

Consultants fit the bill

EPAC, Ericsson Process and Application Consulting, is Ericsson's internal data consultancy company. To meet Ericsson's need to reduce costs, EPAC is taking over increasing numbers of assignments that were previously the task of external consultants.

17



Undisputed king of calibration

Correct measuring instruments are indispensable in production and development, but how do you know that instruments are measuring correctly? Christer Larsson at the Gävle plant, in Sweden, ensures that instruments are properly calibrated.

Technology, 19

contact



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Cash balance is the main task

During the first quarter, Ericsson's expenses exceeded its revenue by SEK 18 billion. Today's main task for management is to rapidly improve cash flow.

This is also the factor behind many of the

cutbacks now being implemented in the company.

"Once the measures have been completed, we will be in a fantastic position," says Sten Fornell, Ericsson's Chief Financial Officer.

3, 8-9

UMTS across three countries

Ericsson is to be principal supplier for the UMTS system that KPN Mobile is constructing. The network will cover the Netherlands, Germany and Belgium. The first UMTS products and services will be accessible at the end of 2002. **News, 5**

Views broaden in Japan

Sony is a company with extensive experience of collaboration with its colleagues in the West. *Contact* has made a special study of Sony and Japan to find out what similarities there are between Japanese and Swedish corporate culture and in which areas the two companies can learn from each other. **News, 6-7**

Poland exceeds all forecasts

Poland is approaching 3G with immense speed. The number of mobile users in the country has increased more substantially than anyone believed and the Polish government's goal is to make Poland a high-tech country as rapidly as possible. In the near future, four UMTS licenses will be awarded to mobile operators and Ericsson foresees an opportunity to expand considerably in Poland. **12-13**

WORLD WATCH

The world's first commercial 3G network was scheduled to be launched in Japan at the end of May. Mobile operator NTT DoCoMo has now postponed this event for four months due to instability in the network. **10-11**

AT WORK

Employees at the new 3G plant in Gävle had the opportunity to select the color schemes and design of their work environment. However, training and attitudes are just as important for the creation of pleasant workplaces. **20-21**



Nikolaus Frank has started to develop various work methods at the design center in Lund. "This is the beginning of the creation of a new design culture - but it won't happen overnight," he says.

