericsson's GSM positioning system, locating people in emergency situations will be easier. The first two contracts for the new Mobile Positioning System were recently signed.

Estonian mobile phone operator Eesti Mobiltelefon AS and Swedish operator Maingate recently signed the first two contracts for Ericsson's Mobile Positioning System (MPS), a GSM positioning system.

"Interest in this kind of service is enormous, and now that the first two contracts have been signed, sales should pick up considerably. Virtually every operator would like to offer this service," says Christopher Kingdon, solution manager for positioning systems at GSM Systems.

Christopher Kingdon

Easy localizing

The Mobile Positioning System makes it easy to localize all makes of mobile phones using the cellular network. The ability to locate people in emergency situations is a service that will be emphasized when the Estonian operator launches its new services.
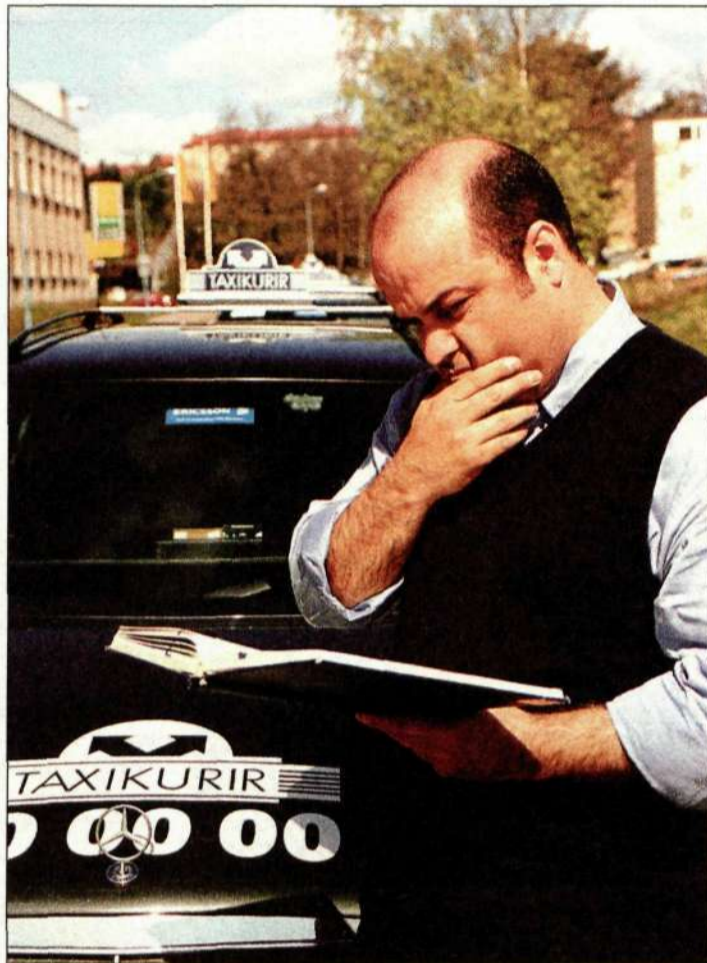
Taxi companies are one end-user group that could soon be benefiting from Ericsson's positioning system.　　Photo: Lars Åström

"We've chosen Ericsson's system since it can localize all makes of mobile phones, and because it provides the most precise positioning coordinates on the GSM market today," says Peep Aaviksoo, president of Eesti Mobiltelefon AS.

Mobile operators can provide positioning services by installing new software and connecting a Mobile Positioning Center (MPC) server to their network. Currently, the MPS utilizes a positioning method known as Single Cell TA, which provides sufficiently accurate information for most services. In the future, additional positioning methods will be added to the solution to expand service offerings.

Machine-to-machine

Swedish operator Maingate specializes in machine-to-machine communication.

"Positioning using GSM is currently one of the most revolutionary services within mobile communications," says Jörgen Askeroth, CEO of Maingate. "Communication between machines will be one of the most important services in the future. There are numerous conceivable services that we could offer our customers using this technology. There's a great deal of interest and we plan to evaluate a number of services with potential customers."

Currently, the MPS service can only be utilized by the GSM market, but Ericsson is working to find solutions for other standards as well. The European and American standardization organizations, ETSI and ANSI respectively, are now developing a GSM positioning standard based on the Ericsson system.

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1,500 outsourced in three areas

Ericsson plans to outsource three operations in Sweden and France. The changes will affect 670 people in Östersund, just over a hundred in Katrineholm, and 480 in Longuenesse, and will go into effect at the end of the year.

On November 2 Ericsson and Solectron announced their intention to allow Solectron to take over the manufacturing units in Östersund, Sweden and Longuenesse, France. With this change, Solectron will take over production of the new generation of AXE switches. In similar fashion, Ericsson and the consulting firm AU Systems announced their intention for AU Systems to take over the software development unit that Ericsson Utvecklings AB operates in Östersund, employing approximately 70 people.

In Katrineholm, Ericsson and Flextronics International Sweden AB have announced similar plans to transfer manufacture of a number of products to AXE Classic, which has slightly more than 100 employees.

Furthermore, approximately 100 people who currently work on AXE-HWM, will eventually be transferred to the Proffice consulting firm as part of a career and development program, similar to the one that was implemented in Norrköping. Flextronics has taken over operations from Ericsson in the past. In 1997, it took over manufacturing operations in Karlskrona that employed 800 people, and this past summer it took over operations in Visby, which employ around 1,000 people.

Ericsson in Katrineholm will be developed into a center for Internet-based products, including GPRS, and will need to hire about a hundred people with IP skills.

"These sales are an important step in Ericsson's restructuring program. Our core operations are not manufacturing, but rather research and development of products and systems. In the future, we won't be able to support the production capacity that we have today, and this is one way to gradually find new customers for these manufacturing units," says Björn Boström, Senior Vice President for Supply and IT.

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Campaign gets WAP deals going

"Let's WAP," encourages Ericsson. A new web campaign was recently launched by Ericsson, aimed at industries that have shown significant interest in developing applications. It's hoped that business deals will now seriously gather momentum.

"WAP is a hot concept right now. Our goal is that when people hear the word WAP, they will think of Ericsson," says Elisabeth Jörgensen, who oversees marketing and brand building at Ericsson Business Consulting.

At the end of October, Ericsson Business Consulting initiated an Internet campaign aimed at stimulating the development of WAP applications. The campaign includes everything from strategic advising to implementation of communications solutions. The first phase of the campaign is aimed at 200 companies within three business segments: banking and finance, media and entertainment, and travel and transportation.

"Companies within these areas have already come a long way using various web-based services, so it feels natural to start with them. In addition, they have developed the necessary security awareness," continues Elisabeth Jörgensen.

The campaign will continue for two months in Austria, Germany, Italy, the Netherlands, Spain, the U.K. and Sweden. In January, the first phase will be evaluated, at which time decisions will be made regarding which countries and business areas to focus on next. Advertisements are planned in the respective countries' financial newspapers to increase awareness about the Internet campaign.

Information about WAP and where to ask questions can be found on the campaign site. One can also sign up to become one of the first to buy a WAP telephone.

"Interest in WAP technology and its possibilities is enormous. Companies were already making inquiries, before the campaign even started," says Elisabeth Jörgensen.

Ulrika Nybäck

http://consulting.ericsson.se/letswap.shtml
www.ericsson.com/letsWAP

The Special General Meeting in early November approved the expanded options program that will give 7 000 Ericsson employees the possibility to purchase options for Ericsson shares.
Foto: Mia Widell Örnung

Shareholders approved expanded options program

At a Special General Meeting last week, Ericsson's shareholders unanimously approved the Board of Directors' proposal to introduce a new options program for employees. Under terms of the program 7,000 employees, including 5,000 in the United States, will receive 20 million options during the years 2000 to 2002.

"We want to involve and encourage employees," said Board Chairman Lars Ramqvist at the Special General Meeting that was held in Stockholm to vote on the proposal.

Ericsson's options program offers a way of rewarding employees for good performance. It is also a way to create increased involvement in the company's development. Moreover, it provides an incentive to key persons to remain with the company, since participation in the program requires that the person be employed at the company when the options are exercised.

Considering that Ericsson has now acquired a number of American companies, it is important that it is able to retain key expertise.

"An options program, like an is-

Lars-Erik Forsgårdh representing the small hareholders at the Special General Meeting suggested that Ericsson should consider an even bigger options program involving more employees.
Foto: Mia Widell Örnung

sue of convertible debentures, is one way of doing that. In the United States in particular this is an important competitive tool. In that country it is common practice to offer employees options programs," commented Lars Ramqvist.

Opportunity to purchase

Employees participating in the program will be given the opportunity to purchase shares of the company at a fixed price during the period 2001 through January 2007. The price is determined by the price quoted for the Ericsson B share during several days in January next year. If the price of the shares has risen, an employee will

earn money when he or she sells the shares.

In accordance with the program, Ericsson's president is offered the opportunity to subscribe for 100,000 shares, executive vice presidents and managers of corporate functions up to 60,000 shares each and others up to 35,000 shares each.

The aim is that those participating in the options program shall become long-term shareholders. This was emphasized, in particular, by Lars-Erik Forsgårdh, representing the share savers association.

"It is important that the company make it clear that as many persons as possible will ultimately become shareholders so that it will not be a

matter of cashing in shares, with the result that new shares will be available in the open market, depressing the price," Lars-Erik Forsgårdh said.

The issuance of new shares will dilute the present value of Ericsson's shares by 0,72 percent.

Lars-Erik Forsgårdh also urged the Board of Directors to return next year with a new proposal whereby more employees in Sweden and countries other than the United States will be able to participate in an options program.

"A little stingy"

"I think that the Board has been a little stingy," he said. "About half of Ericsson's employees in the United States are able to participate in the options program while only 2,000 of the company's approximately 90,000 employees in other parts of the world can do so. This does not send good signals to the employees outside the United States."

"We will have to accept criticism – for perhaps being a little stingy. But today's action is a first step," responded Lars Ramqvist.

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Police assault on Ericsson employee

It was the most terrifying experience he has ever been through. Mårten Hellgren, a sales representative at Ericsson in Switzerland, had taken the morning train to Geneva to attend the Telecom99 trade show and meet with clients. Two blocks from the train station, he was attacked from behind by two men.

"I was convinced that I was either being robbed or taken hostage," said Mårten Hellgren, when Contact spoke with him a couple of weeks after the disturbing event.

Hellgren ran a few hundred meters, but his attackers pursued him,

hitting him with batons and forcing him to the ground, almost breaking his arm in the process. They then handcuffed him, covered his head, forced him into a car, and drove him to a house, where he was locked in a room and forced to remove all his clothing.

Horrifying

"It was horrifying. I had to sit there and wait in that room for an hour. My wounds were bleeding and I wondered what they were planning to do with me afterwards, since none of them had bothered to conceal their faces," says Hellgren.

After an hour, a man came into the room. He explained to Mårten

that he had unfortunately got caught up in the middle of a hostage situation and that the police had arrested him by mistake.

"It was incredible. I had to ask him for his police identification in order to confirm that what he was saying was true. Apparently, a gun battle had erupted just behind me, but I didn't hear anything, since I was so focused on my own escape," he says.

Received four stitches

Mårten had to have four stitches in his head. As compensation, he was given a watch and a knife and then put on a train back home to Zurich again.

"When my wife saw me, she took

one look and we were off to the hospital."

Today, Mårten Hellgren is doing fairly well. He has received counseling and has gone back to work half-time.

"But it does take a little while to get going again. You really feel bad after an event like this."

Additionally, he has been overwhelmed by the media.

"Five TV stations have called saying they want to do interviews, reenactments and so forth. Of course I've said no. But I have to admit it does sound like an exciting story, doesn't it?" says Mårten Hellgren.

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Strategic contract with Polish Netia

➤ Ericsson and Polish operator Netia Holdings SA recently announced the signing of a strategic contract for delivery of a turnkey countrywide IP Service network. Ericsson will deliver to Netia all the components for a complete high-quality Internet service network by the end of 1999.

Netia is Poland's largest privately owned wireline operator.

Under the terms of the contract, Ericsson will develop IP equipment and service infrastructures, which will allow Netia to offer Polish subscribers carrier-class Internet access and services.

"We chose Ericsson because they were able to demonstrate to us that they could not only deliver cutting-edge technology, but also a full range of systems integration skills," says Mr. George Makowski, Vice President of Marketing for Netia. "We intend to provide our customers with the highest quality Internet service available in Poland, and we are pleased to have a partner who shares our commitment to deliver quality and service."

Ericsson will supply to Netia a complete service production network including customer front-end applications for Netia's IP solutions. The scope of the contract includes the setup of Ericsson's multi-service access platform Tigris in each of Netia's Points of Presence, as well as the installation of routers, Domain Name Servers (DNS), mail, web, Authentication-Authorization-Administration (AAA), and cache servers, with installation to be completed before the end of 1999.

Top position regained

➤ Once again, Ericsson has the best financial website in Scandinavia. That is the result of Sweden's leading business newspaper Dagens Industri's yearly ranking of listed companies' websites. The secret behind the success is a thorough analysis of the purpose of the web presence. The site also contains a number of advanced functions such as subscription to changes and news, and the possibility to listen to speeches and presentations by Ericsson's management.

◉ www.ericsson.se/Reports

Fast news on the Internet

➤ Contact comes out with a new issue every two weeks. Most of the materials in Contact consists of news stories and more in-depth news reporting, allowing readers to delve deeper into various subjects.

For those who want access to daily news updates, Ericsson's news web site, Infocenter, is worth a visit. Infocenter, which started up in August of this year, is a news service for both internal and external readers.

You can also find articles from the Swedish and English versions of Contact there, as well as links to Ericsson's technical journal, Ericsson Review, and its new consumer magazine ON.

◉ www.ericsson.se/infocenter

Jan Wäreby

Pulling into the home stretch

The year 2000 is rapidly approaching. Now, with less than two months remaining, I think it is strategically important that we reinforce our customer relations prior to the millennium shift. I know that major efforts have already been made, but I still want to make sure that nothing is left to chance.

Have we and our customers really understood each other, when it comes to getting information out to our customer's customers, to the media and so forth?

Last spring, the market area managers made a commitment to be on the job working during the millennium shift. I will be working already that afternoon – as New Zealand makes its entry into the next millennium – going back and forth between our Operations Center (EMOC) and our Information Center (EMIC) in Stockholm.

I CANNOT EMPHASIZE ENOUGH the importance of having those who are commercially responsible, as well as customer service within all the market units, in place, so that together we can solve any problems that might occur.

By now, we should know that plenty can happen, even during a completely ordinary night, and that a millennium shift could see many unexpected events occur. We need to maintain a high degree of readiness in order to be able to deal with situations in a rational and structured manner. Moreover, that is what our customers are expecting from us.

We started this process by checking our products and technical support. The time has now come to assist in the commercial aspect of dealing with our customers. There are a number of ways that we can maintain contact with our customers. In some countries, for example, they will be with us in our control rooms, while in other countries we will be sitting with them in their control rooms.

PERHAPS EVEN MORE IMPORTANT, is that we establish communication channels both to our customers' technical support and to their corporate management, marketing management etc. In the end, what does all this mean? It means we have to prepare the practical details, such as who to contact and how, leaving instructions as to when an incident should be referred up to the next level for a decision, as well as creating address and telephone lists and checklists for operational activities.

I've seen several good examples of this, and would of course like to see all Global Account Managers and Key Account Managers shoulder their responsibility now in this final spurt. Communication channels with customers need to remain open.

Unfamiliar routines and incorrect information create room for speculation and misunderstandings. Those are things we can prevent now. A guiding principle in our work can be the example that management in Italy has shown us in advising its market units to be sitting behind the wheel, ready to take command of the situation.

Together, we can make a thorough and competent effort to ensure a successful millennium shift and reach our goal of continued satisfied customers.

Jan Wäreby, Executive Vice President,
Europe, Asia and
the Middle East Market Area

Italians earn money when phone rings

Soon there will be fewer people turning off their mobile phones in Italy.

As of November, it will actually be possible for Italians to earn money by answering their phones.

Telecom Italia Mobile (TIM) is introducing a new rate structure for prepaid cards, that will actually recharge people's cards when they receive calls on their mobile phones. Each minute of a call is worth SEK 0.33, and after 100 minutes of received calls, the card will be recharged with SEK 33 (about USD 4).

At the same time, cellular calling rates will drop from approximately SEK 3 per minute to SEK 1.70 (both including value added tax).

Two reasons

There are two factors that make this change possible. The Italian operator will debit each call with a relatively high connection charge of SEK 1.40, compared with the old charge of SEK 1.10.

Rates for calls from wireline networks to wireless phones in Italy are unusually high, up to SEK 7 per minute during peak calling periods. Of that, operators pocket SEK 2.60 per minute when their

A new Italian rate plan will pay people to accept incoming calls. The plan might even lure young Italians to answer the phone when mom calls.
Photo: Mats Lewan

customers are called, which is why many observers believe that TIM can afford to be generous.

Mauro Sentinelli, the head of TIM, invented the new rate scheme. He is also known as the man who introduced the family rate (with low evening calling rates) and came up with the idea of prepaid phone cards.

In the newspaper "La Repubblica," he explains how he puts himself into his customer's shoes. When he developed the family rate, he envisioned that "an executive would perhaps want to give his wife a phone that she could make inexpensive calls on during evenings and weekends." That was back in 1983 and was an immediate success.

Good for thrifty people

When it comes to the new rates, he sympathizes with parents who have felt worried when their children's phones have been turned off.

"I felt that I had to give them an incentive so that children would leave their phones on. The new rate scheme is, perhaps, also appealing to others, such as those who are thrifty," says Mauro Sentinelli.

Criticism has already been raised about the new rates, including by consumer organizations. The Italian telecommunications board is currently studying both the new rates and the high calling fees from fixed networks to mobile phones.

Mats Lewan

Palm working with Symbian

Handheld computer manufacturer Palm Computing is collaborating with Symbian to develop a new line of products based on Symbian's operating system.

The joint venture means that the two companies will gain access to each other's technologies, and will result in new products that combine the functions of handheld computers with mobile phone functions.

Future products should be able to utilize programs developed both for Palm OS and for Epoc, which is Symbian's operating system. Palm Computing, which is owned by 3Com, has been very successful in selling PDAs, pen-based handheld computers that make use of a pen to perform various tasks rather than keys. The fact that Symbian and Palm have now joined forces, is a blow to software giant Microsoft, which is struggling to enter the handheld computing market with its Windows CE operating system. Collaboration between its competitors, will make things significantly more difficult for Microsoft.

Palm controls around 70 percent of the palmtop computing market in the U.S., while Palm and Symbian, together, dominate Europe. Symbian is owned by Ericsson, Nokia, Motorola, Psion and Matsushita.

Simultaneous with the announcement by Symbian and Palm regarding their joint venture, Nokia announced that they will soon be coming out with a product based on Palm's interface.

Nils Sundström

U.S. ready for 2000

The employees at Ericsson in the U.S. feel well-prepared for the millennium shift. All of their customers – some 50 operators – have received assistance in testing their networks. However, the work is still intensive as many customers are applying pressure and want to double-check that nothing can go wrong.

Don Hartung is responsible for Y2K activities concerning products at Ericsson in the U.S. He believes that there are still factors which can be improved before the end of the year.

"We can still improve communication with our customers, large and small. We are still under a considerable amount of pressure from the customers – they want to double-check that their networks are complete. It is now crucial that we maintain the motivation of everyone involved up to the last minute."

In the time remaining, Ericsson must provide its customers with the latest information in the field, recheck certain networks and ensure that all parties have the latest millennium document, which includes exact details of what to do during the crucial 24 hours. The preparations have involved a lot of hard work, but have also led to a series of improvements within the organization.

"We have become much better at focusing on the right matters and at cooperating between companies and segments. These preparations have helped us to find our way in the new organization," says Don Hartung.

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Gates goes wireless

Now that the Internet world is going mobile – and probably more rapidly than we expect – Bill Gates would like to get involved as well.

Microsoft has actually changed its mission, something it has never done before. Until now, its mission had been to provide PCs all over the world with software. Now that mission also includes mobile terminals.

It was at a press conference during Telecom99 in Geneva, that Microsoft's management made it clear that the company's next major investment will be in the field of wireless communications.

To demonstrate that he is still in the game, Gates showed off a prototype of a new, intelligent Internet telephone. The phone is not
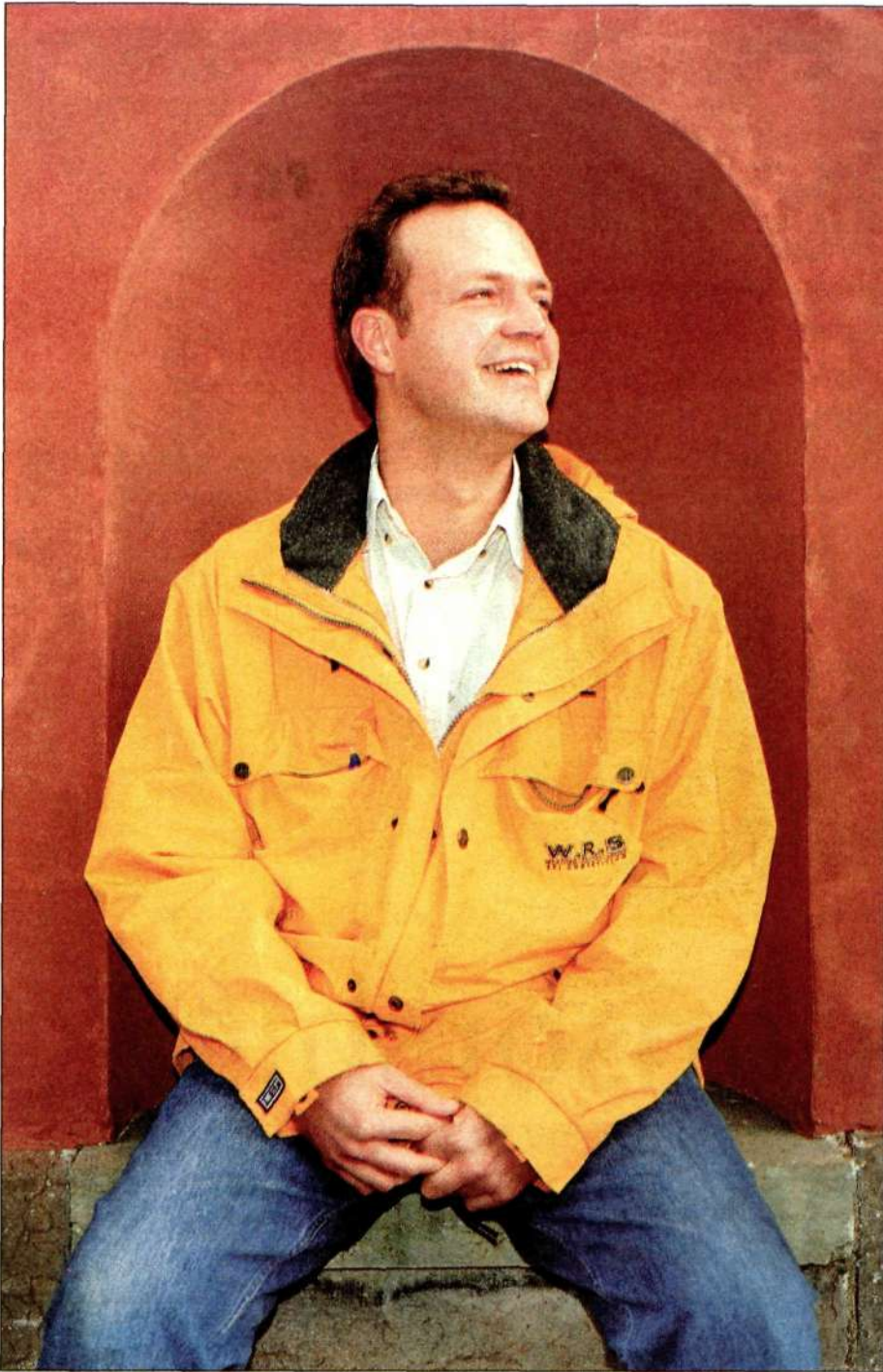

GATES III

Bill Gates' next big investment will be in wireless communications.
Photo: AP/Pressens bild

WAP-based, and can instead read existing HTML pages.

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He is considering writing a book with the title. "Take Control – How to Stop Managing." That is, in fact, what Anders Aronsson did when he left his position as local manager of Ericsson Microwave's development unit in Lysekil, Sweden. Now, seven months later, he is even able to enjoy taking a walk in the forest – without constantly thinking about his job.

"I haven't felt this good in a long time," says Anders Aronsson, who would like to see more discussion about the manager's role in the company.

He left managerial job for the good life

Stressed out and exhausted, Anders Aronsson decided to leave his managerial job. Taking a step down the career ladder has actually been a real boost for his private life. "This past weekend we visited a couple of close friends we hadn't seen in over a year."

Photo: Svante Ömberg

Anders Aronsson is a go-getter. Full of ideas, he enjoys starting up new projects and values direct decision-making processes. Perhaps that is why he got the job as local manager in 1995. His task was to oversee a newly started development unit for radio electronics and software for radio applications. It was clearly an enticing challenge for the then 29-year-old engineer from Karlstad, Sweden. Moreover, both he and his wife had long desired to move to Sweden's west coast.

"In conjunction with applying for the job, I also happened to inherit a house in Lysekil. It was an old, white wooden house, situated on the west coast; it was exactly how we wanted to live. I got the job and all the pieces fell into place," explains Anders Aronsson when we meet at a country manor house café.

Exciting at first

Food made from the organically grown vegetables in the large garden outside are on the menu. Anders Aronsson orders the vegetarian lasagna and continues his story:

"In the beginning, it was incredibly exciting to be the manager of a small unit. As both the technology and unit manager, I took on a role that is more akin to those at small companies. I was able to gain an overall picture of what it was like to run a company, making technical decisions, maintaining local contacts as well as overseeing such mundane items as where to park the bicycles. It was very educational," says Anders, praising the entrepreneurial spirit of the tiny unit, which only had four employees to start with, in addition to himself.

"We really felt as though it was our company, which was, of course, very positive."

Eventually, however, things changed in their little enclave. The unit expanded, leading to increased managerial responsibilities, and making what was once an exciting and educational job, increasingly demanding.

Along with the positive aspects of running a small business, came a great deal of responsibility, which was sometimes difficult to live up to.

"At Ericsson Microwave Systems in Mölndal, there is a whole support staff to whom things can be passed off to, while at Lysekil, people called me when something didn't work.

"At the same time," says Anders, well aware of the criticism, "things were not going so smoothly in the relationship with Ericsson Microwave." Hierarchical problems arose as this lowly unit manager in Lysekil began to take on significant responsibility, without actually being especially high up the company hierarchy.

In other words, Anders Aronsson hit a barrier when he tried to implement his ideas and those of his colleagues, resulting in frustration and guilt.

"We accepted a few assignments that were difficult to fulfill. For example, we developed good, new educational guidelines together with the university college. However, that always resulted in the same question: Where should the graduates go? They always called on us wanting a job.

"The personnel department never has time to deal with such issues, especially if it's not their own idea."

Anders raises his hands and presses them against each other.

"On the one hand you have Ericsson, which wants its circuit board assemblies. On the other you have society at large which would like us to shoulder our responsibility."

After three years, this young, ambitious local manager began to have doubts. He had always worked a lot – 60-hour weeks were standard – but with a 2.5 year-old at home and another child on the way, work didn't seem like the most important thing in the world anymore. Moreover, he was experiencing the typical signs of burnout, such as sleeping difficulties and problems concentrating.

"For a while, I had a notebook on my nightstand. If I woke up during the middle of the night and thought of something, I had to write it down before I could get back to sleep. All of my weekends were devoted to thinking about work, and I was seldom able to simply enjoy doing something together with my family," explains Anders Aronsson, while at the same time clarifying that he never felt physically ill.

"Perhaps I shouldered too much responsibility. But at the same time, I think that there are many managers who are in my situation, and it is important to start a dialogue about how to change the role of managers. How can you, as a manager, be more creative and have more personal space. You have to prevent stress, otherwise, in the end, work simply becomes something you have to do – even those things you previously thought were fun."

Unit reorganization

At the end of 1998, the Lysekil unit underwent reorganization, enabling Anders Aronsson to leave his position as local manager, without feeling as though there would be significant consequences for the unit. Today, he is in construction support, working a six-hour workday – an ideal solution, in his mind. He now

has more time for his children, Joakim, three years, and newborn Johanna, 3 months. Moreover, his wife has been able to realize an old dream of writing a novel, which will be coming out this spring.

"Once you have a family, you set different priorities. Today, my family is number one. The house is number two and after that is work," says Anders who these days uses any flextime he accumulates immediately. He has learned his lesson and does not want to work too much overtime. On the question of whether he could consider becoming a manager again, he replies that he would be very careful to find out what the job involved.

"Sure, I have many ideas, and as a manager the odds increase that they can become a reality. At the same time, however, the role of manager needs to change and the organization needs to become less hierarchical. Things simply have to be made easier for managers, even within large companies such as Ericsson Microwave Systems."

Ulrika Naezer

Today's youth are tomorrow's users of mobile telecom services, and are already important customers and trendsetters. That is why Ericsson is now turning to a younger target audience with new kinds of marketing activities and products.

"By sponsoring the MTV Awards, we're reaching young people through music. MTV activities are based on the slogan, 'Make yourself heard,' which is also a primary aspect of music," says Cecilia Lund, and Raila Mörén of the consumer products business segment.

MTV Awards sponsorship – to reach young people

I n order for young consumers to pay attention, you need to offer them something unconventional and entertaining. Even more important is to always be sincere. By sponsoring the MTV Europe Music Awards, activities on the Internet and offering products targeted at these groups, we hope the Ericsson brand name will become better known among young people," says Cecilia Lund, media and advertising manager in the consumer products global marketing unit.

Prepaid cards and cheaper subscriptions have meant that the number of young mobile phone users has increased significantly. Studies conducted in the U.S. and China also show that young people have an influence on family purchases.

"Young consumers have grown to become an interesting and powerful demographic group, with their own demands on mobile communication," says Raila Mörén, head of consumer studies in the same department as Cecilia.

Unimpressed youth

Young people are informed and choosy consumers. They are doused with information and commercial messages, and are not easily impressed.

"When you communicate, you need to be honest and not artificial. You have to show respect," says Raila Mörén.

The MTV project and related efforts, such as the web site and "Street Teams," aim at building relationships with target groups and to create awareness of the brand name. This perhaps seems strange to Swedish readers, since Ericsson is well known in its native country, but it is a different story out in the rest of the world.

"Through the MTV project, we want to make young people more aware of Ericsson, and we want to generate a positive feeling towards the company. That makes it easier to reach out with other forms of marketing," says Cecilia Lund.

The goal is to increase brand preference – that is, the number of young consumers who make Ericsson their first choice – by roughly one-third during the next three years. At the same time, it is hoped that young peoples' positive attitude towards the Ericsson brand will become even stronger, increasing by approximately two-thirds, when evaluating statements relevant to that group, such as "appeals to young people" or "exciting."

Not just business people

The new youth campaign does not mean that Ericsson is abandoning business people.

"We won't be departing from our focus on professionals, but rather expanding it. It takes time to build up trust. That's why it's important to reach the younger generation, who are

our future entrepreneurs, managers and professionals," says Cecilia Lund.

True to our brand name

"We'll remain true to our brand name, and the basis for everything that Ericsson communicates must be here. But just as people wear different styles of clothing – depending on whether the occasion is a business meeting, a family gathering or an evening with friends – companies have to don different outfits, depending on who they are it is trying to communicate with. That does not mean that we are changing our personality, only that we are expressing it in slightly different ways," says Cecilia Lund.

Nor does the focus on 16-24 year olds mean that Ericsson is creating a new lifestyle segment, in addition to the five that have already been identified. In reality, young people are already represented in the various lifestyle segments, and are especially commonplace among materialists and pioneers. Nevertheless, there are certain things that unify this age group.

"Every generation has its own ideas and mannerisms. Today's youth have grown up in a society with dozens of TV channels, the Internet, radio and many publications, and have enormous opportunities to communicate. Technology is taken for granted, as is the fact that they can afford to use it," says Raila Mörén.

Have purchasing power

There's no question that this is an interesting target group. According to Teenage Research Unlimited in the U.S., American youth will spend USD 141 billion this year, up more than 60 percent compared with just five years ago. The world's youth are becoming increasingly important customers, but what is it that determines which brand they choose?

"Humans have always been tribal in nature, seeking out others who are similar to us," ac-

cording to Ted Polemus, author, anthropologist and marketing consultant, who participated in a seminar regarding young people's values arranged by Ericsson in May.

"In the past, family was important. Today we seek out our tribe among others who hold similar values. Fashion has developed as one way to express who we are and what our values are, to say 'this is what I'm like'. Buying a certain brand, a style, is one way of filling one's identity with meaning."

While earlier generations could identify themselves as "teenagers", age has declined in importance as an identifying marker for today's youth, according to Ted Polemus. Instead, it is the kind of music you listen to, where you decide to vacation, and the sport you participate in, that tells people who you are.

"That means that if you try to sell them something geared for 'teenagers', you will fail. They do not see themselves that way. The most important thing to remember when communicating with young people, is that they are complex," says Ted Polemus.

Seeking contact

In order to learn about young mobile phone users, and to be better able respond to their needs and wishes, Raila Mörén is leading a project in cooperation with Consumer Lab in Lund.

"We're trying to interact with young people. We'll continue to conduct market research, but will increase the qualitative aspect by going in-depth regarding young peoples' opinions. We are setting up an Internet panel with young trendsetters who find it interesting to be involved and influence things," says Raila Mörén.

Both Cecilia Lund and Raila Mörén are convinced that Ericsson's focus on young people is a step towards the future.

Henrika Lavonius Norén

HAPPENINGS

- A few examples of marketing activities this autumn:
- Web site, www.ericsson.com/mtv. An emphasis on experiences. Young people can come in, have fun and learn about the company. Rockophone, Dig or dis, contests and chat rooms.
- Street Teams. Groups of young people hand out informational flyers at "in" places – music stores, cafes, restaurants and hairdressers. The purpose is to attract young users to the web site.

- Sponsorship of the MTV Europe Music Awards, the "Oscars" of the musical world, also includes Israel and the Baltic States, and is estimated to have approximately 100 million viewers.
- New TV ads aimed especially at the young target audience.
- Activities in Dublin, prior to the MTV Europe Music Awards.
- Channel marketing, activities with retailers.
- PR activities, banner advertising, local viewer parties, contests, etc.

Attila and Cirrus at Galaxy are creating a street promotion for Ericsson's web site and sponsorship of MTV Europe Music Awards.

Photo: Ryno Quantz

Marketing at street level

Ericsson is taking its marketing cues from the world of hip-hop. Street promotion is a new tool being used to communicate with young people.

During the middle of October, a marketing wave swept across the streets of Europe's major cities. Street teams wandered through the cities, distributing Ericsson's advertising flyers in places where young people gather.

"We wanted to generate attention about our web site and the fact that we're sponsoring MTV. The flyers were also intended to attract visitors to the site and explained how young people can enter the competition and win tickets to the MTV gala," says Peter Bodor, who works on media relations and events for the Consumer Products global marketing unit.

"Street promotion is yet another way of reaching our target audience, in addition to traditional channels," explains Peter Bodor.

Peter Bodor has enlisted the assistance of Attila Galaczy who operates Galaxy Entertainment, a music promotion company. Galaczy is spearheading the street promotion campaign, which extends across Europe, from his office in Malmö, Sweden.

Street promotion

"We're making sure that Ericsson is getting its information out to the right places, where young people can find it. Ninety percent of the cafes and shops we make inquiries at let us display the flyers," says Attila Galaczy.

Street promotion, like so many other things, had its origins in the U.S. Hip-hop musicians and their record companies discovered that they were having a difficult time getting their music onto commercial radio, which is an im-

portant promotional channel for generating sales.

Steve Rifkind, of the Loud record label, was one of the pioneers. He enlisted the aid of people on the street, creating a gang of "street soldiers" to market his company's music. Equipped with bags full of stickers, cassettes, posters and T-shirts, they walked around town, drawing attention to the recordings, with great success. By getting the information out to the right places, and by utilizing street soldiers as role models, street promotions are able to generate curiosity about a product or music.

200,000 flyers in Europe

Other companies quickly realized that this was a good way to reach younger consumers. Fila and Adidas conducted successful campaigns, while Helly Hansen generated hype for its products resulting in a tenfold increase in sales in the U.S. over a four-year period, skyrocketing from USD 400,000 to USD 4 million.

"Alternative promotions are an effective way to reach out. It may seem surprising, but people are glad to receive stickers, CD singles or posters," says Attila.

Attila and his company Galaxy work together with a network of similar companies, and have contacts in major cities all over Europe. Together, they distributed 200,000 flyers for Ericsson over a two-week period in October. The countries where the advertising flyers were distributed included the Netherlands, Ireland, Belgium, Germany, France, Norway, Denmark, Italy and the U.K.

"Young people are quite sharp; they see through advertisements. It's difficult for major companies to achieve credibility. But if we combine traditional marketing with unexpected activities, we can achieve a greater impact," says Peter Bodor.

Henrika Lavonius Norén
www.ericsson.com/mtv

That Don't Impress Me Much, sings Shania Twain, serving as a good illustration of how young people view advertising. Something more is required to break through the media buzz and capture their attention.

Photo: Scanpix

Sharp teens increasingly jaded

Teenagers are more aware of marketing ploys than ever before. Bombarded by commercial messages from every direction, they have become jaded by advertising and consequently harder to reach.

"Ericsson's Internet Solutions and Mobile Systems units are also looking to the future; that is, to the communication needs of young people. And regional companies have started to develop products for that target group. One example is our new Chatboard," says Cecilia Lund.

"Some local companies have already initiated marketing activities aimed at young consumers, for example in the U.K. and Italy. Local companies are much closer to reality and

are able to see what the needs of their particular competitive environment are," explains Cecilia Lund.

"Young people are part of a global generation," says Marion Salzman, who heads up Brand Future Group. "Today's young generation is the first to have the opportunity to take advantage of the best of both global and local cultures.

"Teenagers are more aware of marketing ploys than ever before. Bombarded by commercial messages and hype, they are no longer excited by them. Inevitably, they dismiss them as hypocritical," says Marion Salzman.

"A brand name has to be more than just something you buy, since a brand is something

you let get under your skin. Consequently, it has to espouse a vision and values that you embrace.

"Although technology is becoming more intelligent, it has also become an expression of fashion consciousness. Young people, who have grown up with mobility, don't want to use a phone that looks like their dad's. Form and color are just as important as sound quality and portability. They take it for granted that the phone will work. In a world where fashion is everything, you're at a disadvantage if your only message is that you make a good product."

Henrika Lavonius Norén

Ericsson has now clearly laid out the route it plans to take for fixed broadband access. The company plans to focus on three technologies: LMDS, cable TV solutions and different Digital Subscriber Line solutions, as for instance ADSL.

Strategy for fixed broadband access ready

Ericsson's new Pipe Rider cable TV modem can provide data transmission rates up to 10 Mb per second.

W e're now starting to see an enormous demand for broadband services. We've been active in the field for a long time, but now that the market is starting to take off, it's important that we clearly show that we plan to be involved and offer solutions in this area," says Torbjörn Nilsson, Senior Vice President, Marketing and Strategic Business Development, who is behind Ericsson's broadband strategy.

Torbjörn Nilsson

"Development of broadband access is being driven primarily by Internet services, TV and video or so-called multimedia services,"

explains Torbjörn Nilsson. "Ericsson has chosen to move ahead with three different solutions for broadband access, but we are experimenting with other technologies and solutions."

Earlier this year, Contact presented the company's strategies, which included using IP/ATM in its backbone architecture. Ericsson's solutions for fixed broadband access are also based on IP and ATM.

The areas on which Ericsson has chosen to focus its fixed broadband access efforts, are not new to the company. These techniques have long existed within Ericsson, and are now being declared strategically important.

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1. DIGITAL SUBSCRIBER LINE SOLUTIONS

The Collective name for these technologies is xDSL. DSL stands for Digital Subscriber Line, and the "x" is interchangeable depending on the version. For example, ADSL stands for Asymmetrical Digital Subscriber Line.

What all of these solutions have in common is that they utilize the existing copper network to provide greater bandwidth, initially by using ISDN (up to 128 kb/s) and then by using various techniques that utilize high-speed modems. ADSL can, for example, offer speeds of 8 Mb/s for the down link and 640 kb/s for the up link. This means that users can receive data much faster than they can transmit it.

This technique is useful if, for example, you want to download a film from the Internet. ADSL can handle one TV channel at a time. Good picture quality requires around 5

Mb/s. The technique is also appropriate for high-speed Internet connections and telephony.

"Ericsson will make sure that we can utilize the local AXE base stations already installed," says Torbjörn Nilsson.

"Ericsson has installed approximately 120 million copper lines. That's almost 15 percent of all the lines in the world. We'll be introducing a new access product, Access 910, that will be able to handle both ordinary telephony (POTS), ISDN and xDSL. Traditional telephony is switched using AXE, while IP/ATM traffic is sent directly to our access products, such as the Tigris router from ACC, and then into our backbone for IP/ATM. We will also be integrating operation and maintenance of copper networks with AXE. Ericsson has an integrated solution."

Illustration: Kerold Klang

2. LMDS

For the LMDS technology, Ericsson offers a high-speed radio network for microwave transmission using point to multipoint. This method is especially appropriate for new as well as existing operators, in order to quickly connect voice and Internet services to small and medium-sized companies or residences.

A key product in this area is MINI-LINK BASE, which is available for both

the American and the European standard.

A single system offers up to 37 Mb/s with flexible distribution. If there is enough space in the frequency spectrum, several such systems can be installed in the same area. This type of spectrum has already been allocated in North America and is also gaining ground in Europe and other parts of the world.

3. VOICE AND INTERNET OVER CABLE TV NETWORKS

Cable TV operators have a unique opportunity to offer voice and Internet services through their TV networks. The ability to handle two-way communication is, however, required, and many operators, especially in North America, are in the process of installing this facility.

"Ericsson is developing products for this market. We've started with the 'PipeRider' cable modem, which securely connects the home to voice and Internet services. This has been developed pri-

marily in a first-generation version for North America (DOCSIS standard) and as a prototype in Europe (Euro-DOCSIS). We're now also developing the infrastructure portion for voice and data over IP using cable TV, for the North American market. That's expected to be very big next year," says Torbjörn Nilsson.

"We're continuing to build on our router products from ACC and Torrent (the Tigris and AXI 540) as well as telephony over IP systems."

4. OTHER BROADBAND SYSTEMS

Ericsson is working on an order for a broadband data satellite system, Italy's Astrolink. It is one of the few systems that will be built during the period 2002 to 2004.

Ericsson is also experimenting with broadband systems for local networks and network operators, such as tenant-

owners' associations which, with the help of the Ethernet and fiber-optic technology, will be able to offer Internet services such as voice, alarm, data, etc.

"We're also experimenting with wireless LAN technology for high-speed transmissions, such as fast radio access, says Torbjörn Nilsson.
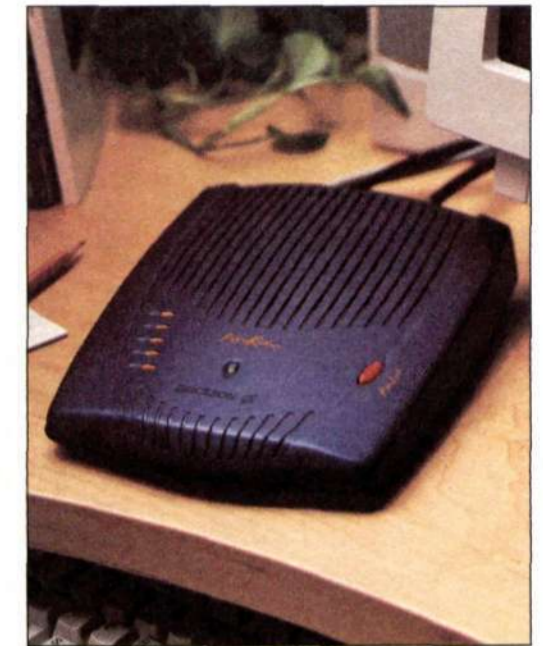
Cable TV modem speeds access

A gigantic market is expected to take off next year when broadband access via cable TV networks becomes available. The boom is projected to start in the U.S., where more than 60 percent of the population is connected to cable-TV. But Europe is close behind.

The key is making the cable TV network substantially more useful than it is today. Instead of only offering TV on the cable network, the networks are being rebuilt to handle two-way communications so that all possible multimedia services – Internet and IP-based voice and data – can be offered.

"This is true convergence, where all conceivable services – television, video, voice and Internet – are being offered over the cable TV network," says Ed Hutton, head of research in the area of broadband access via the cable network.