Photo: Tomas Bergman

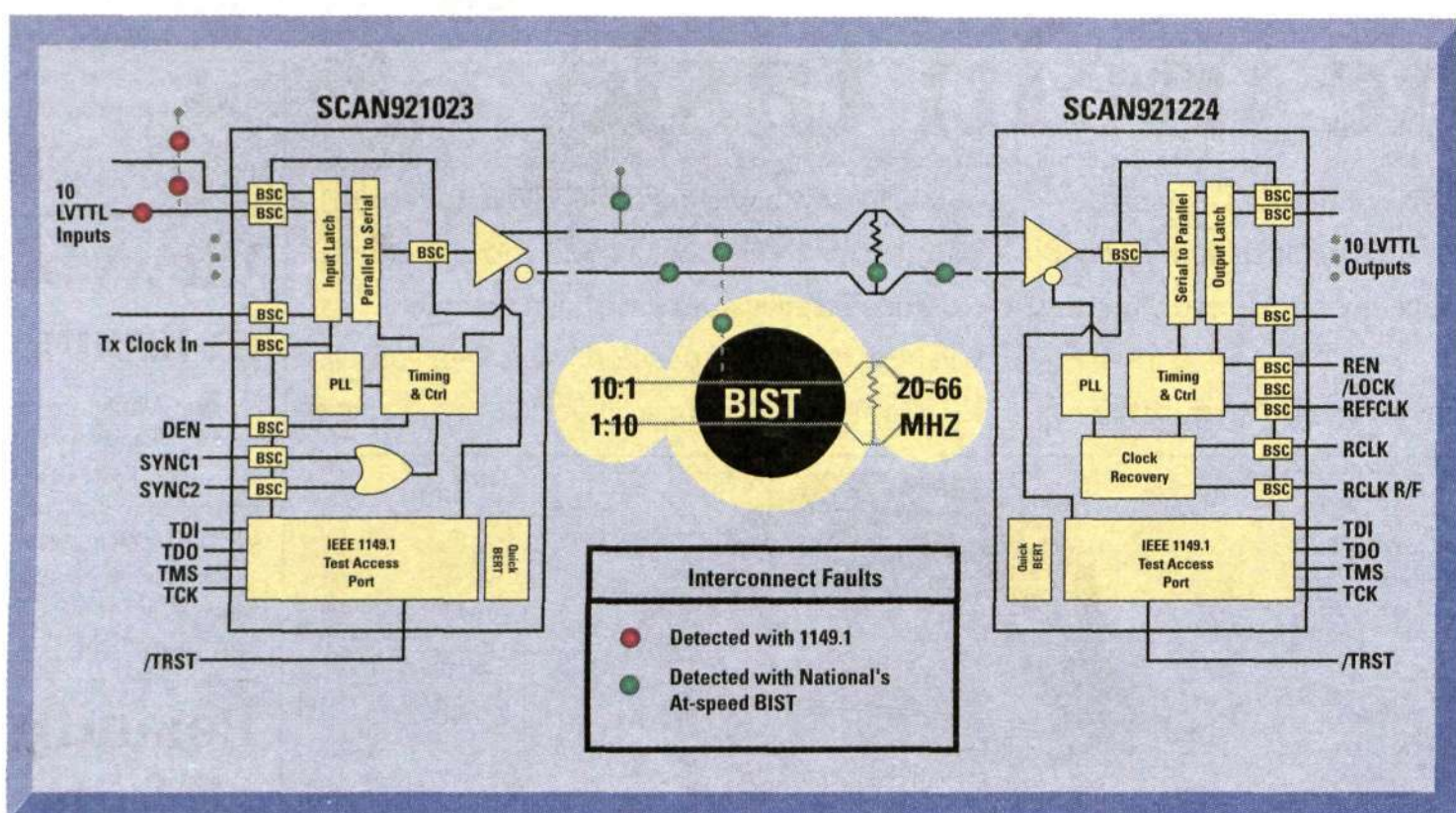
Where design is at the center


Ericsson's new design center was recently opened in Lund, Sweden. Under the leadership of the new head of design, Nikolaus Frank, a new design culture and a partly new design language are being born.

14-15

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Good cash flow is vital

"The year has started off with a significantly larger outflow of money than inflow into the company, which is a matter we must now address forcefully," says Ericsson Executive Vice President and CFO Sten Fornell.

Ericsson's efficiency program has two purposes. One is to restore good profitability by adapting costs to the new reality of significantly lower growth. The other is to improve cash flow, which will have a more immediate effect.

► Improving cash flow is important, and not only over the short term. It has been and remains a long-term objective for Ericsson – one of several financial objectives that were formulated long before the economic slowdown struck.

"We want to see growth that is at least in line with market growth. We want to see profitable growth and a return on capital employed of between 20 and 25 percent. We also want to have self-financed growth. In order to achieve these, we need to have an operating margin of at least 10 percent. These long-term objectives assume that we will continue to strive to improve our capital management."

What does cash flow involve?