"The general trend is currently to increase the speed and offer customers an alternative to the 'World Wide Wait'," says Frank McGhee, marketing manager for Pipe Rider in Lynchburg, Virginia.

Small cable modem needed

Users need a small cable modem at home in order to gain access to this service. Ericsson has developed just such a modem, the Ericsson Pipe Rider, which will roll out on the market in November. In addition, operators must adapt the cable TV networks to handle the communications of the future. Ericsson will also soon have the solutions required for this, involving gateways to the traditional telenets, support systems and routers.

The Pipe Rider cable TV modem provides the user with a link that is 100 times faster than today's analog modems or ISDN. Pipe Rider delivers data speeds of up to 10 Mb in transmissions to the user and 1–3 Mb from the user. The modem also has the advantage of always being on, so that the user does not need to call up for a connection.

The IP-based modem is available for both the American and the European market. The U.S. version is based on DOCSIS (Data Over Cable Systems Interface Specifications) and the European version is the world's first data modem based on the Euro DOCSIS standard.

"Previously, manufacturers developed proprietary solutions which were not functionally compatible. Now, however, there are industry standards, which means that the market can gain pace at a serious rate. Ericsson is among the leaders in establishing the Euro DOCSIS standard," says Frank McGhee.

Next generation adds voice

The first generation Pipe Rider handles data transmission, video and sound. However, the second-generation Pipe Rider modems, which will be available during the second quarter of next year, will also be able to handle voice.

Many major operators, particularly in the U.S., have already begun to adapt their networks for multimedia service over the cable TV network. AT&T, for example, has invested USD 120 billion in broadband service to the home. Currently, the market for cable TV modems is only worth about USD 1.5 million. However, by 2003, even the most pessimistic projections are that the cable modem market will be worth USD 20 million. Ericsson is aiming at a 20 percent market share.

"The price of the Pipe Rider will be very competitive. We realized from the start that the costs must be held to a minimum," says Ed Hutton.
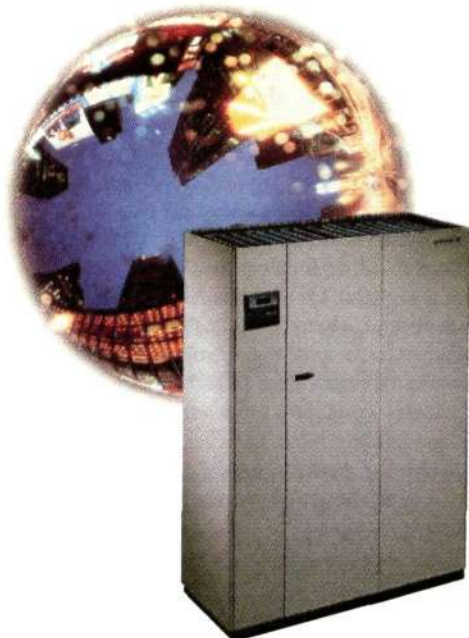
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Gradual switch to broadband using ordinary copper lines

It's possible to provide broadband access to homes without installing new cables, parabolic antennas or setting up a server in the basement.
The technology, which is known as ADSL in one version, makes use of the unused upper frequencies of an ordinary two-wire copper phone line, found in every home.

Currently, there are approximately 900 million copper lines installed worldwide, of which Ericsson has installed 150 million. Now that many of these telephone users are demanding broadband access in their networks, there is a solution that allows operators to implement the technology step-by-step. And it can be done very quickly.

"Our customer base is an enormous asset that we're going to take advantage of," says Ove Anebygd, head of access solutions for fixed networks. "We're now offering our operators a way to move from narrowband to broadband ADSL at their own pace, and in some cases via ISDN."

The solution is the integrated access node, the A910, which will be available at the end of

1999. It can utilize PSTN, ISDN or ADSL cards, as needed, and serves as a platform for developing new services.

The only things needed in order to offer broadband in the home is for the operator to add an ADSL card in the local switch, keeping pace with additional new users, and for the user to get an ADSL modem for the home. Once those items are in place, it is easy to surf the net at full capacity – 8 Mb/s inward to the home and 1 Mb/s outward – in tandem with either one or two voice lines.

An Access 910 node can serve 1,500 ordinary telephone subscribers, 750 ISDN users or a few hundred ADSL users, or a combination of these at proportions chosen by the operator.

VARIOUS DSL SOLUTIONS

There are several different DSL (Digital Subscriber Line) solutions available.

ADSL stands for Asymmetrical DSL, which means that there is more capacity in the downlink to the user than in the uplink from him. SHDSL is a new symmetrical version that developed out of SDSL and Highspeed HDSL. There is also ADSL Lite, for the consumer mar-

ket, as well as Voice over DSL, which is one of the most popular trends right now.

ISDN, Integrated Services Digital Network, is a technique that integrates various digital services such as voice, data and images on the same network. The ordinary telephone network is known as PSTN, Public Switched Telephone Network.

ADSL is one of several solutions available that make optimal use of copper wire by utilizing high frequencies. In the past, ordinary voice traffic could only utilize a very limited, low-frequency spectrum, due to technical reasons. High frequencies require very fast processors and it is only now that microelectronics have developed to the point where they are cost-effective. With DSL solutions, voice remains on the low frequency band, while the higher frequencies, up to 1.1 MHz, are utilized for ADSL communication. A filter

separates voice from ADSL. Currently, an ADSL user can be no further than four kilometers away from the local switching station. If one were to make the network more dense and significantly shorten that distance, to no more than one kilometer for example, significantly faster broadband access would be possible, with speeds of up to 50 megabits per second.

Alcatel was involved at an early stage and still has a market advantage, although Ericsson is equally advanced technically. Ericsson has scal-

able products that function smoothly, and has secured contracts in Austria, China, Finland and Sweden, among other countries. It seems likely that the cost of ADSL to the user will be about the same as for other broadband alternatives – the market will determine the exact price level.

"In terms of the services offered, we see ADSL primarily as providing a rapid means of access to the Internet and point-to-point communication for video conferencing, distance learning and similar applications," says Ove Anebygd.

So far, ADSL has still only attained small sales volumes. Deliveries to date this year total about 1.5 million DSL lines globally, compared with slightly more than 20 million ISDN lines and more than 50 million ordinary telephone lines (PSTN).

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Ove Anebygd is head of access solutions for fixed networks and the person in charge of Ericsson's ADSL solutions.
Photo: Kurt Johansson

The point-to-multipoint MINI-LINK BAS system is an important part of Ericsson's broadband strategy.

MINI-LINK BAS is an important piece in the Ericsson broadband puzzle. The system enables fast IP traffic at a low cost. Its secret lies in the ability of the radio link to direct its capacity to the spot that needs it the most.

Smart radio link enables fast IP traffic

The MINI-LINK BAS radio link, which is an important part of Ericsson's broadband strategy, is a radio access system optimized for high-speed IP traffic. It would be somewhat misleading to call this an LMDS system (based on the American standard LMDS, Local Multipoint Distribution System), since MINI-LINK BAS is a global product.

The advantage of this system is that its broadband capacity can be directed, in real-time, to the connection points where it is needed the most – where current traffic is most intense. This means that fewer radio links are required in a network. Up to 64 fast terminals can communicate with the same radio node, sharing the 37 megabits per second transmission rate.

Total solution

Using MINI-LINK BAS, operators can expand their networks as their telephone and data traffic increases. Traditional MINI-LINK systems comprise a transmission link from one point to another, while point-to-multipoint systems have mainly been features in an operator's access network.

"We view the system as part of a total solution. Ericsson's AXD line of ATM switches and AXI line of IP routers enable us to easily increase network capacity," explains Sivert Bergman, head of the Transmission Solutions unit.

Sivert Bergman

In the immediate future, MINI-LINK BAS will be most attractive to three different customer segments. The first consists of small and medium-sized companies who already use the system to achieve faster Internet connections and faster LAN traffic (in their local network). Large cities are another sector where the system will be needed, especially when 3G networks are in place. A third important target group is building owners who want to offer their tenants broadband at home.

There is already a great deal of interest in the system. Sales representatives at Ericsson

Microwave in Mölndal, Sweden, receive calls from operators every day, asking for more information about the system. Many want to visit the two demo sites currently available in Milan, Italy, and Dallas, Texas in order to test the system live.

"Our sales representatives in Mölndal are having a rather difficult time, at the moment, answering all the questions from interested customers. At the same time, it's great that so many people understand how good our system is," says Sivert Bergman, looking pleased.

Two operators have already signed contracts for the system – one Nordic-based operator and the American operator Next Link. The first version of MINI-LINK BAS is being developed for the 28 GHz band on the American market (LMDS band) and the 26 GHz band in Europe.

Although interest in the system has been expressed from countries in all parts of the world, operators in Europe and North America are currently leading business discussions with Ericsson.

Handles large volumes

Although Ericsson anticipates receiving many contracts in the near future, Sivert Bergman feels confident that the company will be able to handle deliveries on time. At the plant in Borås, Sweden, where the radio links are assembled, a whole new automated assembly system has been installed, capable of handling large production volumes using the same workforce as before.

According to Sivert Bergman, no competitor can currently offer a system that can match Ericsson's product in terms of either capacity or price. Despite the fact that competitors are lagging relatively far behind right now, intense efforts are currently being devoted to further improving the system, to make it even more powerful.

"Currently, we can only speculate as to what broadband applications will become the most popular. It will be quite exciting to see the actual services the end user will want," says Sivert Bergman.

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MINI-LINK BAS IN BRIEF

- The radio access system enables IP services at speeds of up to 37 megabits per second.
- One Nordic and one American operator have already signed contracts for the system.
- Operators in North America and Europe have obtained licenses to expand their

networks.
- Ericsson Microwave in Milan, Italy, developed MINI-LINK BAS in cooperation with ETX in Stockholm.
- Ericsson Microwave in Mölndal, Sweden, is marketing the system.
- Demo sites have been built in Milan, Italy,

First multimedia satellite network

Ericsson is involved in building the first global, multimedia satellite network, known as Astrolink.

Astrolink is designed primarily for business customers who desire to communicate with their subsidiaries or retailers at a low cost, at speeds of up to 100 Megabits per second. The project began in July 1999 and the network is scheduled to be in operation during 2003.

Unlike previous satellite systems such as Iridium, Globalstar and ICO, Astrolink is not intended to supplement a wireless phone system – it is a broadband solution for wireline users.

Fixed stations, offices or homes equipped with satellite dishes will be able to receive the transmitted multimedia information.

Supplying switches

Ericsson's role in the project is to supply switches and other parts for the ground stations needed to handle traffic within the network, which correspond to the mobile switches and base-station controllers in GSM networks. The initial contract, with the Italian firm Telespazio SpA, is worth SEK 1.3 billion.

"We're still in the design phase, but our solution is based on ATM technology, which enables the flexible transmission of large amounts of various kinds of information at a reasonable cost," says Göran Franzon, marketing manager at Ericsson's satellite communications unit. "Our experience of ATM and wireless technologies weighed heavily in our favor when Telespazio SpA placed the order."

Göran Franzon

Several partners are involved in the project. Lockheed Martin Global Telecommunications is responsible for the satellites, Telespazio (owned by Telecom Italia) is in charge of the ground portion, including the development of support systems and network management, while TRW Space & Electronics Group is supplying switching functions in the satellites. Base stations are being supplied by Scientific Atlanta.

All over the world

With nine satellites in geostationary orbit over the equator, Astrolink will cover virtually all of the inhabited portions of the globe. Geostationary orbit means that the satellites will move at the same speed as the earth, maintaining the same position relative to the surface of the earth. Since the geostationary orbit is relatively high, however, at 36,000 km, there will be an approximately half-second delay in voice communication. Initially, four satellites will be launched, followed by five more to increase capacity. They will assume positions over America, the Atlantic, Europe, Asia and Oceania.
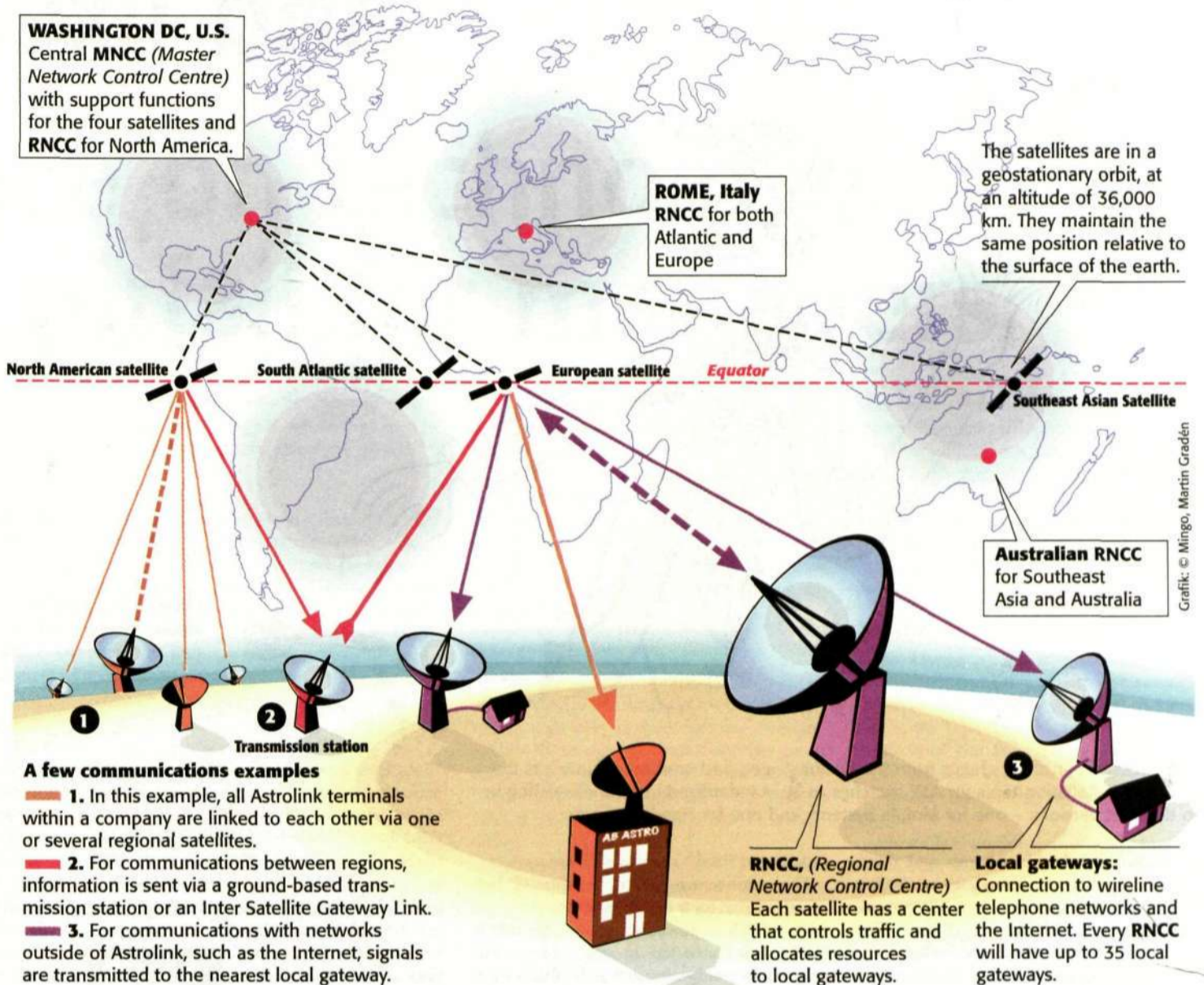
Ground-based complement

Complementing the satellites will be a ground-based system with a central MNCC (Master Network Control Center) providing support functions, as well as four regional centers (RNCC), one for each satellite position, to control traffic and allocate resources.

In addition, there will be several local gateways to fixed telephone networks and the Internet. The idea behind Astrolink is that as much communications as possible should be transmitted via satellite, and that existing fixed networks should be used only when absolutely necessary.

For example, a company with its headquarters in London and local offices throughout the world will be able to use the satellite for all of its internal communications, provided that every office is equipped with an Astrolink satellite dish. If a caller wishes to reach a subscriber on the fixed network in, say, New York, that call is transmitted via satellite to a gateway in New York and sent out on the local fixed phone network.

Competes with fixed networks

Terminal users in the Astrolink system will be able to transmit at up to 10 Mbps (the largest terminal size) and receive at speeds of up to 100 Mbps.

Astrolink will become a competitor to today's wireline networks. It will be cheaper to use Astrolink since customers will only pay for the bandwidth they need (bandwidth on demand).

It will also be simpler, since customers will sign a contract with a single operator, rather than with several, which is the situation today. On the other hand, Astrolink will not become a threat to existing network owners, since it will still only handle a small portion of the overall traffic that can be transmitted via satellite.

"The primary users will probably be multinational companies that require a link to their local networks, forming an intranet with all of their local companies. Examples could include auto manufacturers, gas stations or restaurant chains who want to maintain full control over their sales statistics," says Göran Franzon.

"Other users could include people in areas that currently have poor telephone coverage, such as former Eastern bloc countries, which could acquire a powerful communications network in an instant, or use the system as an alternative to installing fiber-optic lines everywhere."

Different levels of services

Users will be offered multimedia services such as voice, data, videoconferencing, telemedicine and fast access to the Internet and their local workplace network.

Users will also be able to pay for better quality, since different levels of service will be available, including everything from stable transmission speeds for teleconferences, to variable, unspecified speeds, where delays and lost information are acceptable. ATM technology makes all of this is possible.

Moreover, the system will allow business users to create their own virtual networks, quickly and at a low cost.
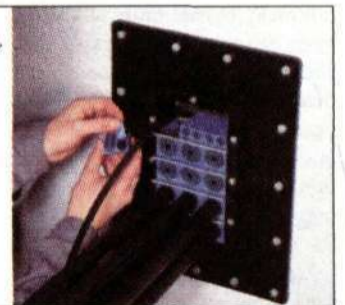
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WASHINGTON DC, U.S.
Central **MNCC** *(Master Network Control Centre)* with support functions for the four satellites and **RNCC** for North America.

ROME, Italy
RNCC for both Atlantic and Europe

The satellites are in a geostationary orbit, at an altitude of 36,000 km. They maintain the same position relative to the surface of the earth.

North American satellite   South Atlantic satellite   European satellite   *Equator*

Southeast Asian Satellite

Australian RNCC for Southeast Asia and Australia

Grafik: © Mingo, Martin Gradén

Transmission station

A few communications examples
1. In this example, all Astrolink terminals within a company are linked to each other via one or several regional satellites.
2. For communications between regions, information is sent via a ground-based transmission station or an Inter Satellite Gateway Link.
3. For communications with networks outside of Astrolink, such as the Internet, signals are transmitted to the nearest local gateway.

AB ASTRO

RNCC, *(Regional Network Control Centre)* Each satellite has a center that controls traffic and allocates resources to local gateways.

Local gateways: Connection to wireline telephone networks and the Internet. Every **RNCC** will have up to 35 local gateways.

Astrolink, a global, multimedia satellite network.   Illustration: Martin Gradén

One tool for both mobile and fixed AXE

Ericsson is combining two AXE installation tools – one from Mobile Systems and one from Fixed Networks – into one new tool as part of the company-wide rationalization program.
Illustration: Annika Bryngelsson/Syster Diesel

The process of banishing ghosts from the business-area past continues. Now it is the turn of the installation tools for AXE switches to be standardized instead of existing in two different versions – one for Mobile Systems and one for Fixed Networks.

"Previously, both Mobile Systems and Fixed Networks had their own complete tool kits for AXE engineering," says Lars Hult, who was involved in the preparations for the change. "The duplication had its own historical background, but the advantages of switching to a standard set of tools became increasingly convincing.

"The new tools not only make life easier for our IE and DT engineers in the local companies but also facilitate development work and save time in the time-to-customer (TTC) chain, which is ultimately the focus of all our efforts. While it is difficult to measure the benefits in financial terms, you can be sure we are talking about large sums – hundreds of millions of kronor."

The common toolkit is also an aid to the general merging of the former Mobile Communi-cations and Fixed Networks business areas.

The engineering toolkit consists of two parts: one part for the basic installation process – the switch engineering, where the switch hardware is connected up with cables – and one part for configuring each individual switch for its specific role in the network. It was decided to use Mobile Systems' Equipment Engineering Support System (EESS) engineering tool and Fixed Networks' Data Transcript Handling (DTH) configuration tool. The respective process owners who are now implementing the transition are Lars Lundqvist of GSM Systems in Sundbyberg, Sweden, and Frank Bevacqua from Ericsson in Australia.

"The Please tool developed by ETX was originally used globally for engineering purposes, for both fixed and mobile switches," explains Lars.

"But Please could not cope with the new AXE packaging structure in an economical manner, so we developed our own tool, EESS, in the GSM area. It is based on predefined packaging of the AXE switch and the reuse in the TTC chain of everything included in the TTM flow. In principle, all that is needed with this system is the site engineering. This reduces the work content by about 80 percent, since all that remains to be done is to adapt the node to the site. ETX also decided to develop its own tool, PPT-SE, with the result that we went our separate ways. The situation became extremely difficult for the local companies."

Frank Bevacqua

"It is often the same personnel who install both mobile and fixed switches," notes Frank Bevacqua. "It's too expensive to have specially trained people for each type of switch, and the duplication of tools made the task exceedingly difficult. By switching to a single tool we can save ourselves a lot of work, but we can do so without people losing their jobs. On the contrary – previously we didn't have time to do all the things that we should in fact be doing, such as developing new tools and generally enhancing our skills.

"It's a major task to convince everyone to introduce the new system throughout Ericsson," continues Frank. "But this decision is expected to produce results even outside our area. When people see that it really is possible to achieve noticeable changes, they will be encouraged to take their own initiatives to solve other problems."

Most of the work involved in the change is planned to be carried out by next July, but the EESS tool is already in use in the mobile units and the DTH tool in the wireline systems.

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Late payments due to carelessness

All too often, Ericsson does not pay its bills on time. Often, this is the result of carelessness or ignorance, and usually only involves small amounts. Only a fraction of a percent of all the invoices that Ericsson receives, result in late payments, but those that do generate unnecessary, negative publicity that could easily be avoided if all purchases were done correctly.

"We have to make sure we're doing things right from the start. A proper purchase order linked to every order is key to being able to pay on time," according to Eva Roth and Mats Schönberg of Ericsson Shared Services, the company's new unit for administration, financial routines and purchasing.

"Unfortunately, errors sometimes occur in our routines. One such shortcoming, which can easily irritate those affected, is when bills from Ericsson's suppliers sit for a long time past their due date without payment. Often, these are small orders, made outside ordinary purchasing routines, for modest amounts. Frequently, this occurs due to a lack of information and poor communication," says Eva Roth, responsible for bill processing routines at Ericsson Shared Services in Stockholm.

Most of the larger orders placed with Ericsson's suppliers involve the use of purchase or-ders. Orders that are correctly filled out from the start facilitate the entire process.

Mats Schönberg, Ericsson Shared Services, recently received the task of going through invoices that had gone unpaid so long that they had resulted in payment injunctions being issued.

"Ericsson Radio Systems, for example, receives over 400,000 invoices every year. Between November 1996 and August 1999, there were 41 invoices that resulted in payment injunctions. All of those cases were cleared up, however, without having to go to collection. As soon as we were made aware of them, we took care of them very quickly," says Mats.

For the years that Mats Schönberg looked at, most of the invoices were for small amounts varying between SEK 100 and 1,000.

"Unfortunately, it's still all too common that orders are placed with the company's suppliers without using proper references. If a reference is missing, the invoice is usually sent back to the supplier, who also has to share some of the responsibility," says Eva Roth.

Sometimes, invoices get as far as the financial unit for registration, but are then not forwarded for authorization by the buyer. That is why it is important for those with financial and administrative responsibilities to be notified of new buyer addresses or when people switch jobs.

"It's embarrassing if carelessness on Ericsson's part results in non-payment cases reaching district enforcement officers. It's in every employee's interest to do things properly from the beginning, both when ordering and when handling invoices," says Eva Roth. Both she and Mats Schönberg admit that there is a great need for information and training among employees in various units that handle invoices and billing routines.

"It's impossible to point out any one of our companies that is a worse offender than any others. Rather, the problem lies with individuals. But most people do, in fact, try to do things properly from the start," concludes Eva Roth.

Eva Roth and Mats Schönberg, of Ericsson Shared Services in Stockholm, are trying to improve Ericsson's record for paying its bills on time.   Photo: Bernt Josephson

Bernt Josephson

It's not enough to simply have the information available on the intranet. Managers still need to take time to communicate in other ways, according to Johan Ljungqvist, director of internal communications at Ericsson.

Reliance on technology major pitfall for managers

More web pages, more web sites, more servers. But has there been an improvement in the quality and flow of information? There's a risk that managers are hiding behind this new information channel and that the intranet actually adversely affects the communication.

In recent years, Ericsson's intranet, which barely existed as a source of information five years ago, has seen explosive growth. Today, it is an obvious component of the information age, and has assumed a dominant position as an information channel in some places.

"There's a risk that the quality of information being spread will decline, or that managers will think that they have communicated with their employees, simply by posting the information on the intranet," says Johan Ljungqvist, head of internal communications at Ericsson.

Considering that there are four million web pages and 5,000 servers on Ericsson's intranet, it's easy to see that the risk is real. Adding a few more pages to the sea of web pages already available, is no guarantee that your message will reach its audience.

"Ultimately, it's about giving people the opportunity to keep up with rapid change. We're going through major changes at Ericsson today, and the only way to succeed at those changes is to improve communications and make sure that people are engaged in the process," explains Johan Ljungqvist.

Ljungqvist quickly draws a diagram on the whiteboard in his Stockholm office. Simply put, Ericsson has to give people the opportunity to understand the whole picture – where the company is going and how that is connected to individual, concrete events. Moreover, everyone wants to know how he or she fits into the new picture. In order to reach everyone, there needs to be a good mixture of channels such as the intranet and employee newspapers, along with more personal sources such as group and individual meetings.

Organizational trend

Johan Ljungqvist believes that he is seeing a trend within the organization towards increased reliance on the intranet as the main medium for the dissemination of information.

There are many examples of comprehensive internal print magazines being discontinued in favor of the intranet. This change, however, does not necessarily facilitate communication.

"It's difficult to generalize, of course, but there's usually a danger associated with discontinuing magazines. For one thing, not every-

one has access to the Internet, and for another, newspapers and the Internet fulfill different functions," Johan Ljungqvist explains.

"The important thing is that we think about our messages and what we want to accomplish with them. After that, we choose the medium that best meets both our needs and those of the recipient. There's a danger when you can't see the difference between the medium and the message itself."

Convey a feeling

A newspaper format is good for more in-depth articles that convey emotion and which detail longer sequences or developments. Newspapers are the bearers of culture in our fast-paced society. The web, in turn, is outstanding for handling brief, concise information, preferably straightforward news stories and individual items.

"In my travels around the globe, I meet other communication directors and I'm sometimes asked whether we're going to shut Contact down, now that the intranet has been developed. I usually reply that it's not even up for discussion."

But the most important thing for good communication is still personal interaction between people, according to Johan Ljungqvist. It's important to see that the recipient has really understood and accepts the message, but al-

so to create a dialogue, which is the key to feeling involved and participatory.

"Communication is a critical skill for Ericsson. It's only through communication that we can create strong ties between an individual's work and satisfied customers. More and more qualified communicators are being hired within the company than ever before, which I see as proof of that," says Johan Ljungqvist.

Mapping

Johan Ljungqvist has now commissioned a comprehensive mapping of Ericsson's communications media. The survey will be completed first in the U.S., the U.K., Australia, Italy and portions of the Swedish organization. This study will show where there are shortcomings in communication and how they can be improved.

The study is also important from a branding standpoint. There are too many local, internal brands that do not contribute towards strengthening the Ericsson brand name, but are instead weakening it and working against it.

"There can only be one brand, and there is a lot of money, time and energy to be earned in clarifying that," says Johan Ljungqvist.

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■ FROM THE PAST ■

Creative carnival in 1930s Mexico

➤ Ericsson has a long and interesting history in Mexico. One of Ericsson's employees, Sigfrid Mohlström, was already working there back in the 1910s.

His son, Harold Mohlström, born in Mexico, became a legendary employee, working for Ericsson in Mexico up until 1985. He sent this photo, along with a note about it, to the editors of Contact.

In September 1930, Mexico commemorated the 120th anniversary of its independence with celebrations all over the country.

There was a real carnival atmosphere, with residents of the capital, Mexico City, participating in various events.

One of these events was a parade with allegorical floats, musical groups and more. The business community did its part by setting up various decorations and triumphal arches along the parade route.

Teléfonos Ericsson sponsored one of

the most creative and eye-opening figures. It was a twelve meter tall robot that was able to turn its head, had flashing eyes and a rotating telephone dial.

The dial was truly a sign of the times. Telephone traffic was just in the process of being automated in Mexico City. In the future, it would be the "automatic robot" that would connect phone calls, rather than female telephone operators using manual centralized battery stations. A new era was beginning.

From an unpretentious start in 1904, Ericsson eventually became one of Mexico's largest operators, going by the name of Teléfonos de México. The company was acquired by the Mexican government in 1992. Since then, Teleindustria Ericsson in Tlalnépantla has been the leading supplier of telecom equipment in the country.

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This is how Ericsson presented itself in Mexico in 1930. The telephone dial was a new innovation at the time.
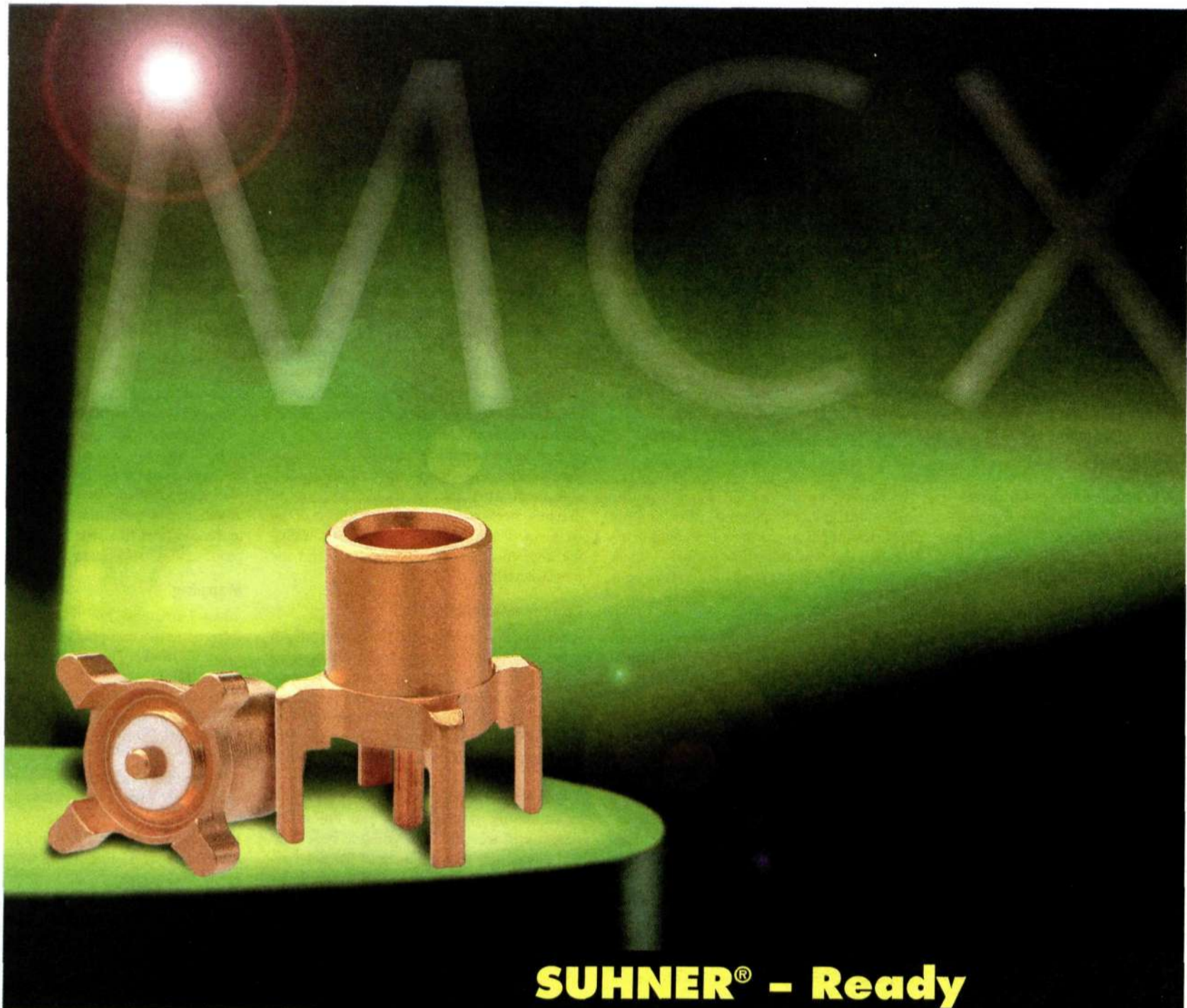
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www.hubersuhner.com

Ericsson in Spain is the main sponsor of the Euro Open Movistar auto race series, which started at the beginning of October in Madrid. The company expects to benefit from its visibility at auto racing events, since the sport attracts an affluent target group – men and women between the ages of 25 and 45.

Auto racing attracts buyers

Fast cars and striking Ericsson telephones are both a part of the Euro Open Movistar auto race, which began in Madrid in October. Ericsson in Spain is the main sponsor of the race.

The Euro Open Movistar auto race, whose drivers are between 17 and 23 years old, is the young drivers' answer to Formula 3000. The race, held on an oval racetrack, averages speeds of 250 kilometers per hour. Ericsson in Madrid sponsors two drivers, Rafael Sarandeses, of Spain, and Laurent Dalahaye, of France. In Spain, auto racing is popular among both men and women, with a majority of spectators between the ages of 25 and 45 years.

"The people that attend auto races are an important demographic group. They're interested in technology and have money to spend. Operators and retailers are also invited to the various race events," explains Patricia Losa-Alvaro, who is responsible for sponsorship issues at Ericsson in Madrid.

There are several reasons why the company chose to sponsor auto racing in particular.

"We like to draw parallels between the high speeds of the cars and the high speed of telecommunications," says Patricia Losa-Alvaro.

The 10,000 race spectators also have the opportunity to visit Ericsson's tent, where most of Ericsson's terminal products are on display, including the most recent mobile phones, the MC 218 handheld computer, DECT telephones and various mobile phone accessories such as Chatboard (a miniature keyboard) and portable handsfree units.

Patricia Losa-Alvaro was on hand in the tent during the first race event.

"The T28 and Chatboard have attracted the most interest so far. Many people are fascinated by the telephone's design and small size."

Races are held in six major Spanish cities, including Madrid, Barcelona and Valencia. The preliminary competitions started in October and will continue through the first week of November. This is the first time that Ericsson in Spain has sponsored the Euro Open Movistar, and it is the company's biggest sponsorship event this year.

Ericsson in Spain is already planning next year's sponsorship events. And while nothing is finalized yet, the focus will likely be on motorcycle racing and beach volleyball.

"We still have to evaluate which customer segment we should be focusing on, but we are leaning towards this type of sponsorship event," says Patricia Losa-Alvaro.

Ulrika Nybäck
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SPONSORSHIP

Here is a list of a some of the sponsorship and Corporate Citizenship activities being undertaken by Ericsson companies around the world over the next few months. Tips regarding events can be sent to: ulrika.nyback@lme.ericsson.se

September 1 – November 30: Ericsson Mobile Communications in Sweden is sponsoring Göran Kropp's lecture series. (In 1996, Göran Kropp climbed Mount Everest without oxygen.)
November 11: MTV Europe Music Awards in Dublin, Ireland. Ericsson's headquarters and Mobile Phones in Sweden are the sponsors.
February 10–13: Ericsson in Australia (EPA) is sponsoring the Ericsson Masters golf tournament in Melbourne.

Ongoing projects
Ericsson in Brazil, (EDB) donates money to the World Childhood Foundation. The money collected is used to help vulnerable or abused children around the world. Sweden's Queen Silvia Bernadotte established the foundation.
Ericsson in Canada, (EMC) supports a project which helps people who suffer from domestic violence.
Ericsson in Canada, is the sponsor of the BCTel Open golf tournament. The one-year sponsorship contract started on January 1 this year.
Ericsson in Canada, (EMC) is a regular sponsor of the Mont Tremblant World Cup Freestyle Skiing competition.

Ericsson in China, (ETC) is sponsoring a Volvo S40 in the Chinese Touring Car Championship.
Ericsson in China, (ETC) is sponsoring a table tennis tournament.
Ericsson in Switzerland, (ERS) is sponsoring the Züri Turf horse-race.
Ericsson's head office in Sweden, supports the Folkoperan opera house in Stockholm.
Ericsson's head office in Sweden, supports the Young Entrepreneurs project.
Ericsson in Germany, (EDD) is sponsoring the FNL Europé football series, a contract that extends over two years.
Ericsson in Taiwan, (ERT) is sponsoring the "Ericsson Classic of APGA Tour" golf tournament in Taiwan.

AXE films on Internet

Ericsson has gone to the movies with four films about AXE. Something to hire from the video store on a Saturday evening? Not exactly. But definitely worth checking out on the Internet.

Produced by Maria Hofberg and Tom Walsh, "AXE: the films" were designed to make customers and Internet surfers more aware of AXE switches and of Ericsson as an innovative company.

"With these films we want to create a shift in perception of AXE and associate it with the Internet medium. We also want to show that we are leading the industry in terms of putting applications out on the Internet," says Maria Hofberg.

The core message of the films is that AXE is open for communication. "AXE is the world's favorite switch and is selling better than ever. AXE has been open to change over the last 20 years, crossing all voice and mobile standards. Ericsson is the only company that has this power and versatility in terms of a switching platform," says Maria Hofberg.

The film campaign is part of a broader effort to expand Internet advertising and reach a wider buying community. In addition to this, Wireline Systems has "bought switching" at AltaVista for the remainder of this year. "Every person that enters the word "switching" in AltaVista will see our banner with a link to our campaign site." The four animated films are made in the Japanese Manga style and bear the dramatic titles of: Pushing the Limit, Money Talks, Freedom of Speech and Choice without Compromise.

Cari Simmons

www.ericsson.com/switching/axethefilms

Equality prize

Ericsson is to award a prize in recognition of the best activity to promote the concept of equal opportunities for all employees.

The prize, which will be called "The Ericsson European Equality Award," will initially be awarded for initiatives to promote equality between men and women.

In a recent internal memo, Ericsson's President Kurt Hellström urged company managers to become personally engaged in actions to improve equality at all levels: "Our world is changing, and so are we. For Ericsson to be the company that defines this world, we must mirror it internally. To do so, we must become a diversified workplace with men and women of all ages and of all cultural and educational backgrounds"

The prize will be awarded in December. The reason for instituting this prize is that equality encourages productivity.

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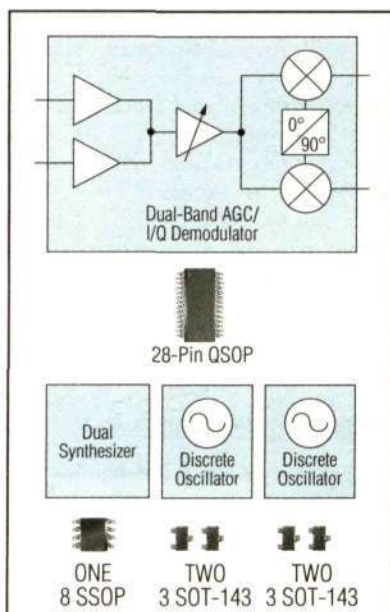mia.widell@lme.ericsson.se

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Contact No. 18 1999   **Updated November 1**

ERICSSON RADIO SYSTEMS AB, KISTA

Vitame GSM in Czech Republic

Roll out of a new huge network. Ericsson is preparing to roll out the third GSM network (900/1800). The final decision will be taken before the end of September. The planning is based on a complete turn key solution, from site acquisition to operation & maintenance.

For its rapidly expanding operations, ECZ requires the following professionals:

RND engineers
ND engineers
Civil works specialists/experts
RBS supervisors/test Engineers
ML supervisors/test Engineers
BTS Design engineers
SS Support Engineers
BSS Support Engineers
O&M Engineers

Managerial positions:

Operations
Project Management
RND and TND
Logistics
Civil Engineering and Construction
NO&M
HR Basic

● Requirements for all positions: Long experience of AXE and GSM environment, as well as international experience. You should also have power of initiative, high motivation and a good ability to co-operate. For the managerial positions you must have earlier experience as a manager.

Contact: Solveig Vallentin, Human Resources, +46 70 374 85 23, solveig.vallentin@era.ericsson.se, ERA/LP/NO Lars Kristoffersson, Operations, +46 8 764 1268, lars.kristoffersson@era.ericsson.se.
Application: Vitame GSM in Czech Republic, Ericsson Radio Systems AB, Solveig Vallentin, solveig.vallentin@era.ericsson.se.

ERICSSON RADIO SYSTEMS AB

Established in June 1999, Ericsson Services is the new name for service excellence within Ericsson, a Business Unit in the Network Operators & Service Providers segment. Ericsson Services combines the best elements of OS's service unit network to create a single focused organization.

The result – a dynamic resource which aims to build on our impressive sales growth and maximize business opportunities well into the new millennium. To find out more about this new force in service solutions please visit our website at http://ericssonservices.ericsson.se/. The future is Data Communications and IP - and the Datacom Networks business unit is leading the way for Operators and Service Providers to transition to the Packet world. To BU Services working close with the Sales unit within BU Datacom & IP Telephony we are now looking for a

Asia Pacific Sales Support within Datacom Networks is presently discussing with one of the major operators in the Far East. The deal concerns front edge technology development and products, if Ericsson gets the order it will be a major break-through order in the Far East.

We will make some customer adaptation to our ATM switch AXD301 and if our tender is successful a large volume order is within reach. Customer discussions will prevail during the autumn. Tests will start late next summer and volume deliveries are scheduled for end of 2000.

Senior Project Leader

● We are looking for a senior and very experienced project leader that can start to work within short and that will be prepared to move to Japan next spring- and to stay in Japan for about 1 year.

The successful applicant should have a long and verified experience as a supply project leader for major projects-orders. The applicant should also have verified experience from conducting business in the Far East. If you forward your application by e-mail, please send a copy to Stefan Flodberg and Werner Röhrl.

Contact: Stefan Flodberg, 08-422 0667, stefan.flodberg@etx.ericsson.se, Werner Röhrl, 08-422 2029, werner.rohrl@etx.ericsson.se, Jesper Smith, 08-422 1798, Jesper.Smith@etx.ericsson.se.
Application: SENIOR PROJEKT LEADER, Ericsson Telecom AB, NA/ETX/D/H, Siw-Britt Johansson, 131 89 Stockholm, Siw-Britt.Johansson@etx.ericsson.se.

ERICSSON CANADA

Technical Assistance Specialist

● Job requirements: Degree in engineering, engineering technology or science or equivalent work experience. Several years related experience in telecommunications. Working knowledge and understanding of cellular systems. Five years experience with Ericsson or equivalent cellular experience. Trained in CMS-8800 switching and cell site operations and maintenance (experience an asset). Trained in AXE Software (i.e. PLEX) with ability to troubleshoot on software level. Excellent oral and written communication skills.

Job Description: 24 hour "First Line" technical/emergency support for CMS88 networks. Preparations of procedure and verification of functionality of functions/corrections regardless of complexity.

Responsibility to define/verify a new AS. Communicate and assist customer/field personnel in technical and operational questions. Assist in emergency situations to resolve equipment and/or procedure errors. Planning, control and direction of a CNA implementation. Reporting and follow through of customer problems via various software tools.

Customer Interface Manager, Telesystems

● Job Requirements: Degree in engineering, engineering technology or science or equivalent work exp. Several years related experience in telecommunications. Working knowledge and understanding of relevant product lines. Three years experience within Ericsson or equivalent experience. Excellent oral and written communication skills. Demonstrated leadership/supervisory abilities. Basic ISO training on 9002 standard.

Job Description: Primary customer interface for all technical support issues for respective customer. Accountable for ISP, and Customer Service Requests (CSR) turnaround time for respective customer as per contract. First line technical support coordination towards the customer. Utilize assigned staff to analyze and resolve major problems in their respective areas. Generate work processes for interface with customers and with second line support.

Assist the customer in problem analysis and resolution either independently or utilizing assigned Ericsson resources. Monitor the flow of Customer Service Requests (CSR). Top ten issues coordination. 24 hour responsibility for crisis management. Assemble/maintain customer performance statistics and disturbance reporting. Primary involvement with First Market Introduction of software, features, etc. Develop technical presentations. Help contract managers negotiate Service and Working level agreements. Develop and maintain a positive customer relationship.