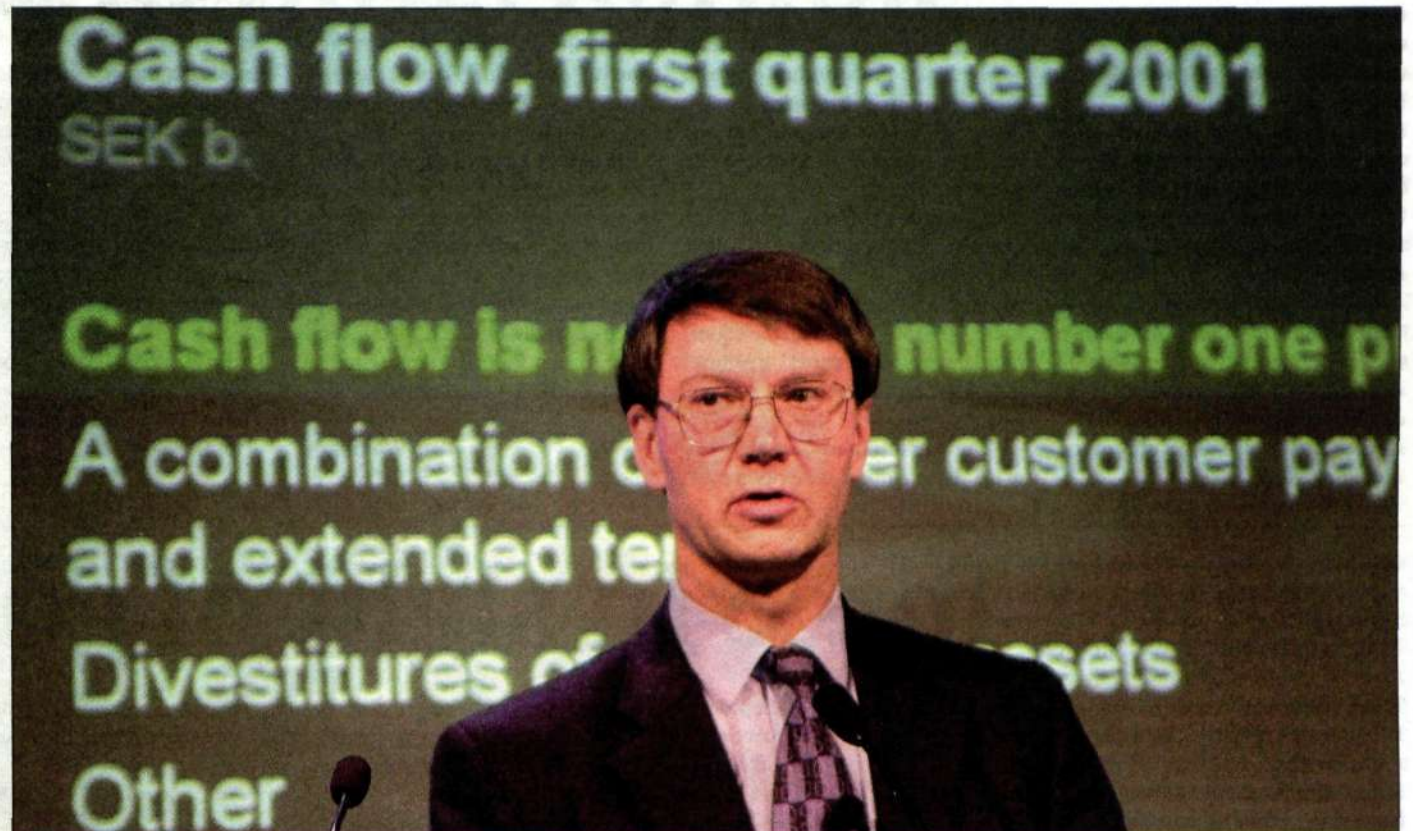
"Simply put, it is the change in our cash levels over a certain period of time. This change is due partly to the earnings that operations generate, and partly a change in the capital that we use in order to conduct our operations, such as accounts receivable and accounts payable. If we have a lot of capital tied up in accounts receivable and inventory, it has a negative effect on cash flow."

Why is it so important to have good cash flow?

"It provides us with room to operate and the strength to remain successful within our core business areas. With an immediate improvement in this area we will be able to prepare ourselves for the future. Good cash flow based on steady margins from business and good capital management will also provide us with good ratings from credit rating institutes. Which, in turn, affects our borrowing costs."

What is it about the current situation that makes this especially urgent?

"Our major focus is on our accounts receivable. Over a fairly long period of time we have demonstrated continuous improvement in this area. But customers are experiencing hard times now and their balance sheets are



"Flexibility is key. We must be prepared for both upswings and downturns in the world economy," says Sten Fornell, Ericsson's CFO.

Photo: Lars Åström

strained. This is due to a slowdown within the industry at the same time as many operators are also paying large sums for 3G licenses. By stretching out their payment schedules, they are using our balance sheet, which leaves us with negative cash flow. While this is the current reality, we can definitely actively work to change this. Accounts receivable comprise one-third of our balance sheet, which totals approximately USD 25 billion, so that is a large amount. Our inventory constitutes approximately 20 percent of the balance sheet."

So what should Ericsson do?

"There is quite a lot that we can do. Let me first clarify by saying that even if the focus is now on lower costs and improved cash flow, the actual basis for a solid financial situation remains sales and new orders. Flexibility is key. We must be prepared for both upswings and downturns in the world economy. When it comes to accounts receivable, we can do quite a bit. If customers had continued to make payments as rapidly as they did last year, our cash flow for the first quarter would have been positive rather than negative."

Suppliers within this industry sometimes assist customers with loans. Is that on the cards?

"We are very cautious and selective when it comes to customer financing. We don't serve as a bank. On the other hand, we do work actively to find solutions in the financial market for those customers who need assis-

tance. In the rare exceptions when we act as a lender, it is usually more about providing a helping hand on a short-term basis. And such cases must be based on a sound business."

How does Ericsson treat its own suppliers?

"We're actively working on that and many concrete steps have been taken in this regard. These involve finding solutions that will result in continued successes for both parties. We select suppliers for solid business relationships. The ones we focus on are repaying us by offering competitive prices and payment terms. In this way, we achieve a better balance between our customers' payment schedules to us and the time it takes to pay our suppliers."

What can individuals do to help?

"Everyone can lend support in both big and small ways. During times of strained cash flow, it becomes more noticeable that the differences are not so great between small and large companies. The interaction between various functions is important. I'm thinking, for example, about product development, marketing and finance. I have understood from all of the ideas and suggestions out in the organization that there is much that can be done, including hunting "time thieves" up until invoicing, working proactively and dealing with any obstacles before receivables are allowed to fall due, to reduce the inventory buffer, to invest resources on that which is really important and so forth."

What is management doing to motivate people?

"All employees with major financial responsibilities are being included in a bonus program that is based on our successes with cash flow. Persons who have financial responsibility for a market unit will receive bonuses based on improvements within the unit. The same goes for market areas, divisions and so on. Excellent performance will also be specially recognized and this will be made widely known throughout the company."

How can I measure how things are progressing over the short-term?

"Like previously, there is close follow-up at the corporate level of everyone who has extensive financial responsibilities. Accounts receivable is such an area, where account managers within certain units will now be able to monitor current status and developments, whenever they want, even via their mobile phones. Personally, I monitor the company's cash flow on a weekly basis."

What do you think will be the end result of these efforts?

"Once we've made it through this difficult period, using our combined forces we, Ericsson, will be in a fantastic position."

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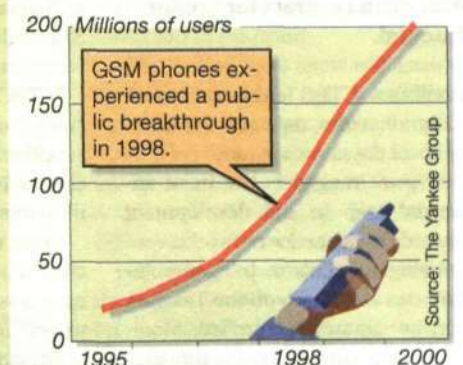
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DID YOU KNOW THAT...

... the number of people who own a mobile phone in Western Europe increased by 800 percent between 1995 and 2000.



Half a billion now using GSM

Half a billion people around the world are GSM subscribers, according to industry bodies and research organizations. Nearly 200 million of these users (about 40 percent) are connected over a network delivered by Ericsson, reaffirming the company's global position as leading supplier of 2G, 2.5G and 3G networks.

GSM has become the world's most widely deployed mobile standard, and customers in 139 networks in 79 countries rely on GSM from Ericsson for their voice, SMS and other mobile services.

"An important landmark in the evolution and spread of global mobile communications has been reached, and Ericsson has played a central, key role in making it happen," says James Borup, at Ericsson's Press Relations, Division Mobile Systems.

Ericsson has a strong tradition of working with open standards and has been a pioneering driver in established standardization bodies such as ETSI (European Telecommunications Standards Institute) and 3GPP (3rd Generation Partnership Project).

"The extraordinary success story of GSM, developed as an open stan-

dard, has driven a global, multi-vendor market for infrastructure, terminals and applications development," said Mats Dahlin, head of Division Mobile Systems at Ericsson.

"GSM is the most successful mobile platform ever and with its global roaming capabilities and open structure is the optimum platform from which to build future mobile strategies," stated Alan Hadden, President of the Global Mobile Suppliers Association, the industry representative body for GSM and 3G vendors.

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FACTS/GSM NETWORKS

Ericsson's strength and superiority in building out GSM networks and developing WCDMA have resulted in the company achieving a number of firsts. Among these are:

- On April 16, 2001 Ericsson and Vodafone made the first call on a commercial WCDMA network.
- The world's first live operational GPRS network was launched in May 2000, with Hong Kong operator SmarTone.

• At CeBIT 2001, Ericsson showed the first complete WCDMA system with ready-to-deliver, commercially available 3GPP compatible products.

• The world's first field trial of Voice over IP (VoIP) was successfully completed in September 2000.

• Ericsson introduced the world's first real-time router for wireless networks in February 2000.

Leaner force in sight of goal

The Consumer Products Division is creating a new organization that goes into effect May 15 and is aimed at increasing sales, reducing costs and cutting administration to a minimum. Plans call for the Sony Ericsson joint venture to be profitable from day one.