Contact: Tim Danks, Manager Customer Support, tim.danks@emc.ericsson.se.

ERICSSON CANADA, TECHNOLOGY AND SOLUTIONS, MISSISSAUGA, ONTARIO, CANADA

Product Manager, Switching Network Products

● Job Requirements: Degree in engineering or related discipline, or equivalent work experience. Five years in telecommunications environment, ideally in Product Management role. Analytical ability. Excellent communication skills. Ericsson knowledge.

Job Description: Translates customer needs and wants into technical specifications. Interfaces with customer on all technical issues related to new switching products and switching features introductions. Makes customer presentations on technical aspects and features of products. Follows and understands Canadian market trends, opportunities, market developments, regulatory and standardization activities. Provides technical expertise on products from global Ericsson portfolio; assists the business manager to assess market fit of new products coming from product units and provides technical feedback to product units. Sources products from Ericsson product units or third party supplier. Assists Business Manager to determine products to discontinue. Manages the product lifecycle through the evolution of technology. Manages the technical aspects of new product launches or additions of features to ensure their effectiveness. Gathers information and/or conducts technical studies in order to facilitate the introduction of new products with minimal impacts to existing systems. Keeps contact with the market by participating or attending technical presentations, discussions, tradeshows, seminars etc. Participates in RFI/RFP work. Manages technical solutions with Core 3.

Contact: Jasbinder Dhindsa, Jasbinder.Dhindsa@emc.ericsson.se, Manager Cellular Network Solutions

ERICSSON COMMUNICATIONS LTD, INDIA

Ericssons involvement with India and Indian telecommunications goes way back to 1902, working closely with local companies, installing and implementing new telecommunications technologies. 1995 witnessed Ericsson once again playing a lead role in launching Indias cellular revolution.

India has leap-frogged directly into digital cellular services and the AXE-the most widely used digital switching system on earth (it is used in 117 countries), handling over 50% of all the worlds international calls (and 99% of all Indias) –switching system forms the basis for mobile switching centres now in use here. We are looking for professionals for the following positions:

The Indian telecom market is entering a phase of high growth with GSM rollouts around the country gathering speed, with new players starting mobile services, with PTT accelerating the deployment of basic telephony services, with competition being introduced in basic services, with the long distance telephony market being opened for competition and with numerous ISPs starting services.

In the next phase of growth, it is anticipated that there will be a lot of interest in converged solutions (fixed mobile), next generation networks (IP/ATM in backbone) and introduction of 3G services.

Solutions Expert

● Ericsson India invites applications for the position of Solutions Expert to handle the challenge of Ericsson taking and sustaining a leadership position in this market.

The candidate shall work closely with the Product Management and Network Solutions team in India, as well as Marketing, and bring solutions to the market that are targeted and tailored for the needs of the market. The candidate shall also maintain good networking with several Product Units belonging to various Business Units.

The responsibilities for this position will be: Working with various bid teams to facilitate the creation of the most effective solutions for different tenders and major proposals. Working with the different Customers that Ericsson works with in the market to identify revenue generating business opportunities. Guiding the customer in leveraging the deployed network to maximise the utilisation of the same. Supporting the local management team in setting the strategic direction of the local Ericsson company. Participating in lobbying activities at various forums to ensure that Ericssons business interests are well protected. Facilitate the build up of competence in the local staff, in various area of expertise.

Competence in GSM Systems is required and competence in one or more of the following areas is desirable: Datacom (IP/ATM)Wireline and Access Systems. Value Added Services – especially IN/Prepaid, Wireless Data. 3G/UMTS. Transmission Products (SDH, WDM).

Possess excellent leadership qualities, communication and interpersonal skills. Should be degree/diploma holder with minimum ten years of experience, out of which at least 5 years should be in Product Management or Solutions management.

The initial contract will be for one year.

SS CME 20 System Support Expert

● The main responsibilities for this position will be to manage, co-ordinate and participate in network investigations and problems at highest technical level and to address customers expectations/ needs. Provide technical competence for resolving complex problems in the networks. Provide technical advice and assistance to support engineers and Managers. Transfer trouble shooting skills and competence to system support staff. Also participate in emergency services.

The competence requirement are: Minimum of 5-8 years working experience on AXE 10 Digital Switching application Systems, of which at least 3-4 years experience should be on CME20/CMS40 SS Systems in Verification and/or Support environment. Experience on IN is desirable.

Candidates with excellent trouble shooting skills and experience on other application systems/product line can be considered for this position. Candidates should also have good English Communication skills. Qualification: Degree in Computer Science or Electronics or Telecom Engg. The initial contract will be for 1 year.

Contact: ECI/HRM Samir Prakash, +91 11 618 0808, hrc.eci@eci.ericsson.se.
Application: Ericsson Communications Ltd, The Great Eastern Plaza, 2-A, Bhikaji Cama Place, New Delhi, 110 066, India

ERICSSON TELECOMMUNICATIE B.V., RIJEN

Within the Business Line Customer Services (GCSO) we have a vacancy for the function of:

Customer Service Specialist

● Goal/Challenge: The Global Customer Service Office (GCSO) within the Business Line Customer Services has a leading role within Ericsson's Global Customer Support. The GCSO is the single point of contact for Global Operators to raise Customer Service Requests to Ericsson. The GCSO has 3 Hubs, located in three different time zones (Holland, United States and Australia) which enables continuous 24Hr support to Global Operators. All activities are being executed in an international environment. Our organisation is characterised as challenging, dynamic, progressing and provides excellent opportunities for personal development.

Tasks: Responsible for managing internal relations from a technical point of view. Responsible for well functioning of the sold services. Solving CSR's reported by the customers. Monitoring of follow up of support requests escalated to the GRC. Advises Customer Service Manager regarding services. Report to the customer about delivered services. Guide colleague trainee engineers (mentorship).

Required competence: Education minimum HBO-level. Knowledge of AXE. 5 years experience on AXE within Ericsson as a SW troubleshooter. Able to work under pressure. Attention for detail. Team player. Good communication skills in English.

Contact/Application: Julie Verhees, +31 161 249 850, julie.verhees@etm.ericsson.se

ERICSSON WIRELESS SYSTEMS, USA

Product Manager

● The business unit BMOC is responsible for Ericsson's CDMAOne and CDMA2000 product line. To our headquarter in sunny San Diego we are looking for an experienced Product Manager to take responsibility for the core network and key network elements in the system.

The product manager will be responsible for developing product plans and road maps and secure alignment with key customer objectives and impacted PU's. Furthermore he/she will be responsible for defining, creating justification (business cases) and driving product requirements. The product manager will be responsible and accountable for technical and commercial decisions regarding his/her products.

In order to be considered for this position you must have a good technical background with good understanding of core wireless networks and be business oriented. Furthermore, excellent interpersonal, communication and presentation skills are required. Hard working, result oriented and ability to work independent as well as in team is a must.

Application: egil.gronstad@ericsson.com

ERICSSON PORTUGAL

The deregulation of the Portuguese Telecom market has created a tremendous growth. Ericsson supplies all three GSM operators and some new operators for fixed network. The Switching Implementation Department needs

to grow in order to meet the demand on new implementations, extensions and implementation of new products (GPRS, Tigris, AXD, IPT etc.)

We provide the GSM operators Telecel and TMN as well as the new wireline operators with implementation services. We have our office close to Lisbon, but our customers have sites all over mainland Portugal as well as on Madeira and Azores. We are looking for the following persons to strengthen our team.

DT Engineer/Team Leader

● To co-ordinate and build-up the DT group and plan all activities for the team. Work closely with the Customer to collect ER in order to build DT for new exchanges and expansions. Lead improvements and introduce new processes to shorten the DT lead time and increase the quality. Support the Test Engineers in the field during integration activities. Participate in customer meetings to discuss technical solutions and problems. Secure that resources and competence is available when needed.

Experience in working methods, procedures and tools for GSM/SS or Wireline Nodes are required. Knowledge about IN as well as GREGER, DTSS and DTH is an advantage. You should be flexible and be able to take own initiatives to get things done. Transfer of competence to local staff is vital. Naturally you need to have a driving licence.

AXE Senior Tester/ Team Leader

● To co-ordinate the Testing group and plan all activities for the team. The team presently consists of 8 Test Engineers with 1-3 years of experience. Lead improvements and introduce new processes to shorten the testing and integration lead times and increase the quality. Support the Test Engineers in the field. Participate in meetings to discuss technical solutions and problems. Secure that re-sources and competence is available when needed.

Previous experience as test leader or test manager is

required. Knowledge about working methods, procedures and tools according to the TTC flow is an advantage. You should be flexible, well structured and be able to take own initiatives to get things done. Transfer of competence to local staff is vital. Naturally you need to have a driving licence.

AXE Senior Tester

● Perform expansions of BYB202 and BYB501 equipment on both mobile and wireline switches. Start-up and test of new nodes. Integration of new switching nodes into the existing networks. Plan and perform swaps of different types of equipment. Perform test preparations to save time and gain quality. Establish methods and procedures for handling of new products. Participate in customer meetings to discuss technical solutions and problems. Support the less experienced Test Engineers in the field.

Experience in Integration of switching nodes as well as extension of switches in service is required. Knowledge about IN as well as working methods, procedures and tools according to the TTC flow is an advantage. You should be flexible and be able to take own initiatives to get things done. Transfer of competence to local staff is vital. Naturally you need to have a driving licence.

Contact: Conny Andersson, Switching Implementation Manager, conny.andersson@sep.ericsson.se, +351 1 446 6325.
Application: SEP/OX Conny Andersson, conny.andersson@sep.ericsson.se, fax: +351 1 446 6660

ERICSSON UK LTD

The general purpose of the Market Support Office (MSO) in the UK mainly is to provide SW supply and support for our main customers Vodafone UK, one2one, BT Cellnet, MANX Telecom and Guernsey Telecoms. In addition, as being part of a shared service unit, similar services are provided to other domestic customers, e.g.

British Telecom, as well as on a global basis, e.g. ICO Global Communications.

The Value Added and Mobile Datacom Services department is part of the UK MSO and is handling all non-AXE products. The VA-MDc department is divided in three sectors - UNIX Services, Messaging and Mobile Datacom.

Due to the very nature of these technologies, a great expansion in this business segment is underway and the current pool of staff now has to be reinforced.

If you feel that you are a positive individual that is characterised by positive learning and development together with proactive skill and knowledge acquisition, you probably would fit into our team.

Other significant features with a potential candidate would be a flexible approach to change, customer focus, excellent communication and influencing skills, team working, proven analysis and problem solving ability, creativity, drive to deliver results, positive learning and quality focus.

All positions below require as a minimum a technical degree or equivalent, experience in handling technical issues toward a major customer and a minimum of 2 years previous experience with Ericsson. The terms of employment, which could come in question for the roles below, are local employment, short or long term contracts.

Supervisors

● There are currently two supervisor positions vacant, one covering the MESSAGING area and one covering the MOBILE DATACOM area.

KEY RESPONSIBILITIES: This is a management position that also allows an element of limited technical hands-on activities. The role involves direct day to day supervision of group staff, correct execution of supply processes and liaison with external support and supply organisations in resource issues, including set-up of temporary task groups when so required.

More direct management responsibilities includes coaching and development of staff, management of personnel administrative issues, such as monitoring of holidays, flexi and overtime together with completion and review of PPD for each member of staff in the group. The supervisors are part of the department management team and thus actively contribute to the setting and delivery of the department objectives.

SKILLS/COMPETENCIES: These roles require a sound background from an area related to the sector applied for, commercial and financial focus together with general management skills.

UNIX Service Engineers

● There are a number of positions vacant within the UNIX Services section related to the following product areas: OSS, SOG, SMAS, BGW, EIR or IMS/XMATE. Some positions may incur multiple responsibility within several product areas.

KEY RESPONSIBILITIES: These roles have the responsibility to provide expertise for the supply and support activities involved with any of the relevant products. Local processes are used for the supply project activities and the users continuously contribute to the development of the processes. Support is carried out in a local test environment, as well as at the customer sites, through traditional fault analysis and trouble-shooting. Participation in the emergency rota for the affected products may be available.

SKILLS/COMPETENCIES: This role requires basic understanding of mobile telephony systems together with experience from UNIX (Solaris) system administration and application support. Proven skills with any of the relevant products are also required together with previous experience of support and supply in a UNIX environment. Advantageous experience is General Data Communication, X25 protocols, Sybase Database Administration, VMS Administration (for EIR), General TMOS experience, Basic AXE/IOG Configuration, Internetworking, NT, any programming language, etc.

Messaging Engineer

● There are a number of positions vacant within the Messaging section related to the following product areas: MXE Send-IT/ICSA and CMG/SMSC. Some positions may incur multiple responsibility within several product areas.

KEY RESPONSIBILITIES: These roles have the responsibility to provide expertise for the supply and support activities involved with any of the relevant products. Local processes are used for the supply project activities and the users continuously contribute to the development of the processes. Support is carried out in a local test environment, as well as at the customer sites, through traditional fault analysis and trouble-shooting. Participation in the emergency rota for the affected products may be available.

SKILLS/COMPETENCIES: This role requires basic understanding of mobile telephony systems together with long experience of application support on either UNIX/NT platform. Proven skills with any of the relevant products is also required together with previous experience of support and supply in a UNIX/NT environment.

GSN Engineer

● There are a number of positions as GSN engineer vacant within the Mobile Datacom section. Some positions may incur multiple responsibility within several product areas, involving additional MDc products and applications.

KEY RESPONSIBILITIES: Within this role falls the responsibility to provide overall product support for the GPRS Support Node, GSN, including provision of support for customer demonstration and integration testing together with system support. Naturally this also includes software faulting and resolution, even after the full system roll out, as well as active implementation of SW/HW upgrades. Participation in the emergency rota for the affected products may be available.

SKILLS/COMPETENCIES: This role requires basic understanding of mobile telephony systems together with a sound background from a UNIX (Solaris) environment, including programming in C++ or equivalent object oriented language. Any experience of the following is an advantage: General datacom, Internetworking, Bridging/Routing, LAN/WAN technologies, TCP/IP protocol suite, IP Subnetting, Ethernet, X25, ATM, Frame Relay, RADIUS, Gateways/Servers and 3PP such as Marconi and Cisco, VoIP, WAP, PowerPC (VxWorks), NT, Java, Erlang, CORBA, WML, HTML.

Datacom Engineer

● There are a number of positions as Datacom engineer vacant within the Mobile Datacom section. Some positions may incur multiple responsibility within several product areas, involving MDc products and applications.

KEY RESPONSIBILITIES: Within this role falls the responsibility to provide expertise in the data communication area, which through interconnection of the GSM infrastructure and the GSN nodes provides GPRS. Further responsibility includes assistance in the overall product support of GPRS, and provisioning of support for customer demonstration and integration together with system support including trouble-shooting.

SKILLS/COMPETENCIES: Basic understanding of mobile telephony systems together with long experience from the Datacom area, preferably including Ericsson products such as ATM (AXD 301) and Frame Relay (PFA 660). A suitable applicant should keep a high level of competence in the data communication area, including Internetworking, Bridging/Routing, LAN/WAN technologies, TCP/IP protocol suite, IP Subnetting, Ethernet, X25, ATM, Frame Relay and Gateways/Servers. Any experience of RADIUS, any 3PP such as Marconi and Cisco, UNIX/NT, any programming language (C++, Java, Erlang, Perl or equivalent) would be an advantage.

MDC Engineer

● There are a number of positions as general Mobile Datacom engineer vacant within the Mobile Datacom section. Some positions may incur multiple responsibility within several product areas, involving additional MDc products and applications.

KEY RESPONSIBILITIES: The purpose of this role is to provide overall product support for the new Ericsson Mobile DataCom products and applications, currently being introduced to the markets. Among these are e.g. Web on Air, GSM On-The-Net, User Service Centre, WAP, etc.

The role involves provision of support for customer demonstration and integration testing together with system support.

Naturally this also includes software faulting and resolution during field trial as well as after the full system roll out of the commercial products.

SKILLS/COMPETENCIES: The role requires a basic understanding of mobile telephony systems and a sound background from a UNIX/NT environment together with an understanding of Voice over IP.

Further requirements are a high level of competence in the data communication area, including Internetworking, Bridging/Routing, LAN/WAN technologies, TCP/IP protocol suite and Gateways/Servers. Experience of any programming language would be advantageous.

Contact: Joakim Disenhag, Manager, Value Added & Mobile Datacom Services, +44 1483 305878, joakim.disenhag@etl.ericsson.se.

MU CARIBBEAN

Project Manager and Implementation Manager - GSM project in the Caribbean. The MU Caribbean is responsible for marketing and deliveries of Ericsson products in the Caribbean region covering an area of 230,000 square kilometres and with a population of 27 million people. Activities are carried out from the main office in Puerto Rico and other offices in the Caribbean.

We are now preparing for our first GSM project in the region and are therefore looking for a Project Manager and an Implementation Manager.

Project Manager

● The Project Manager should head a project organisation, which includes function for: Implementation of MSC/BSC's (Mobile Switching Center/Base Station Controller) and BTSs (Base Transceiver Stations). Technical Support Management and Product Management during the implementation period and establishment of a Field Support center. Administration which handles financial control, staff issues and logistics. Partly Sales & Market activities during the build up phase.

Implementation Manager

● The Implementation Manager should lead the building of the network, which includes: MSC/BSC's (Mobile Switching Center/Base Station Controller) and BTS (Base Transceiver Stations). The tasks include planning, resource requisition, leading and following up the implementation in accordance with the project time schedule, budget and quality requirements.

The Implementation Manager will report to the Project Manager.

The Project Manager as well as the Implementation Manager should have several years of experience of implementation of large cellular networks -preferably in developing countries. The candidates should also have excellent skills in the Spanish and English languages – both in writing and verbally.

Only Ericsson employees will be considered for the positions.

Contact: Arne Palmkvist, Director Project Management, +1 787 758 1770, Kerstin Efraimsson, Human Resources Manager, +1 787 758 1770 ext. 242.
Application: noelia.borrego@ericsson.com

MU CARIBBEANS, JAMAICA OFFICE

Controller

The MU Caribbean is responsible for marketing and deliveries of Ericsson products in the Caribbean region covering an area of 230,000 square kilometres and with a population of 27 million people. Activities are carried out from the main office in Puerto Rico and other offices in the Caribbean.

We are now looking for a controller to our office in Jamaica. The main purpose is to train a locally recruited controller. The contract length will be 4-6 months. The following areas are the main responsibilities for the position:

● Monthly and yearly closings. Assisting the home organisations in customer related issues. Support the MU in times of forecast and budgets. To consider the local laws and regulations of Jamaica and see to that there are followed in accounting procedures and taxation routines. Cost Control is also an important part.

Some HR responsibilities will also fall under this position such as salaries, allowance, medical care and general office administration.

Contact: Carmen Santiago, Director Finance and Administration, +1 787 758 1770 ext. 238, Maria Jernberg, Controller, +1 876 754 8663, Kerstin Efraimsson, Human Resources Manager, +1 787 758 1770 ext. 242. **Application:** noelia.borrego@ericsson.com

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ERICSSON HONG KONG

Hong Kong is recognised as one of the most competitive Telecoms Market in the World. Six Mobile Operators running eleven networks serve over three million customers with subscriber penetration at over 50 %. The Field Support Center of Ericsson Hong Kong provides support services to our key Mobile operator's GSM900/1800 and TDMA networks as well as the major Wireline operator's large international gateways.

Hong Kong operators need to be at the forefront of technology -we have already introduced ISP and WAP into the market and are rapidly heading towards implementing GPRS as FOA market in the Asia-Pacific Region. To provide professional support in this very challenging environment, we are looking for a person of high calibre to fill the following position:

System Expert

● As System Expert, you will be required to perform network investigations and problems at the highest technical level and to resolve them in line with customer expectations. Design, test and implementation of Market functions will be required as well as participation in system updates/upgrades and our 24x7 Emergency support

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rota. You will also be expected to provide technical competence transfer and mentoring to the existing support team plus technical advice to the Field Support Center Manager to whom you shall report directly. In addition, you should expect to be exposed to the emerging datacom and IP technologies and help manage the required adaptation of the support teams processes and methods accordingly.

To fullfill the above job responsibilities and expectations, you should have broad CME20 and/or TDMA system knowledge, expertise in the area of APZ/IO and ideally some exposure to GPRS.You should also have been working with AXE systems for at least 8 years, 5 of which should have been with Mobile systems, in a Design/Verification/Support type environment. Besides, you should have a full understanding of Ericsson support processes and experience of working directly with customers - a strong focus on customer relations and satisfaction is expected.

Hong Kong is a fascinating city in which to work and live - for a technological challenge and an exciting way of life you can do no better !

Contact: Vikki Lee, Human Resources Manager, +852 2590 2413, vikki.lee@ehk.ericsson.se

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ERICSSON A.S. IN NORWAY

Financial Controller

Department for Financial Control, in Ericsson AS in Norway (ETO) seeks a Financial Controller with main responsibility for MU-Norway within the Business Segments Network Operators /Service Providers and Enterprise Solutions.

● MAIN TASKS: Prepare and support in the Financial Forecast-process. Analysis and preparations for Financial reporting (FIRE). Produce standard internal reports and ad-hoc analysis. Maintenance of structures and Busines Control Models. General support in financial related matters. Assistance to Business Controller. Participate in projects.

CANDIDATES: You have relevant financial education, ability to take responsibilty, service-oriented and competence/interest to work with different IT-solutions. ETO use SAP R/3.Experience in financial control, particularely within the Ericsson-group would be an advantage.

We are located in Asker, just outside Oslo.

Contact: Department Manager Eva Elverum, + 47 66 84 1723, Eva.H.Elverum@eto.ericsson.se.
Application latest 991120: Ericsson AS, Personell-department/Controller, Postboks 34, 1375 Billingstad, Norge

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ERICSSON RADIO SYSTEMS AB, SUNDBYBERG

Project controller?

We now have interesting challenges for you within our new GSM-contracts in our markets.

● You will participate in the projects having the controlling responsibility during the implementation. This means implementing correct invoicing procedures, budgets and cost follow-ups, internal administrative routines and tools and in general represent the financial competence needed within the project management team.

As this is a demanding position you must be flexible and sensitive in your relation towards the customer and the project team. You should also be familiar with the ERICSSON way of working and have a strong personal drive and be creative in finding solutions. You're a "CAN DO" person!

The formal background is B.Sc. in Business Administration and some years of experience from ERICSSON. The language is normally english but also french and spanish are of interest.