"The new organization is simple, straightforward and very efficient. There's a much shorter distance between the customer and me now. The organization is adapted to the market situation and a considerably smaller workforce," says Jan Wäreby, Executive Vice President, Consumer Products Division.

The new organization will con-

centrate on product development, marketing and sales. Product development will be combined throughout the division, and will no longer be divided up according to mobile phone standards, for example.

Product management will now bear full responsibility for everything from deciding which products to develop to responsibility on the sales side for ensuring that products reach markets as quickly as possible.

Start this autumn

Last, but not least, the sales force will now report directly to sales management within the division, not to market units and market areas as before.

The scheduled operational start

date for the Sony Ericsson joint venture is October 1, with 2,500 Ericsson employees going to work for the new company.

The first products to sport the new brand name will follow shortly after the start of the joint venture. However, the first jointly developed products will not be launched until the latter part of 2002.

Jan Wäreby believes that Sony and Ericsson will strengthen each other in several respects. In terms of market presence, Ericsson is strong in the US and Europe, while Sony is strongest in Japan.

Sony has a very strong position within the consumer segment, while Ericsson is stronger on the operator side. Ericsson is contributing ad-

vanced basic technology and strong platforms, while Sony has specialized in applications and functions.

"In many respects, Sony was my dream partner. I'm not afraid of cultural differences regarding work styles - we are dealing with two international companies.

"While it is clear that all mergers require a great deal of effort, what will be difficult for us now will be to create a joint venture company at the same time that we are restructuring our organization to return to profitability in the near future. I am, however, con-

vinced that this is the right way to go," says Jan Wäreby.

Far along

Anil Raj has been appointed to oversee two projects within the new organization: the "Back to profit - the next step" action program and the integration of Sony and Ericsson. He is optimistic about the future.

"We're not only back on track again, we're already ahead of our incremental goals. It's not possible to delay implementation of the Back to profit program - we will achieve the target," he reassures.

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New phone without antenna

Ericsson in China has released the company's first mobile phone with a built-in antenna. Staffan Söderqvist, Executive Vice President of Ericsson China says reception has been overwhelmingly positive.

The A2638sc is the second new model to be launched in China this year,

after the launch of the T29sc in March. It's main feature is the built-in antenna, and its sleek design.

Staffan Söderqvist explains that design is of high importance to China's growing number of subscribers and that the new A2638sc is attracting a lot of attention.

"The Chinese market holds huge potential, and it's becoming in-

creasingly important to work closer to the market," Staffan Söderqvist says.

"The A2638sc has been researched, developed and manufactured here in China. It's the first handset specially tailor-made to suit local customers' needs."

Aside from the built-in antenna, the A2638sc also features the Li-Ion

battery, offering up to 200 hours of stand-by time and 8.5 hours of talk time. It also includes voice dialing and answering, customized start-up and shut-down animation and melody, and three games (Tetris, E-Maze and Erix.)

Kris Walmsley



A2638sc will be launched in China.

Engine Integral gains foothold

Ericsson has reached an agreement with the Brazilian operator CTBC Telecom to upgrade their network in the first Latin American contract for Engine Integral.

It will allow CTBC Telecom's network to handle voice, data and the Internet over the same network.

Engine Integral is the most advanced step in the development towards multiservice networks.

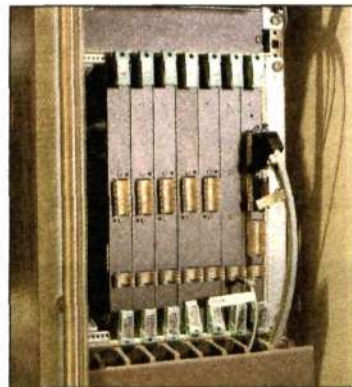
Using the Engine Integral solution, an entire telephone network can be centrally controlled. Moreover, telephony customers can con-

nect to the network via a media gateway, without requiring telephone switches. CTBC Telecom currently has 650,000 wireline subscribers and 200,000 mobile users in São Paulo, Minas Gerais, Goiás and Mato Grosso do Sul in Brazil.

"CTBC selected Engine over strong competition from other suppliers," says Rogério Loripe Guimarães, who is product and technical manager at Ericsson in Brazil.

"This means that we are feeling confident when it comes to future contracts for multi-service networks," he says.

Ericsson has previously signed



By the end of the year, Ericsson's multiservice solution, Engine Integral, will have been installed with CTBC Telecom.

two Engine contracts in Brazil, but not of the Engine Integral type. Installation will be performed during the latter part of this year.

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Microelectronics lays off 175

All module manufacturing will cease at Ericsson Microelectronics in Kista, where 175 employees have been given layoff notices. By shifting manufacturing to plants in China and Kalmar, Sweden, the company plans to save approximately USD 10 million annually.

"This decision is due to the market. Demand is simply too low and we cannot continue to operate three facilities with low workloads," says Bo Andersson, President of Ericsson Microelectronics.

The 175 workers who have been given notice are all union contract employees. On the salaried employ-

ee side, another 75 positions will be eliminated, although this can be accomplished largely through normal attrition and transfers. Altogether, the cuts affect 250 positions.

When questioned as to why layoffs have been made in Kista in particular, Bo Andersson responded:

"The facility in Kalmar is much larger. By moving module production there, we can realize major savings through economies of scale.

"We will continue to remain flexible and will be able to quickly increase volumes should demand increase," he says.

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KPN Mobile to build networks in three nations

KPN Mobile has selected Ericsson as the main supplier for its UMTS system, which will cover the Netherlands, Germany and Belgium. Ericsson will be the sole supplier of the core network.

As for its radio network, KPN Mobile has chosen both Ericsson and Lucent.

Deliveries to the three operators – KPN Mobile in the Netherlands, E-Plus in Germany and KPN Orange in Belgium – will begin in September. Preparations for installation and roll out have already begun, with roll out beginning in a few select cities over the next few months in the three nations. The first field tests are scheduled for the end of this year, and the first UMTS products and services will be accessible by the end of 2002.

Nokia is currently the supplier for E-Plus in Germany, while Ericsson is the existing supplier for KPN Orange in Belgium as well as for portions of the KPN Mobile system in the Netherlands.

With its UMTS network, which will provide coverage in three countries, KPN Mobile is marketing its services to a customer base of over 16.5 million people. The operator will be one of the largest in Europe to offer 3G services.

"Together with Ericsson, who has been our supplier for a long time, we have built up 3G expertise by conducting pre-studies, orga-



The three are raising their flags over the fact that KPN has selected Ericsson as the main supplier for the UMTS system, that will cover the Netherlands, Germany and Belgium. From left, Torbjörn Possne, head of the WCDMA/PDC business unit, Mats Dahlin, head of the Mobile Systems Division, and Anders Runevad, head of marketing at WCDMA/PDC. Photo: Ecke Küller

nizing workshops, evaluating test systems and developing applications. We're convinced that Ericsson is the right 3G partner for us," says Wim van den Berg, Vice President of KPN Mobile.

"Ericsson and KPN have been collaborating for a long time, and this 3G agreement is a confirmation of our strength, both within

mobile communications and as a business partner offering reliable solutions," says Mats Dahlin, head of Ericsson's Mobile Systems Division.

The agreement with KPN is valued at approximately USD 190 million over the first two years.

KPN Mobile, which has its primary operations in the Nether-

lands, Germany and Belgium, owns 15 percent of Hutchison 3G UK in the UK. KPN Mobile is also active in Hungary, the Ukraine and Indonesia. Royal KPN N.V. owns 85 percent and Japan's NTT DoCoMo, 15 percent of KPN Mobile.

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On the way to global certification

Energy-efficient products, environmentally-friendly designs and increased environmental awareness. Those are a few of the goals that Ericsson has established to improve its environmental profile.

Recently, a number of units within the company received ISO 14001 certification, confirmation that Ericsson's environmental program is on the right track.

In April, the first ever review of Ericsson's environmental management system was conducted. Independent environmental auditors inspected the company's tools for environmental control, and ISO 14001-certified the units within the

company that use those tools in their environmental work.

"This is the first step towards certification of the entire company. The next certification will take place in June, and we are aiming to have all of Ericsson environmentally certified by October. Those units that are still not ready, will be expressly exempted from the certificate," says Martin Davies, project manager for environmental issues at Ericsson.

Guidance and support

A global environmental management system has been incrementally implemented at business units and areas within Ericsson since 1999. Under the system, environmental managers at every unit receive guidance and support in es-

tablishing goals for their environmental efforts. Environmental certification has become increasingly important, constituting a powerful sales argument in an increasingly competitive market.

Clients demand certification

"It's essential for a global company like Ericsson to demonstrate that we can control our impact on the environment. An increasing number of clients are demanding that we be ISO 14001-certified. Moreover, our business concept includes offering solutions that can assist individuals and companies to reduce their environmental impact. The mobile Internet is all about that," says Martin Davies.