Contact: Bengt Franzen, +46 8 404 7943, Fredrik Westman, +46 8 585 34623. **Application:** Ericsson Radio Systems ABLP/H Anita Malmström Wallner, 164 80 Stockholm, anita.malmstrom-wallner@era.ericsson.se

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ERICSSON TELECOMUNICAÇÕES, LDA, PORTUGAL, RND/NPI

Manager

● Our present Cellplanning manager is unfortunately leaving in February, we are therefor looking for his replacement.The RND/NPI unit consist of the manager, 3 engineers, 3 trainees and one senior engineer for managing a major TK project, to start soon. In addition, we need to expand according to a growing demand. Ericsson in Portugal is working with all the 3 GSM customers (both 900 and 1800 MHz), wheras we are total quality responsible for one customers live network in Porto. We have our office outside of Lisbon, but also a small office in Porto, you will be based in Lisbon.

You have a minimum of 3 years experience within RND/NPI, used to guide and support your colleagues and with a very strong customer focus. You have a well established contact network within Ericsson in order to find the competence and needed resources for emerging projects, whenever needed. You are independent,

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self-motivated, with strong communications skills and used to a flexible adjustment of your tasks from deep technical to more commercial and administrative.

Contact: hakan.quilisch@sep.ericsson.se, +351 21 446 6439 or +351 91 999 6455 or kjell.pettersson@sep.ericsson.se, +351 21 446 6268 or +351 91 722 0208. **Application** latest 991130: simone.santos@sep.ericsson.se

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ERICSSON A.S., GRIMSTAD, NORWAY

Customer Services in Grimstad works within the Network Operator Segment with focus on network management systems (TMOS), wireline AXE and wireless GSM.

Recently we have started skills upgrading to face the next generation of mobil systems, such as GPRS/ UMTS/ WAP, and IP-solutions within wireline systems. First of all we work with support and consultancy services for the Norwegian market. In addition we participate in a process to be included in the nordic co-operation within Customer Services (SSU). We are now looking for support personnel to our department for Customer Services.

Customer Services

● Work description: Communicate with customers about operation and maintenance related inquieries. Test and implementation of system update packages. Work with problem solving using remote connection to systems in service. Work out solutions to SW problems. Participate in 24h emergency service. Consultant services. Responsibility for certain customers.

Technical Qualifications: Engineer or similar. Experience from SW problem solving. Experience from working with AXE, TMOS/UNIX and GSM systems.

Personal qualifications: Experience in working with demanding customers. Experience in co-operation with others as well as working in teams. Open minded with a positive personality. Fluent in English, and preferably fluent in Norwegian or similar.

We can offer: Challenging tasks in an international environment, with a high degree of co-operation with other Ericsson units. High possibilities for personal development in a highly competent technical environment. Competence building through internal and external training centers as well as participation in projects. Competitive economical compensation.

Working location is our brand new office building in Grimstad, Norway.

Contact: Bjarne Trovåg, +47 37293724, Bjarne.Trovag@eto.ericsson.se. Gunnar Sjølander, +47 37293711, Gunnar.Sjolander@eto.ericsson.se.
Application marked Customer Services: Human Resource Department, Televeien 1, 4879 Grimstad, Norway.

ERICSSON TELECOMMUNICATIE BV, NETHERLANDS

Service Application Design is a fast growing area within Ericsson. Within the Service Application Design (SAD) department of Research & Development new telecommunication services (software) are being developed for our AXE switches, based on Intelligent Networks. Both fixed and mobile telecommunication networks, as well as the conversion of those two (FMC), play an important role in this.

The main focus of SAD is the Virtual Private Network (VPN), which is being developed in close cooperation with design teams at LMI (Ireland). The VPN can be implemented in public networks to link company sites irrespective of their size or geographical location, having cost control and a single contracting point for multi-site companies as the main benefit.

Software Designer

● Tasks: You translate service-management-related user requirements in specifications, after which you implement these using tools such as PowerBuilder, SMAbase, C++, and JAVA.

Required competence: Polytechnical or academical background in software engineering. Professional experience in the telecommunications industry (advantage). Knowledge of GSM, IN, ISDN, or at least the willingness to learn about these techniques. Knowledge of and experience with software engineering techniques. Able to define independently the architecture of a Service Management System. Knowledge of and more than 3 years experience with PowerBuilder. Knowledge of C++ and/or JAVA (advantage).

Directive, independent person, capable of transforming new technologies (e.g. in the datacom area) in concrete applications. Knowledge of internet techniques (TCP/IP, Broadband techniques). Knowledge of UNIX and Windows95/98. Experience with working in project teams. Ability to work in a dynamic, high pace environment.

Service Application Tester

● Tasks: You write test strategies, design test specifications and test new telecommunication services in simulated and real environments. You are able to analyse software faults, and to propose concrete solutions.

Required competence: Polytechnical or academical background in software engineering. Professional experience in the telecommunications industry (advantage).

Knowledge of GSM, IN, ISDN, or at least the willingness to learn about these techniques. Knowledge of and experience with software testing techniques. Knowledge of internet techniques (TCP/IP, Broadband techniques; advantage). Knowledge of UNIX Experience with working in project teams. Ability to work in a dynamic, high pace environment.

Service Functionality Designer

● Tasks: You translate functionality-related user requirements into specifications, after which you implement these in a graphical service creation environment by means of IN building blocks.

Required competence: Polytechnical or academical background in software engineering. Professional experience in the telecommunications industry (advantage).

Knowledge of GSM, IN, ISDN, or at least the willingness to learn about these techniques. Knowledge of and experience with software testing techniques. Knowledge of internet techniques (TCP/IP, Broadband techniques; advantage). Knowledge of UNIX Experience with work-

ing in project teams. Ability to work in a dynamic, high pace environment.

Contact: Ton Roelofs, tel +31 161 249658, Ton.Roelofs@etm.ericsson.se, or Rob van Olffen, +31 161 242486, Rob.van.Olffen@etm.ericsson.se, Competence Managers SAD.
Application: Ericsson, Anja Bastiaansen, HR officer, Recruitment Research & Development, Ericsson Telecommunication B.V, POBox 8, 5120 AA Rijen, The Netherlands, +31 161 242 997, Fax +31 161 242 026, Anja.Bastiaansen@etm.ericsson.se.

ERICSSON EUROLAB (EED), AACHEN, GERMANY, GPRS GLOBAL SUPPLY & SUPPORT

Project Manager GPRS Global Support

Proj.No 23/399
The General Packet Radio Service (GPRS) within GSM

will be widely introduced into all GSM markets during 2000. Among the responsibilities of the GPRS SW Supply and Support organisation is to build up the international support organization for the GPRS packet switching nodes within the existing international GSM support organization. It co-operates with the ordering units in Kista, with involved development centres, with the Application Support Offices around the world, and with the Customer Services / Network Support organization also located in Kista.

The preparation of the support organization, especially competence, organizational, and process buildup is ongoing, and is to be concentrated into an execution project. The project has the dual task to execute 3rd line support to pre-GA activities and to further develop and deploy the support strategy into the global organization.

● As a project manager GPRS Global Support you will be responsible for implementing the support strategy for GPRS by utilising and modifying the established GSM support structure for GPRS purposes in the best possible way. The efficient handling of the customer service re-

quests flow to design, the correction handling back to the customer, packaging, help desk functions and remote handling will be of your concern as well as interfacing design maintenance and the ASO/SAFSC and customer service organisations.

As a project manager you are target oriented, you are used to operate in the international Ericsson organisation. You are able to set clear priorities and you are good in communicating and following up strategies and targets. You have got project management experience already, ideally from international project management assignments or previous Customer Support projects.

If we are catching your interest to join a dynamic organisation that tries out new ways of working with a newly developed product, facing a tremendous resonance from the GSM markets and thus a real challenge ahead, please get in touch with us now.

Contact: HR, EED/H/R, Simon Seebass, +49 2407 575 163, simon.seebass@eed.ericsson.se or GPRS, SW Supply & Support, EED/D/YC Klaus Schneider, +49 2407 575156, klaus.schneider@eed.ericsson.se.

Brand new CMS30 System Verification in Japan!

CMS30 System verification is currently being moved from Sweden to Japan and we are now building up a new department in Yokohama to take care of this task. The unit will become a combined UNIX, circuit and packet switched competence center – an unique opportunity for you that wants to develop further within Ericsson telecom product line.

In Japan, CMS30 circuit-Switched network capacity will grow 50 % within the next year to around 80 nodes (HLR + MSC). Add-on to this success, demands for wireless internet applications and TCP/IP based Technology are moving equally with tremendous pace. During 2000 Q3 – 2001 Q1, we are going to system verify and deliver the first CMS30 Packet-Switched Product to our main Japanese customer (first step a 12 node packet data network).

To meet the above challenges we are looking for people. There are open positions for Managers, Trouble Shooters and System Verification Engineers with Circuit Switched, Packet Switched or UNIX competence, see below:

2 Resource Managers, AXE and UNIX: Managing section including around 20 people. Manage, plan and follow up of the work/tasks assigned to the section and to provide estimates of the effort and duration required. Co-ordinate the work with co-operating units. Define and follow up on section goals. Responsible to ensure quality of the deliverables (products, processes and services) with focus on system robustness and satisfying customers needs.

1 Technical Manager, System Verification: Will be the head of a group of 3-5 senior system engineers. The group will be the backbone competence for the system verification unit. The group will be involved in

technical investigations, set the standards and define strategies for verification of the CMS30 products and in this way secure the system verification quality short term as well as long term.

1 Project Manager, Competence & Process: To support line unit with competence planning, process development and maintenance. Other line issue where project is required will be driven by this position.

1 Test Coordinator, Phase 10, Packetdata: Will be responsible for the AD planning and co-ordination of FT, Verification and Implementation test execution.

You should have 3-7 years experience (depending on position) from 2 of the areas: Technical customer support, System Verification or Design. You can motivate, support and lead people in difficult situations, you are quality minded and are ready to support and show responsibility when needed. You have a profound interest in making people successful.
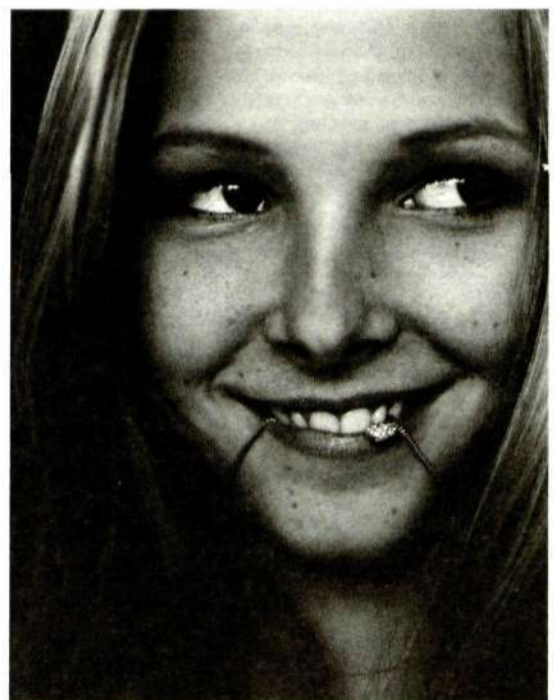
Master Verification Engineers (AXE and PacketData): Solves complex faults of a critical nature. Analyses the impact of new application systems to be introduced into the customer's network. Participates as technical expert in standardization forums as well as customer and design discussions and investigations. Recommends system verification standards and strategies. Give support to verification testers and transfer competence to local engineers.

(Senior) Verification Engineers (AXE, PacketData, OSS, SMAS, MXE): Prepare and execute system verification tests. Give support to verification testers, transfer competence to local engineers, technical

investigations and trouble shooting. Participates as a technical support in customer and design discussions and investigations. Involved in definition of system verification standards and strategies.

You should have 3-7 years experience (depending on position) within AXE, PacketData, OSS, SMAS, MXE or other UNIX systems from 2 of the following 3 areas: Technical customer support, System Verification or Design. The ability to work within and for a team is essential for being successful. You are driven by technology, you are self-motivated, and you can comprehend problems of complex nature.

For more information, please get in contact with Lars Hansen, Manger of CMS30 System Verification:
Tel: +81 45 477 55 31
E-mail: lars.hansen@nrj.ericsson.se

Make yourself heard.

ERICSSON ⧟

No. 18
November 11
1999

contact

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

Whatever happens media often favorable

When things are going well for Ericsson, those successes are reflected in the daily and financial press. When the situation is less favorable, most news reporting is still not especially negative. That is the conclusion that Johanna Tuulse and Edmund England reached in a paper written for the University of Stockholm.

Their conclusion is reflected in the title of their paper: "When things go poorly, they still aren't that bad." The paper focuses on what was written about Ericsson in the media compared with how the company's shares did on the stock exchange. Johanna Tuulse and Edmund England studied how a number of daily and financial newspapers skewed their news reporting in relation to the value of Ericsson shares on the stock exchange.

"We were surprised that the reporting was so positive. Before starting our work, both Edmund and I felt that the news media mainly offers critical analysis, providing a more negative image of the company," says Johanna Tuulse.

Positive reactions

Articles from the Swedish dailies Aftonbladet, Expressen, Dagens Nyheter, Dagens Industri and the British newspaper, Financial Times, were compared for the years 1992, 1995 and 1998.

The authors noted the number of articles, their content and length. Numerous differences and similarities could be observed.

The financial daily Dagens Industri had the greatest number, the longest, and the most positive articles. Their focus was usually on market, financial and organizational issues. The two evening dailies, Aftonbladet and Expressen, had the fewest articles and were the most negative. The Financial Times showed a slight tendency towards more positive articles.

Common among all of the newspapers was that articles grew more frequent and longer over the period of time studied.

"We didn't expect to find so many long analyses in the evening tabloids, nor did we think there would be so many articles discussing the company's organizational structure. We believe this largely had to do with the intensive debate during 1998 over whether or not the company should remain in Sweden," says Johanna Tuulse.

Newsworthy coverage

The authors chose to study the media's reporting on Ericsson for several reasons.

"We wanted to choose a company that meant a great deal to Swedish society. News reporting on Ericsson has a high level of newsworthiness and readability, since Ericsson has so many employees and so many people buy their products," according to Johanna Tuulse.

Their research was based on a quantitative content analysis, and the authors used a coding system that took a number of variables into account. These included what the article was about, when it was published, its length, and the time perspective given to events. Quantitative content analysis is a normal method used for interpreting and structuring large amounts of data.

Media confidence

Over a ten-week period, the two authors of the paper were immersed in their work, evaluating and analyzing articles in a number of newspapers. Did the authors' confidence in the media change after writing the paper?

"Not particularly during this project, but rather over the whole course of our education. I'm now much more critical of sources and am always wondering what sort of motives are behind various articles," says Johanna Tuulse.

Johanna Tuulse and Edmund England completed their coursework at the Department of Media and Communication Studies at the University of Stockholm last spring.

Ulrika Nybäck

ulrika.nyback@lme.ericsson.se

Johanna Tuulse did not expect that the media's coverage of Ericsson would be so favorable.
Photo: Lars Åström

The financial daily Dagens Industri the day after the nine month report: "Ericsson behind this years all time high at the stockmarket"

THE ERICSSON B SHARE

SEK

352,50
Friday
November 5 1999

Conversion price
SEK 236

Start date
Sept. 9, 1997

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 web site: http://inside.ericsson.se/convertibles

B Share — General index © SIX Findata
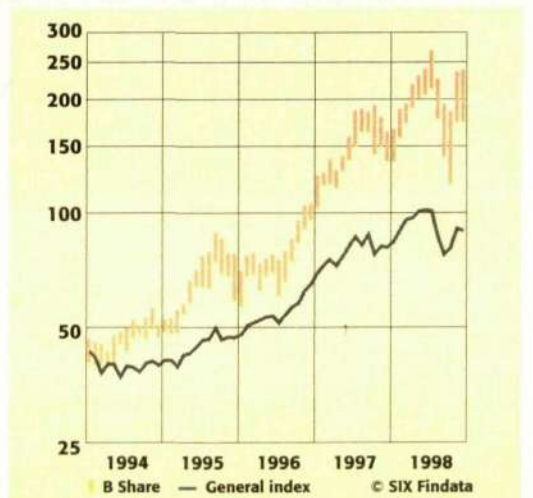
Swedish IT-companies have come under fire recently. Critics say they have too few female employees, too few women in management positions and no apparent inclination to tackle the problem. How does Ericsson measure up in the gender gap? Contact spoke recently with Katerina Sjölander, systems manager at Ericsson Microwave Systems. She joined Ericsson nearly three years ago but also has experience from the consulting industry.

"Ericsson is a more mature company, more grown-up in its appreciation and respect for the professional and private lives of its employees," says Katerina Sjölander, a systems manager at Ericsson Microwave Systems.
Photo: David Johansson/Kamerareportage

"IT-male dominance not as great in Ericsson"

According to a recent survey of Swedish IT-companies by one of Sweden's leading daily newspapers, gender equality in these cutting-edge representatives of modern industry ranks far behind Sweden's traditional exchange-listed companies.

Katerina Sjölander recognizes the male-dominated picture of the IT-world, as portrayed in the newspaper's findings, from the time she worked in the IT-consulting sector.

"It was important to be seen and work long hours, to go with other employees on various field activities and show that you were a friend of the manager," she says. "The men recruited their male friends and there was a 'macho' attitude in the industry. I haven't noticed any of that since I joined Ericsson."

Ericsson – a more mature company

Katerina Sjölander's believes the gender gap in Sweden's IT-industry was created by the fact that most IT-companies were established and remain under management by single, young men without families. For them, the question of equality has still not emerged as a serious issue.

"I actually thought I was the most liberated person in the world until I gave birth to my first child," she continues. "Eventually, I think women will win respect and take their place in IT-companies, and presumably on their own terms."

She believes Ericsson is a more mature company, more grown-up in its appreciation and respect for the professional and private lives of its employees. For this and other reasons, she thinks Ericsson is a good employer for women who want to focus on information technology.

"Based on my past experience, I can really appreciate the attitudes that prevail in this company."

Both sexes are needed

Nevertheless, the percentage of women working with IT in Ericsson is also low. The disparity presents a problem, because there is a need for management personnel, project leaders, programmers and other employees of both sexes.

"I believe greater gender equality is important," Katerina Sjölander says. "Men and women actually think differently and complement each other quite well."

Many women, however, are not attracted to careers in the IT-sector. Their lack of interest is reflected early in their choices of educational studies.

Katerina Sjölander believes one reason for women's lack of interest might be a reflection of the IT-sector's image as a paradigm shift from an industrial to knowledge-based society. Pioneering leaders in new areas, she says, have most often been people who are attracted to technology, a genre traditionally dominated by men. She also believes the IT concept per se is linked strongly with technology, a factor that might discourage women.

"When Mrs. Melitta invented the coffee filter, she wasn't focused on paper production," explains Katerina Sjölander. "She simply had an idea to make coffee taste better. By the same token, I believe that many women are more adept at recognizing consumer perspectives and finding more practical applications for new technologies."

She says she often thinks of different ways to improve her everyday work routine. Her wish list includes entries such as a computer able to produce monthly dinner menus of well-balanced meals and weekly shopping lists of required household items.

Twisted cords

"Another thing that bothers me is the cord from my mobile telephone to the listening device – it's always twisted," she says. "Why can't we develop a roller cord like the ones used in vacuum cleaners?"

Katerina Sjölander would like to see more women with the courage to satisfy their curiosity of technology's potential applications and cast aside their respect for IT.

"Don't put it on a pedestal, she says. Put more faith in your own intelligence."

Maria Paues

Invest in IT; it's worth it!

Software billionaire Bill Gates has topped the list of America's wealthiest men and women for the past several years. His shares in Microsoft are valued at USD 85 billion today. According to the company's latest interim report, Microsoft is still riding a tidal wave of success.

Bill Gates, USD 85 bn

Michael Dell quit school to start Dell Computers in 1984. The man who began his career as a newspaper delivery boy is worth an estimated USD 20 billion today.

Michael Dell USD 20 bn

Fortunes can also be made in Internet services, however. Just ask Jeff Bezos, the principal owner of Amazon.com. He was so amazed by the dynamic increase in the number of Internet users, he sat down and made a list of products that could be sold over the Internet. Books were at the top of the list. Today, Jeff Bezos has amassed a personal fortune estimated at about USD 8 billion, and Amazon.com is one of the world's most frequently visited shopping sites.

Jeff Bezos USD 8 bn
Photo: Pressens Bild

Source: Forbes

IT-students favor Ericsson

Working with pleasant people and opportunities for advanced education are top priorities when today's IT-students consider their future careers. Today's students are also relatively flexible when it comes to salary and job locations.

Universum, a Swedish opinion survey company, interviewed 2,000 Swedish IT-students about their expectations of the business world and their future employers.

Nokia topped the list of companies pegged as ideal employers, followed closely by Ericsson, WM-data, Enator and IBM.

Results of the survey also showed that today's students want to pick and choose their own employers, not the reverse. Classified ads are not considered the best source of information, with students gaining their best impressions of companies from radio, TV and the Internet.

IMPORTANT CRITERIA FOR CAREER CHOICES

Top ten among 26 choices. Students were allowed to choose a maximum of five answers.

Criteria	%
Working with nice people	68%
Development potential	46%
Competitive salary	45%
Skilled co-workers	43%
Diversified job assignments	42%
Exciting products	32%
Balance, private and prof. lives	24%
Recognation of work efforts	21%
International career opportunities	19%
Project-based job assignments	18%

Source: Universum

Providing content for mobile Internet

Cultivate a market that hardly exists. That is the mission assigned to Ericsson's two new business units, Wireless Internet Solutions and Wireless e-solutions. It's all about mobile data transmissions via the Internet, an area expected to reach monumental proportions. The new business units have already established important partnerships to develop WAP solutions, including agreements with Reuters, one of the world's leading news agencies, and Infoseek, a Disney company.

Recognition of the market potential for wireless IP transmissions is not exactly a breaking news story. Its true breakthrough, however, is approaching rapidly, as new generations of high-speed mobile networks for packet-data transmissions continue to narrow the gap to market penetration.

Ericsson is investing substantial resources to develop and market advanced packet-data services in wireless networks and wireless telephones. The new business units underscore the importance Ericsson is placing on its aggressive pursuit of complete solutions for users of the systems, defined more accurately as the data content to be transported by the networks and telephones.

In a press release at the Telecom99 Fair in Geneva in mid-October, Ericsson declared that its forecast for third-generation mobile telephones (IMT-2000) has been upgraded from 50 million users to 120 million by year-end 2004.