ISO 14001 is an international en-

vironmental management standard that was developed by the International Standards Organization (ISO). Companies that wish to become certified must first implement an environmental management system in accordance with the principles established in the ISO 14001 standards.

That forms the framework for environmental efforts, which are then filled with activities and measures tailored to the particular company in question.

"Environmental management systems help us to see where we stand, where we are headed and how we can achieve our environmental goals," concludes Martin Davies.

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Wireless Village – a group effort

Ericsson, Nokia and Motorola have formed a new collaboration known as the Wireless Village. Its purpose is to create standards for new mobile positioning and messaging services.

Within the Wireless Village initiative, companies are coming to-

gether to create the architecture and specifications for mobile services protocols known as IMPS or Instant Messaging and Presence Services. IMPS can, for example, include multimedia-messaging services. It includes positioning services that are developed for groups of friends or colleagues,

and which offer personal information about users.

"Ericsson is convinced that Wireless Village is a major step towards global messaging services that correspond to the needs of users in a mobile world," says Jan Svensson, head of the GSM and UMTS telephone production unit.

Wireless Village is expected to develop specifications for IMPS by the end of this year. Other leading companies within the industry are welcome to support this effort.

Cari Simmons
Jesper Mott

Libertel-Vodafone chooses Ericsson

» The operator Libertel-Vodafone has selected Ericsson as the sole provider for its UMTS system in the Netherlands. The contract, worth USD 45 million, includes hardware and software as well as installation and roll out services for the UMTS network.

Libertel-Vodafone will begin to offer its subscribers 3G services at the end of next year.

Ericsson is already a supplier of GSM and GPRS equipment to Libertel-Vodafone. Libertel-Vodafone is part of Vodafone Group plc, the world's largest mobile phone operator, with over 83 million subscribers in 30 countries.

Board acquires C-shares

» Ericsson's Board of Directors has made a directed offer to purchase 155 million Series C shares from Investor AB and Nordinvest AB, a subsidiary of Industrivärden AB. Ericsson will pay SEK 1.005644 per share, and the purchase will occur in June.

The shares have been subscribed in an issue directed at both companies. Shares will be converted to Series B-shares and be used for the implementation of Ericsson's Global Stock Incentive Program. The program consists of a stock option plan and a stock purchase plan.

The stock option program will be launched on May 14.

Ericsson promotes mobile e-commerce

» Ericsson was one of the main sponsors at Mobile Commerce World Asia 2001, a combined trade show and conference with the purpose of integrating mobile e-commerce into everyday business.

The chairman of the conference, Jacob Goldman, Ericsson's global sales and marketing manager for banking and finance, gave the keynote speech about strategies for the mobile marketplace.

Mobile Commerce World is a series of trade shows that are held around the globe, focusing on strategies for mobile e-commerce. In addition to Singapore, other host cities this year have included Dubai, Stockholm, Johannesburg and London.

Engine goes on tour in Europe

» Ericsson's multi-service solution, Engine, has gone mobile. Engine studio, a demonstration network, has been set up in a trailer that is currently touring around Europe.

Visitors can experience the services that are offered through the Engine solution. The intention is to be able to provide onsite demonstrations of Engine to customers in the future.

"The Engine Road Show will assist us in increasing sales. It is an effective method for bringing customers together, keeping them updated and for gaining ideas about what we should do next," says David King, key account manager in Western Europe.

Following its premiere in Denmark, the Engine Road Show will make stops in several Western European nations, including Italy.

Tomorrow's telephone – it won't be long now

Ericsson hopes to launch its first 3G-telephone next year. The market has shown widespread interest in the new terminals, but few consumers actually know what differentiates a 3G-telephone from today's mobile telephones.

"There are several technical applications that are impossible to implement with today's GSM-telephones – applications that will become a reality with 3G-telephones," says Fredrik Öjjer, strategic product manager for GSM/UMTS, at Ericsson Mobile Communications.

The basic idea with 3G-telephony is that end-users will constantly be connected to the Internet.

The telephones, therefore, must

be able to receive periodic transmissions comprising very large amounts of text and images.

"Imaging and messaging are two application areas that we believe will be extremely popular when use of 3G-telephones starts to gain momentum," says Fredrik Öjjer.