Positioning before the boom

Louis Gerstner, President of IBM, emphasized the market's huge potential in his opening address at Telecom99, projecting a total of 600 million PCs in the world by 2003, but no less than 2 billion portable devices such as mobile telephones, handheld computers and pagers that will be linked to the Internet or other networks – an almost unfathomable number. Companies are now positioning themselves in preparation for the boom.

"This market is being created as we speak, and we want to help build it," says Lars Wetterborg, Manager of Business Planning at Ericsson Wireless Internet Solutions (EWIS).

Potential to change

Göran Sundström, Manager of Business Strategy & Controlling for Wireless e-solutions, believes that wireless communications have the potential to change people's lives and bring us closer to each other, at work and in our leisure time.

"We are trying to determine where all of this will lead, and how future solutions will be designed," he says, identifying three key components: positioning, security and interaction.

Wireless communications offer much greater opportunities to determine the position of the user's mobile device, such as a cellular phone. It's important to know if the user is sitting in a car or situated near some type of emergency situation, for example, when the emergency service center wants to contact all persons in the vicinity of an accident site.

Another aspect is that wireless offers much higher security in the form of encryption and better potential to identify users than during "fixed utilization" of the Internet. This is due to the personal nature of the mobile phone's SIM card.

Interaction, the third component, can be defined as the ability to chat, browse and integrate with the transmitted information, supported by WAP (Wireless Application Protocol), for example.

Alliances with other companies

To cultivate the emerging market, wireless activities have been divided geographically into two units. Wireless Internet Solutions, based in North Carolina and managed by Hans Davidsson, will focus on the North American market. The other unit, Wireless e-solutions, will be based in Kista, outside Stockholm, and cultivate markets in Europe and Asia. Jan Lindgren is the manager of Wireless e-solutions. The strategy to reach as many users as possible is based on cooperation with other companies that have already established large customer bases. In addition to comprehensive expertise in mobile Internet services, the new business units will also offer consulting resources and products developed by Ericsson's product units. These products include WAP and Web OnAir, which removes graphics and other decorative embellishment from web pages to support more effective wireless transmissions. The activities of the new business units are not focused directly on technology, such as the types of networks for data transmissions.

"The objective of Ericsson's new business units is to define and deliver finished solutions independent of technologies, but we also conduct certain marketing activities to spread the word about wireless communications," says Lars Wetterborg.

Mats Lundström

Lars Wetterborg and Göran Sundström have been commissioned by Ericsson to understand and influence development of the market for mobile data transmission via the Internet. Wireless Internet Solutions and Wireless e-solutions are two new business units established to explore opportunities in this emerging market.
Photo: Peter Nordahl

Several alliances already formed

Ericsson is looking for two types of business partnerships. Alliances will be divided between operators and non-operators, or in other words traditional Ericsson customers and new customer categories.

"Because of our strong links with telecom operators, we are naturally focused on winning contracts from them. We are trying to achieve this objective through wireless Internet solutions packaging and sales of applications to operators and selected industrial customers," says Göran Sundström.

Non-operators consist of established Internet content providers that want to give their users wireless access. Examples of content providers include web-based catalogues, search services and other Internet services focused on younger, well-educated audiences in such areas as finance, travel, media and entertainment.

An alliance has been established with Reuters, a leading global news agency, whereby Ericsson will provide interactive wireless transmissions of financial news supported by WAP, with initial services in London and Frankfurt. A partnership has also been started with Go Network, a large web portal owned by Disney, to develop WAP solutions for the portal's growing public. An agreement is also pending with a large American catalogue service.

Ericsson also entered an alliance recently with CollegeClub.com, which provides news and information in parallel with sales of various products and services to more than one million college and university students in the U.S. Ericsson's two new business units are also seeking new customers among providers of mobile services, which represent a new group of players in the Internet market. One of the most prominent players in this category is GoAmerica, a leading mobile ISP (Internet Service Provider). In August, Ericsson announced the establishment of an alliance with GoAmerica to develop solutions for transmissions of e-mail and other services for users of portable devices.

In conclusion, Göran Sundström and Lars Wetterborg summarized Ericsson's efforts as follows: "We have developed a very comprehensive network of contacts with private industry, and we have several new projects in the pipeline. We believe the most interesting partners are companies with large customer groups that can also offer our business units new skills and Internet speed."

Mats Lundström

With initial operations in London and Frankfurt, Ericsson and Reuters will work together to provide financial news services supported by WAP technology.

More than just hardware

Ericsson is more than just hardware and cables these days. Services and applications are an equally important part of the company's business. It's all about a new way of thinking. For some time, Ericsson has been developing WAP applications and will shortly be able to provide operators and other customers with a number of services that can be used regardless of the technology platform.

Those of a romantic disposition will be pleased to learn that Ericsson entered into an exclusive agreement with Interflora. The user was able to obtain details of the types of bouquets available and their prices, order them with a message and specify when they should be delivered.
Photo: Bildhuset

The Wireless Software Design department within Ericsson Cellular Systems & Special Networks based in Guildford in the U.K., is at the forefront in developing markets for WAP usage and applications. As Grethe Vaughan, the department manager, explains, "There is far more to this than just Internet on a mobile phone – it is all about the power of mobility."

The marketing initiatives being developed by the team in Guildford include the provision of complete managed services and can therefore be regarded as a one-stop shop for customers.

"Our aim is to provide companies and institutions with a valuable service which will also benefit their customers. Banks, for instance, could use our package of services, which would enable their customers to access their accounts and make transfers and payments, all via their mobile phones," explains Grethe Vaughan.

Massive potential

She and her colleagues in Guildford see this as a big potential market. "We will target those who see the value of the services we provide and are willing to pay for them. The financial market is an obvious target. Stock market brokers will be able not only to access the very latest information, but also to act upon it using their mobile phones."

Grethe Vaughan

In July of this year, Ericsson and Reuters launched a joint project that will enable the delivery of financial market news and data to the latest WAP mobile phones and other hand-held devices. Using Internet technologies that are optimized for mobile users, initial services will include interactive news, data retrieval and other on-line services for mobile users.

Ericsson will supply the technology, terminals and wireless datacom expertise, while Reuters will provide news and data and introduce customers from the financial services sector. This marks the first stage in a development program that will deliver progressively more advanced mobile datacom services to both financial and individual investors. Services will include personalized displays of financial instruments such as share portfolios, interactive retrieval of news and data, and additional on-line transactions.

Security a vital issue

Although systems are already extremely secure, the question of security is clearly very important, since the applications involve both corporate and personal finances. Howard Spragg, WAP Systems Designer comments, "While both the GSM networks and the Internet are inherently secure, we know that users will want the complete assurance that end-to-end security is 100-percent effective, and this is being worked on now."

Since WAP supports practically every worldwide bearer, including SMS, developing security system that will operate globally has not been an easy task. However, it is anticipated that such systems will be in place by the middle of next year.

Looking ahead to the not-too-distant future, people will be able to plan and book an entire business trip via their mobile phones as flight, accommodation and transport information will be accessible.

At present, the Wireless Software Design Department in Guildford has a demonstration portal to the Ericsson MC 218, which demonstrates the simplicity and potential of WAP. This includes access to bed-and-breakfast and hotel information and reservation facilities. For those wishing to purchase a vehicle by simply accessing the U.K. Exchange and Mart catalogue, they can source the type of car they wish to buy, the price range and location of the seller, plus all relevant information about a particular vehicle in which they are interested.

Contract with Interflora

Those of a romantic disposition will be pleased to learn that Ericsson entered into an exclusive agreement with the florist company Interflora for the duration of the Telecom99 show in Geneva, where this unique service was demonstrated. The user was able to obtain details of the types of bouquets available and their prices, order them with a message and specify when they should be delivered.

Grethe and her colleagues have traveled extensively, demonstrating the capabilities and potential of WAP, and the response has been extremely encouraging. Most of the U.K. operators are keen to work with Ericsson on WAP, since they can see the long-term benefits to their own businesses. Similar reactions were seen across Europe when the systems were shown in Turkey, Scandinavia and at the Ericsson Global Data Conference, and at Internet Fall in New York.

Tim Hughes

EASY TO INTERPRET

The WAP protocol will be applicable to, but not limited to the following:
- GSM 900, GSM 1800, GSM 1900
- CDMA IS-95
- TDMA IS-136
- 3G systems: IMT 2000, UMTS, W-CDMA, Wideband IS-95

Senior Software Designers Programme
Conference in Mexico City, December 4 – 8, 1999

Ericsson and the Senior Software Designers Programme are proud to invite you to its sixth conference. This time we will gather in Mexico City to enhance our professional skills, meet colleagues and enjoy life as a Senior Software Designer.

Conference Concepts and Highlights

- Tutorials on new technology merging the datacom and telecom areas. These will also treat IP-telephony and related techniques, such as GPRS, UMTS, VoIP.
- Tutorials on new trends in software engineering within and outside Ericsson. Some of the topics will be component based software architectures, object-orientation, Java and SDL development methodology.
- Paper and poster sessions with participants' contributions. All participants are encouraged to spread their knowledge and experience by contributing to the conference programme.
- The Conference starts with a voluntary Weekend Programme, a two-day, free of charge, assembly with exciting team-building activities and adventures.

Agenda and Registration
http://oncourse.ericsson.se/learning-market
Click on 'Software Engineering, SSDP and ESAP' to check the agenda and to register. Note that you register for the weekend programme separately.

Senior Software Designers Programme Objectives
SSDP is sponsored by Ericsson System Software Initiative (ESSI) and has the overall objective to be a forum where Senior Software Designers can exchange experiences and discuss Software Engineering within Ericsson. Responsible ERA/T/Z Hans Nihlen, Hans.Nihlen@era.ericsson.se

Increase in cyber-fraud

Every year, hundreds of Swedish companies receive invoices for advertising they never ordered. Cases of fraud involve hundreds of millions of SEK. Invoices for advertising on non-existent web sites and in Internet catalogues represent a new form of deception and fraud. According to the police fraud unit, the incidence of this type of crime is increasing at an explosive pace and Ericsson, like many other companies, has been the target of scam artists.

"This has become a major problem," says Agneta Bonde, corporate advertising manager. "Attempts by devious entrepreneurs to cheat companies out of money have become commonplace, unfortunately."

A typical approach may be described as follows. The scam artist calls a member of high-echelon or middle management and sells an advertisement on a fictitious web site or non-existent catalogue. The two parties agree to call on Ericsson's advertising department for assistance in formulating the ad. Eventually, the fraudulent caller sends an invoice to the manager who booked the order who, in turn, approves payment in the mistaken belief that an advertisement was actually published.

Beware of flattery

"These criminals are clever, often resorting to flattery in their attempts to persuade management personnel to buy advertising space," Agneta Bonde explains. 'A person with such a high position must surely have the authority to make this sort of decision,' is one common ploy. Beware of flattery. It is also unnecessary for management personnel to concern themselves with advertising."

Ericsson is trying to solve the problem by authorizing only a few persons to order and approve advertising. About 20 employees at head office and in the business units have been authorized for this purpose.

"It's important for everybody to know that we – employees who work with advertising – are the only persons authorized to deal with these matters," Agneta Bonde says. "Serious advertising sellers are familiar with our procedures and contact us directly. If a representative of management receives a telephone call from a person trying to sell advertising, he/she should suspect immediately that somebody is up to no good."

Contact the police

If you have any reason to suspect an attempt at fraudulent advertising, contact the police fraud unit. Eva Österman, a member of the fraud unit, believes large companies are able to protect themselves more effectively against scam artists than small and medium-size companies by creating greater security through strict procedures. She thinks Ericsson's solution, whereby only a few persons are authorized to deal with advertising sales, is a good approach.

"In small companies, where employees help each other with a broad variety of everyday job assignments, coordination is more difficult and deception is easier," she says. "One employee may think that another employee has approved the advertising order. The best interests of all companies will be served most effectively by the enforcement of strict rules regarding who is authorized to handle advertising."

Maria Paues

To combat fraudulent sellers of advertising, Ericsson has authorized only about 20 employees to order and approve advertising. Agneta Bonde is in charge of Ericsson's corporate advertising.   Photo: Lars Åström

New way to shop a success

"Going once, going twice...sold!" – the sound of an auction as the bidding mounts. On the World Wide Web, auctions are no longer dependent on time and place and this has caused the market in the U.S. to explode. Will online auctions spread over the rest of the world, or are they an American phenomenon?

Internet auctions are growing vigorously in the U.S. Millions of Americans log on every day to one of the large on-line auctions. Some analysts believe this is the beginning of the end for traditional retail.

Every morning, Tony Philips, a hairdresser in Oklahoma, logs onto the eBay on-line auction to see if any of the James Bond movie posters he collects have turned up. Today, Tony finds a poster he does not have yet. Before leaving for work, he makes a bid. At lunch, he checks the bidding and makes a higher bid. A few hours later, he can add another poster to his collection.

Tony Philips is in good company – millions of Americans log on to on-line auctions every day to check prices and place a bid. In a world where communications and networks are growing in significance, the enormous pressure for change created by the Internet has now invaded the world of auctions.

New social context

Before the Internet, auctions meant a social gathering, excitement, tactics and also, sometimes, a good deal. Granted, traditional auctions are still a type of popular entertainment, or a serious business like the large agricultural auctions in Chicago. However, with on-line auctions all this has changed, since bidding originates from a computer at home or at work. There are already 200 web auctions in North America alone, and

the number is growing. Gone is the social activity, replaced by a sort of virtual community. Gone also are the traditionally humorous auctioneers, whose smooth patter could incite the bidders to make higher bids. The auctioneer has been replaced by a deadline, a point in time when bidding stops and no further bids can be made. Participating in an on-line bidding session is above all a matter of keeping track of the deadline. This means the excitement and the likelihood of a good deal are in fact probably greater than with traditional auctions.

There are basically two types of on-line auctions. With one type, the users compete with each other for goods owned by an auction house, in approximately the same way as in traditional auctions. Bidding usually starts low – at a dollar, for example – and then rises quickly as the end approaches.

Buy from private individuals

The second type is the individual auction, a form unique to the Internet, where anyone can offer or bid on goods for sale. Buyers and sellers meet at a common web site. eBay is the best example of individual auctions. From San José, south of San Francisco, eBay has built up an auction service

that currently has six million registered members, three million ongoing auctions distributed over 2,000 categories, and with more than one million visitors per day. eBay is sometimes called the world's largest flea market.

"It is more exciting to buy things offered by ordinary people," says Kevin Pursglove, spokesman for eBay, in an attempt to explain his success.

Hundreds of thousands of visitors

Kevin Pursglove believes that the advantage of Internet auctions is primarily the number of people who can participate and the fact the range of items on offer is much broader than in an ordinary auction. An Internet auction can be reached by hundreds of thousands of visitors.

The large on-line auctions have been skillful in building web services featuring a high degree of interactivity to stimulate bidding. eBay currently has more than 15,000 "power users" who sell goods worth more than USD 2,000 every month, and has also built up its own "community" with hundreds of discussion forums. Users can set an alarm to sound when the bidding reaches a certain level, or have schedules for future auctions e-mailed to them.

Several auction services also offer their own

home pages, where users can group together and monitor the auctions they are interested in. eBay also has a service to enable users to monitor auctions wirelessly – for example, by cellphone or Palm Pilot.

Death of traditional retailing

The Internet auctions have been listed successfully on New York's NASDAQ stock market. They have become so popular that they affect all Internet selling. Even the large web portals – Yahoo, Excite@hom, Go Network – have launched their own auctions. Some believe that web auctions signal the death of fixed-price retailing. That would involve a dramatic shift in established relations and regulatory frameworks built up over hundreds of years between buyers and sellers.

So far, however, it is enough to say that the larger Internet auctions are competing successfully with the established web portals for Internet users' favor. According to U.S. firm Gomez Advisors, which studies the Internet consumer market, Internet auctions are ringing in net sales of USD 4.5 billion per year, which are expected to climb to USD 15.5 billion by 2001. Already, nearly 10 percent of U.S. Internet users

are registered with an Internet auction. In two years, the number will have increased to 14.5 percent.

Habit-forming

What is it that causes American Internet users to flock to Internet auctions in such enormous numbers? It is not entirely clear what is driving the development, but it is probably due to what the man who collects movie posters, Tony Philips, has already discovered: the possibility of following the auctions while they are happening, that is, in real time. This possibility has enabled the auction services to create a need to repeatedly check the bidding situation. It sounds obvious, but is perhaps the most difficult hurdle for new web services aiming to attract many visitors. The auctions have proven so habit-forming, that the word "addiction" is not out of place, even though there are no documented cases of it.

Compared with other Internet services, fraud is considerably more of a problem in on-line auctions, particularly with auctions where anyone can offer items for sale (individual auctions). Both eBay and Amazon have had sellers who have simply auctioned off products, taken the buyers' money and not delivered the products.

This past summer, a seller on eBay was charged and convicted of swindling a buyer out of USD 37,000, and in September, a similar case of fraud was discovered in the Amazon service, involving USD 28,000.

eBay protects itself against fraud by creating a rating system for both buyers and sellers. Those with complaints give a low rating, and any seller who accumulates enough unfavorable ratings is removed from the system. There have also been cases of other types of fraud – for example, where sellers participate in the bidding to boost the price. Such manipulation is prohibited, of course, but also difficult to detect.

Kidneys, narcotics and weapons

With three million auctions in progress, it is naturally difficult to maintain control over what is being sold. eBay has already been forced to close auctions involving kidney donation, where bidding levels had reached several million dollars. Other terminated auctions have involved illegal weapons, narcotics and even an adoption. Some auctions turn out to be hoaxes, to attract attention. However, the examples show that large web services with millions of patrons are also a type of reflection of the soci-

ety we live in. Overall, on-line auctions can be considered harmless.

eBay currently has over 70 percent of the market for on-line auctions in the U.S. In the U.K. and Germany, Internet trade is sluggish. Theodore Bergquist, president and senior analyst for Jupiter Communication Scandinavia, believes this is due to cultural differences.

Europeans shop differently

"Firstly, peoples' attitudes toward auctions are different. Americans are more interested in short, fast deals, whereas Scandinavians, and perhaps other Europeans as well, are more suited to 'co-shopping,'" he says (see article on Zopps, below).

"Secondly, to succeed, an on-line auction must achieve a critical mass – that is, increase the number of items to be auctioned to attract increasing numbers of visitors. In the U.S., online auctions started early and developed dynamically, thus attracting increasing numbers of visitors. This may be considerably more difficult in Europe, where the market is not as uniform."

Mats Lundström

Advice to anyone eager to try out on-line auctions

Several pitfalls await the first-time bidder in an on-line auction. Here, we provide answers to some of the most common questions.

It is possible to participate in the bidding at several American auction services, even if you do not live in the U.S. Check first, however, that the seller is willing to distribute internationally.

All on-line auctions require some form of registration or membership. To register, you give your name, address and credit-card number, and receive an identification number. The number is then used in the bidding to enable the auction service to trace your bids to you.

Whoever has made the highest bid when the

deadline comes, wins. However, if the competition is stiff, the time may be extended. Never assume a deadline is final.

Once you've made a bid, you are committed. For individual auctions, you may decide not to follow through with a purchase. However, that will affect the rating system which includes all members and which is accessible by all members. Also, remember that the price is charged directly to your account as soon as you have been declared the winning bidder.

Are auctions really cheaper? Always check the price of an item in an ordinary web store before you enter the bidding.

Determine your top price before you enter the bidding. Keep a cool head and do not allow your-

self to be swept away in the last hours or minutes before the deadline.

Use only on-line auctions that offer encrypted transmission (SSL), since you must usually give your credit-card number when registering.

Read the product information carefully, particularly regarding guarantee and return policy. Check, too, that you can calculate the final price, including shipping charges – this is particularly important in international trade. If the bidding involves large amounts of money, you should use an intermediary clearing service. This means that your money is deposited while you inspect the product you have purchased.

Mats Lundström

LARGEST AUCTIONS SITES

- **eBay:** Largest, best and most attractive of the American auction sites, eBay has also established itself in the U.K., Germany, Australia and Canada.
  - www.ebay.com

- **Amazon Auctions:** The world's largest bookstore has entered the auction business.
  - www.amazon.com/auctions

- **Great Collections:** New auction service from eBay for valuable items only.
  - www.ebaygreatcollections.com

- **Excite Auctions:** Part of a newly started network of over a hundred web services that are trying to compete with eBay.
  - auctions.excite.com

- **Onsale:** Oldest and largest among ordinary auctions.
  - www.onsale.com

- **First Auction:** Part of a network of shopping sites. Highly reliable.
  - www.firstauction.com

- **Svenska nätauktioner:** Ordinary Internet auction with all types of items.
  - www.bid2day.se

- **Bidlet:** A major undertaking, involving everything from travel to concert tickets.
  - www.bidlet.se

- **Eannons:** Individual Internet auction. Swedish equivalent of eBay.
  - www.eannons.se

Great deals through Zopps

Ericsson employees' own community, Zopps, has launched a cooperation with the Letsbuyit.com web service, to tailor various offers for Ericsson employees.

"Letsbuyit.com offers co-shopping, which aims to offer the lowest prices possible," says Marianne Olsson, project manager with Zopps Sweden.

With co-shopping, Letsbuyit.com simply exploits the cooperative potential of the Internet by combining cooperative purchasing groups. Letsbuyit.com can offer an item at a certain price, for example, provided a certain number of people are interested. At this writing, there are three of-

fers: a Christmas tree for SEK 39, provided 500 people are interested, plane tickets to New York for SEK 2,495 each and a PC surge protector for SEK 149.

"Many more products are coming," explains an enthusiastic Marianne Olsson. "We have also appointed a product council to handle members' requirements and preferences. The product council currently consists of representatives from Zopps Sweden, HemPC and Letsbuyit.com.

Mats Lundström

- www.zopps.com

OPINIONS ON INTERNET AUCTIONS

Johan Nordquist: Oakland, clerk in an antique store.
Favorite auction: eBay
What do you buy/sell? Buy and sell furniture designed in Denmark.
Best deals: Selling to customers in Canada and Puerto Rico.
Have you ever been cheated? Some of the furniture has not been of the quality I expected. I have returned it and received my money back.
When do you bid? In the evenings, sometimes at work.
No. of deals: At least 200

Alice Nedleman: Houston, nurse.
Favorite auction: eBay
What do you buy/sell? I collect Barbie Dolls, and I both buy and sell them.
Best deals: An entire set of Harley-Davidson Barbies for USD 500.
Have you ever been cheated? A check for USD 20 bounced. Probably, I will never see those 20 dollars.
When do you bid? Between shifts.
No. of deals: Five

Liza Marble: Tucson, cellphone technician.
Favorite auction: Amazon and eBay
What do you buy/sell? Buy things for the garage.
Best deals: Everything. Much better prices than at a flea market.
Have you ever been cheated? No
When do you bid? From home and at work. My boss knows I do it, but he does it too.
No. of deals: About 50

Tony Philips: Oklahoma, hairdresser.
Favorite auction: eBay
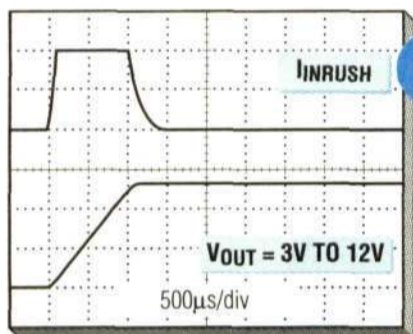**What do you buy/sell?** Movie posters, mostly James Bond movies.
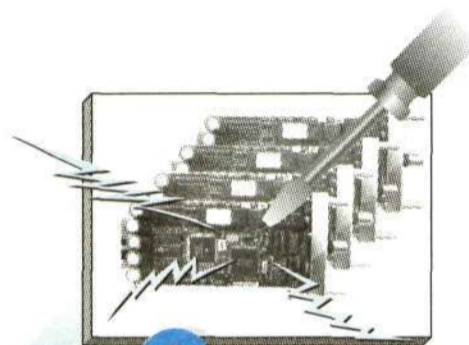**Have you ever been cheated?** Not yet.
When do you bid? Any time.
No. of deals: About 50.

# IP belongs to the future but ATM still a contender

By now it's the conventional wisdom that revenues from sales of traditional voice networking equipment have leveled off, and the great new opportunities lie in the construction of packet-switched networks. And there's little doubt that Internet Protocol (IP) will be the basis of the multi-service network of the future. But the excitement over IP has led some telecom industry soothsayers to prematurely declare the death of ATM.

Ericsson believes that IP-based product sales will indeed be a very strong market, but the company also foresees strong ATM sales for both access and multiservice cores. Purchasing decisions by incumbent operators and newer Internet Service Providers (ISPs) alike show that Asynchronous Transfer Mode (ATM) will remain the most efficient way to move large amounts of integrated voice and data traffic through the network core for some time to come.

"It's not a question of IP versus ATM," says Carol Politi, AVP of Product Management at Ericsson's IP Infrastructure group (formerly Torrent Networking Technologies). "The question for the foreseeable future is IP over what? We're strong proponents of IP-based solutions, but we also believe that ATM is currently the optimal technology for incumbents building on legacy systems and for new operators designing integrated data and voice networks with a clean slate."

For other providers, such as those designing new IP-based data networks, Carol agrees that an IP/SONET core is the best solution. "Even there, though, ATM is the most popular solution for access because it allows for efficient multiplexing within the access network." She notes that some 70 percent of the demand for IP-edge router interfaces include ATM access interfaces, with ATM and IP/SONET in equal demand for interfacing to core networks.

As quality of service technologies and IP-based management and billing infrastructure evolve, core networks leveraging IP/SONET and IP/DWDM technologies will become a vi-
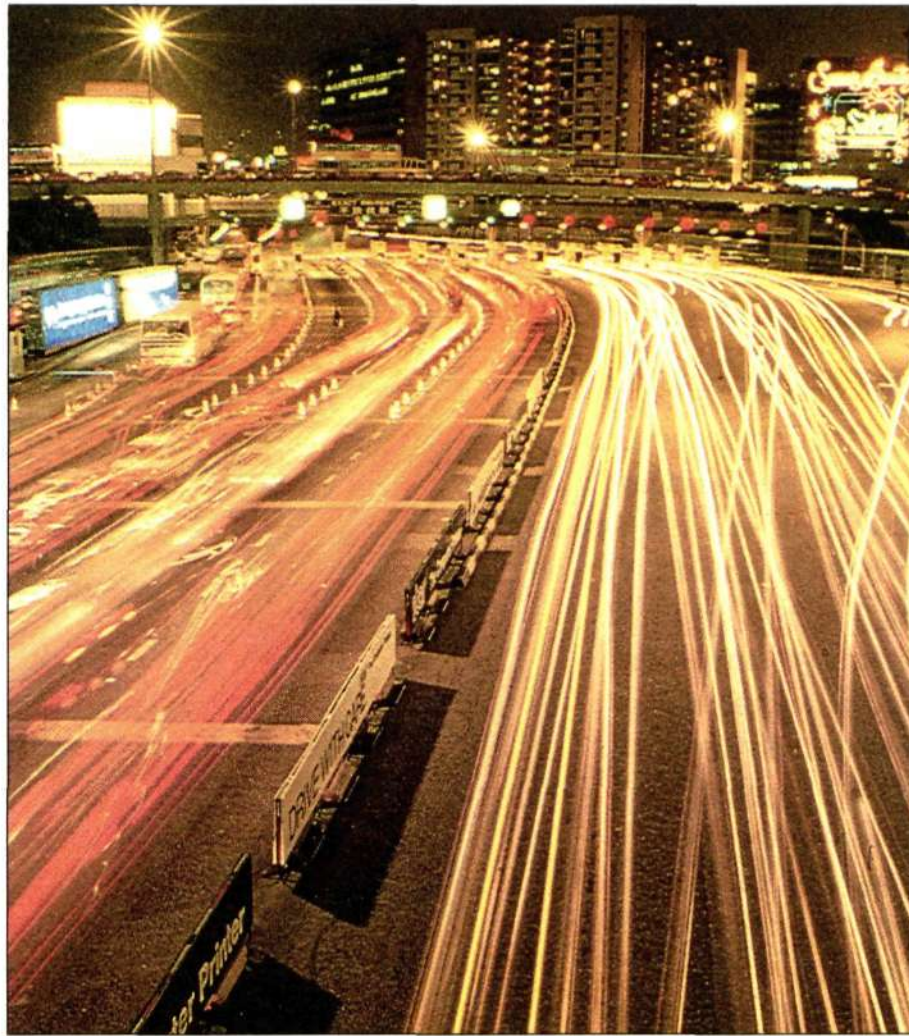
Which technology will lie behind the new electronic superhighways currently being constructed? Many believe that IP-based systems will defeat ATM-based ones, however, Ericsson is convinced that ATM will continue to be significant during a transitional period.
Photo: Pressens bild

able alternative for toll quality voice deployment. For now, though, the trend is to leverage the existing ATM investment, and Carol expects that to continue through the end of the year.

"A company purchasing today for a multi-service core including voice will usually choose ATM. But by this time next year, I would expect early adopters with very large cores to move to IP/DWDM technology."

— Kevin Billinghurst

MANY ROADS, SAME DESTINATION

Internet Protocol is a connectionless network-layer protocol. In all IP networks, from the Internet itself to corporate intranets to the new IP-only multi-service networks being implemented by some providers, messages are broken down into packets, or datagrams, each of which is given a destination address. Packets are passed from router to router on the network, and at each stop the address is checked against a table of destinations to determine its forwarding path.

There are a number of very strong advantages to the connectionless network. Routing tables are dynamic, so they change with variations in network conditions. This means that packets will usually find a new path when a node or even a large part of the network is disabled. And since routers in the core of the network do not have to maintain any per-flow information (only a table of destinations), connectionless networks can handle millions of conversations at the same time.

But connectionless networks also face serious drawbacks, the two most important being performance and the ability to provide managed quality of service (QoS). Perhaps not for long, though. New technologies such as differentiated services enable routers to prioritize traffic at each hop in the network, supporting provision of multiple levels of QoS. Others, such as MPLS and policy-based routing enable service providers to direct traffic based on factors other than destination address, including quality of service requirements.

Once these new IP-based QoS technologies are universally deployed, the "IP highways" will be available to support both real-time and non-real-time traffic. But scaleable IP management, provisioning, and billing systems are also critical to deployment of multiservice IP backbones.

The largest roadblock to IP cores supporting toll quality voice is the ability to accurately determine whether the network has the capacity to support another real-time connection when one is presented at the edge of a network. Users will not accept degraded voice quality because their carrier has deployed a technology to improve operational efficiency. These network provisioning tools will become available over time, enabling service providers to select either IP/ATM, IP/SONET, or IP/DWDM technologies for their multiservice core networks.

The war for the core – a new battlefield

Russ Sharer is a little apologetic about using the language of warfare to describe trends in the fundamentally non-violent telecommunications business. But only a little.

"There's no comparison between dying for your country and winning commercial orders, but we can't afford to do as the British army did when the American colonies declared their independence".

"The Data Networking headquarters in Burlington is just down the road from Lexington, Massachusetts, where the American Revolutionary War began with the famous 'Shot Heard Round the World'," Russ notes. "In that war, the English soldiers allowed their enemy to redefine the rules of engagement in battle, and it cost King George his valuable American assets."

The British army sent to quell the 1775 uprising expected its foes to fight as other armies had always fought. So soldiers wore bright red uniforms, marched in straight lines, and waited for orders from their commanders before firing a shot. The colonialists dressed in the colors of the forest and hid behind rocks and trees to pick off the advancing Redcoats with little risk to themselves. The world's most experienced and well-trained fighting force lost to the poorly armed, underfed colonial militia because it refused to accept the new rules.

Director of Product Marketing at the California-based Access Products division of Erics-

son Data Networking, Russ emphasizes his belief that only by remaining a major player in network core products can Ericsson win the coming battles.

Entirely new types of customers

"Datacom companies are fierce competitors," he continues, "The rules are not the same ones Ericsson is used to from the telecom industry." One fundamental difference he points to is the proliferation of small and large customers of IP-based communications solutions, a far cry from the tradition of giant phone companies awarding their orders to the same vendors year after year.

"In telecom, you win some market share and you lose some market share. But datacom companies are literally trying to put one another out of business," he warns.

Per Nygren, Director of Market Strategy at the datacom and IP services business unit agrees: "The datacom market almost killed IBM," he says. "Digital, a big powerful player

just a few years ago, is no more. Novell owned the networking business, and now they're reduced to providing services. 3Com used to own the enterprise, because they sold all the network interface cards and every PC used their stuff."

Both Russ Sharer and Per Nygren make it clear that their point is not that Ericsson suffers a handicap in this new competition; on the contrary they emphasize the powerful advantages the company holds as hundreds of billions of dollars are spent in coming years to deploy the new generation of multi-service networks combining voice, data, video and multimedia.

Ericsson knows real-time networks

"The Internet today is a marvelous network," Russ says. "But nobody seriously believes you can run voice or multimedia traffic over it. It's a huge, best-effort, clumsily built network. For decades, Ericsson's heritage has been in real-time networks that provide the foundation for well-managed companies to build solid businesses. And it's not just the technology. We give our customers the tools they need for network management, billing and a lot more."

Interoperability in multi-vendor networks and worldwide support capabilities are two more of the company's strong suits. "The telephone companies are becoming more global

every day. We can go to them and say 'Look, now that you have operations in the United States, Europe and everywhere else, we can deploy common systems with common management structures so you can move people around,'" Russ continues. "You can have around-the-clock, around-the-world network monitoring. Those capabilities are unique to Ericsson."

But as imposing as those strengths are today, Russ and Per warn that they could be whittled down over time if Ericsson fails to maintain its total solution profile. "Access never sets the direction for the core," Per says. "It's always the core that sets the direction. All of these new services will be implemented on the core. That's why Ericsson is committed to developing and delivering the complete multi-service core network.

"We should feel good about our strengths, but we need to apply those strengths to the new rules of commercial warfare," Russ concludes. "We're facing a different breed of competition now, and if they start winning and supplying the core networks, they'll use that leverage to attack us everywhere else, like 3G and broadband wireline access."

— Kevin Billinghurst

A Chatboard can easily be hooked up to a cellphone.

Fast, fun and incredibly easy, are words Nils, Tobias and Lina use to describe the Chatboard after trying it out for a few days. The launch of the product is in full swing. The mini-keyboard for SMS messages and e-mail is intended to appeal to the younger generation and has attracted much attention at trade shows worldwide. Ericsson supplied each member of a group of teenagers in Malmö, Sweden with Chatboards and asked them to see what they could do with them.

Happy chatting

Regardless of where she is – for example, here at the "Bryggeriet" – a youth center in Malmö – Lina Ohlsson can send and receive SMS messages. With a Chatboard, punching in a telephone number goes much faster.

Photo: Göran Strandberg/Skånereportage

A t the "Bryggeriet" in Malmö, teenagers gather to skateboard, listen to music or just hang out. Here, Ericsson decided to let a group of teenagers try out the Chatboard. The group included Nils Svensson, who normally has neither cellphone nor computer, Tobias Henriksson who dislikes surfing, but has a number of skateboarding sites he visits regularly, and Lina Ohlsson, who loves to receive text messages on her mobile phone.

Lina has had the Chatboard with her everywhere she goes since it was given to her.

"It's fun. Lots of people come and ask what it is, and everyone thinks it's really cool," she explains. "I think it actually works really well."

Normally, she is a little skeptical about new technology and thinks "it's beginning to go overboard". Still, she cannot help liking the Chatboard.

More fun than calling

She and her friends send each other many SMS messages. They gossip about who they have met, whether someone has got her hair cut, or suggest where they will meet.

"It's much more fun than calling," Lina thinks. "It's so much fun when you see the little postcard in the display, showing that you've received a letter. And that's good, because you can't always have your cellphone on – for example, during class."

Sending SMS takes time, however, and is somewhat painstaking. The Chatboard simplifies the process. Nils thinks it saves time. "Without a doubt, it's five times as fast as dialing a number."

He himself has used the Chatboard quite a lot on the bus from his home in Lund to his job in Malmö.

"I have used the time to send lots of e-mail messages to friends I don't otherwise have much contact with," he says.

He thinks the Chatboard is incredibly simple and is sure it will catch on.

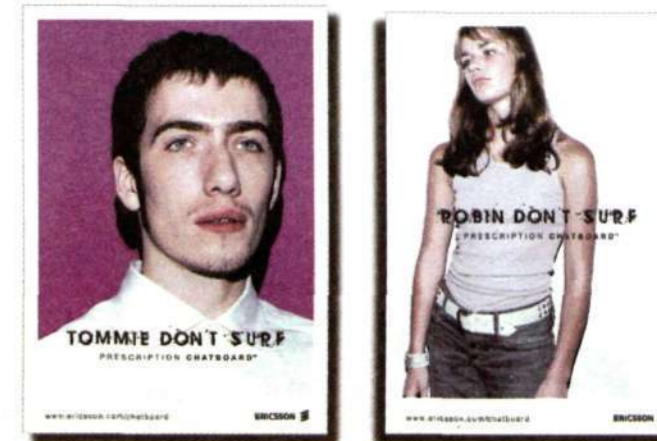"Kids in junior high school who see it go crazy," says Nils, who is somewhat eager to acquire his own Chatboard. "You get used to new things quickly and get comfortable with them. Then it is difficult to be without them," he relates.

Tobias Henriksson also likes the Chatboard, even though he thinks it was difficult to log on the first time.

"I was kind of anxious to start using it, so that was frustrating," he says.

Want games

Once he got going, it worked well and he has sent many e-mail messages. Tobias has no computer at home and usually uses the Internet at work or at some Internet café. Tobias also thinks the Chat-board can become popular among young people. But he thinks it would be even more popular if it included games. "It would be fun if you could play against your friends," he muses.

What do they think is the most important aspect of a technical product?

Tobias thinks it should be easy to use. "Then I would like it," he says. "If it's complicated, I won't bother."

Trust the pros

The others agree. When they decide whether to purchase or not, it is important that it be small, simple to use and of high quality. Brand name is not the most important aspect, but they would feel most secure buying one of the big names – Ericsson or Nokia, for example. "So you know it was built by pros," Tobias explains.

They will continue to use their borrowed Chatboards a little while more. So far, they have sent e-mail and SMS messages. But there are still things to discover. For example, they can visit a special site where Chatboard users can meet and chat on the Internet.

Maria Paues

The advertisements are about Tommie, Jackie, Alex, Robin or Freddie, who do not surf. The names were chosen because they are international and suitable for both boys and girls.

Teenagers the target group

Ericsson's marketing is usually aimed at a broad audience. However, to reach the young people who are the target group for the Chatboard, the company is taking new routes.

"Teenagers do not want things spelled out for them," says Nicklas Larsson, who has worked on the Chatboard campaign. "They want to choose for themselves, not be chosen."

No, there will not be any commercial films in the movie theaters and no huge billboards in the subway. The idea is to deploy small "appetizers" in the right places and pique their curiosity.

"We want it to be a little tempting, a little exciting," Nicklas Larsson explains. "We want those who see the ads to be motivated to find out more."

Exactly what the images are and where these "appetizers" are to be placed may vary from country to country. What is right for Europe can be completely wrong for Asia, and vice versa. Therefore, it is up to the local companies to decide where to use flyers, postcards or banners on exciting web sites, and so on.

"It is important that Ericsson dare to take this step of designing its marketing for a specific target group," Nicklas Larsson believes. "But it's not that we are trying to be cool. On the other hand, it would be great if young people perceived that we are doing something different and that we have products to suit them."

The name of the campaign, "Tommie don't surf," alludes to the misperception that teens typically spend a lot of time surfing the Internet aimlessly. In truth, they are often very goal-directed and use the Internet for specific research, or they go to recommended sites and chat.

Maria Paues

HOW THE CHATBOARD WORKS

The Chatboard is a mini-keyboard that snaps on to a cellphone. It is used to send e-mail, SMS messages, and for chatting.

The user registers him- or herself with Ericsson's Chatboard web site. There, the user chooses a nickname and obtains a numeric code with which to enter the site from a mobile phone. The user is also assigned a personal web page.
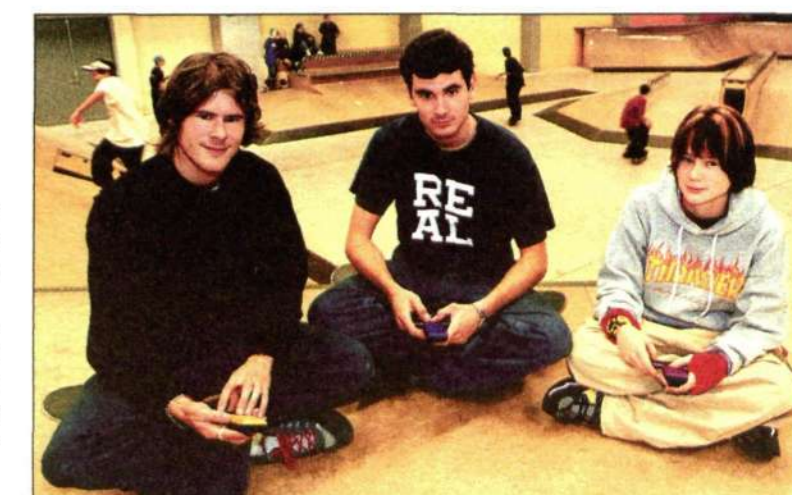
To send e-mail, the user presses a special button on the keyboard and goes directly to the start position. A similar button is provided for SMS messages.

The dimensions of the Chatboard are: 105 x 51 x 12 millimeters, and it weighs 35 grams.

It works with the GF788e, S868, SH888, I888 World, A1018a/sc, R250s, T10/sc and T18s/sc models.

The product is developed by Ericsson at Emmen in the Netherlands.

"This is really fun," say Nils Svensson, Tobias Henriksson and Lina Ohlsson, each of whom has received a Chatboard on loan. They managed to figure out how it works without any instruction book.

A personal Internet home page for your car. This can be reality with Ericsson's Mobile E-services. The home page contains information on the car's condition, and logs your most recent trips. However, the home page can also be used for communication with the car, to set the time for the block heater or to download the most recent software version of the cruise control.

It may sound like science fiction, but it is already reality. With Ericsson Mobile E-services, the car itself can sound an alarm when someone attempts to break in. The car also notifies you, by cellphone, when it requires servicing, and assists you with the mileage log.
Illustration: Helena Halvarsson

Talk to your car by Internet

The number of electronic components in our cars is steadily increasing. Cars already have LANs, and an increasing number of car functions are entrusted to software. In a modern auto repair shop, the mechanic connects a PC to the car's diagnostic system to extract information on the condition of the various components.

But why go to a repair shop to give this information? Why not place a mobile phone in the system and send the information via the GSM network?

With Mobile E-services, all this and much more is reality.

Mobile E-services, developed by Ericsson Microwave's core unit, the Innovation Center, comprises three parts: a computer, a GSM phone and a GPS unit for satellite positioning. The components are connected to the in-car LAN and communicate with the car's functions and the built-in diagnostic systems.

This system, combined with the car's own Internet home page, an operator and a number of service suppliers, opens the door for numerous services and functions.

TELEMATICS TRINITY

If a system for communication to and from the car is to attract many users, and by extension service suppliers, the system must be based on well-known and widespread technology. Open standards are intended to make the range of services available to everyone.

Mobile E-services are based on three such open standards – WAP, Bluetooth and OSGI – launched under the slogan "Telematics Trinity." OSGI is the system foundation and the platform in Ericsson's stationary e-box for "smart houses."

Trip reports made easy

Information on the car's condition is retrieved from the home page. Trips are logged and stored, and users of company cars can dramatically simplify their trip reports by marking business trips and transferring this information to the trip-report software.

Moreover, a personal instruction book can be inserted in the home page.

"The car-owner can access the home page from a PC and also from a WAP phone," explains Kent-Eric Lång at the Innovation Center. The mobile interface can be used to start the block heater before the driver leaves the office, for example. A message can also be sent to the owner's mobile phone if someone tries to break into the car.

Kent-Eric Lång

The Mobile E-services communications functions can also be used to download information to the car while driving. For stores and restaurants along the way, Mobile E-services can provide an excellent marketing channel: for example, a hungry driver can ask the in-car terminal where the closest McDonald's is. The reply will include distance and best route, a list of the week's specials and the possibility of ordering from the menu in advance.

"Security and personal integrity are an important aspect," explains Kent-Eric Lång. "Mobile E-services is equipped with security systems to prevent unauthorized persons from reading data from the car or controlling the car functions. It is important for the user to decide who is allowed access to the information.

Auto industry builds portals

But where is the business advantage of Mobile E-services? How will they make money for Ericsson?

"Ericsson's business is selling the equipment to the operators who run systems for electronic services for car-owners," Kent-Eric Lång explains. "We believe this operator role will be assumed by the auto industry. The industry must build and maintain web portals for services aimed at car-owners. If service stations, gas stations and others are to be interested in providing the services, systems such as Mobile E-services must reach the market and be mounted in as many cars as possible."

Niclas Henningsson

www.mobile-services.com