Watch videotapes

The stage between GSM and 3G-telephony is called GPRS, or 2.5G. Relatively sophisticated imaging and messaging services are already available with today's GPRS telephones.

"GPRS telephones can be used to send pictures with text messages to other GPRS phones. With 3G-telephones, however, it will also be possible to watch and listen to

entire video clips," Fredrik Öjjer continues.

Imaging will be facilitated by a streaming function. With the support of streaming, the consumer will be able to devote costly transmission minutes to other functions, such as downloading a videotape before watching it on the telephone's display.

"The data that comprises the image is buffered in the telephone's memory. As a result, the user only has to download the first few seconds of a videotape in order to watch it," says sFredrik Öjjer.

Music downloading is another service that will be provided by the new 3G-network. Some telephones already have functions that support music downloads from the Internet.

In the future, however, the actual downloads will be achieved much faster with the support of integrated mp3-functions in the telephones and higher transmission speeds in mobile networks.

Popular with young people

Positioning is another service that will be featured in third-generation telephones.

"With the help of positioning, you can see where other users of 3G-telephones are without actually calling them. This will probably become a popular function with young people, but also in certain workplaces," says Fredrik Öjjer.

Many taxi and trucking companies already use a form of positioning in their present operations to

keep track of where their vehicles are at any given time. The equipment is relatively cumbersome, however, and opportunities to obtain the same service via mobile telephony will probably attract the interest of many companies. Positioning can also provide a lifesaving service for users in emergency situations.

Large storage capacity

3G-telephones will also have memory capacity able to store a thousand times more information than today's mobile telephones, and large color display screens to enhance the new functions.

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A TELEPHONE FILLED WITH OPPORTUNITIES

Positioning
3G-telephones will offer a sophisticated positioning service. Users will be able to determine where their families and friends are situated, for example.

Music downloads
Supported by integrated mp3-players and higher transmission speeds in the mobile networks, users will be able to download music from the Internet quickly and easily.

Imaging
3G-telephones will enable users to watch and listen to video clips. The telephones will be equipped with large color displays to enhance

Messaging
MMS, Multi Messaging Service, is an enhanced version of the SMS text messaging service. MMS enables users to add sound and moving pictures to their text messages.

om	423672
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Sony has broad focus

A large and dominant company with a broad range of products and comprehensive technological expertise, this coupled with a strong brand and acute awareness of consumer preferences. This is a brief description of Sony, Ericsson's new partner for tomorrow's mobile telephones.

With 190,000 employees, Sony is nearly twice the size of Ericsson. The Japanese company is also generally regarded as one of the industry's most innovative companies. And the Sony brand is one of the strongest in home electronics.

"I think Sony and Ericsson are an excellent combination. Sony's strengths lie in design and its ability to know and meet the preferences of end users. These attributes, combined with Ericsson's technological know-how in telephones and telephone systems, will form the nucleus of a very strong alliance," says Hans Rhodiner, Swedish Trade Commissioner in Japan.

As an example of Sony's ability, he points to the Japanese company's range of Vaio laptop computers, which have quickly become a major success in Japan. Vaio computers are attractive and highly functional laptops that can be used in combination with other Sony products, such as the Memory Stick, a portable storage facility about the size of a ballpoint pen, which is used as a Walkman tape recorder.



Sony is well known for being an innovator in electronics. The robot dog Aibo can play ball or tell the owner when new a new mail has arrived.

"A few years ago, Sony was not considered a major player in computers, but the company has now risen to the top among Japanese manufacturers," says Hans Rhodiner.

Sony's new i-Mode telephone has also attracted widespread interest in the company's domestic market, with particularly strong attention focused on its brilliant color display screen. The color display is consid-

ered another one of Sony's strong features in the alliance with Ericsson.

Sony is one of the absolute leaders in home electronics. Its Walkman and PlayStation brands have become household words, and the Japanese manufacturer dominates the market for digital video cameras. Sony has also acquired ownership interests in the entertainment industry. World-renowned artists such as Mariah Carey, Celine Dion

and Macy Gray are under contract with companies owned by Sony, which also owns several movie production companies.

Its affiliation with the entertainment industry is considered an advantage for a company striving to become No. 1 in 3G telephones, an area in which special functions and content such as games, music and film are becoming more critical elements.

"Several of Sony's existing products, including Memory Stick, will almost certainly serve as accessory equipment for tomorrow's telephones. They might also provide a running start for the Sony-Ericsson alliance," says Mats Nyström, a telecom industry analyst at Swedish firm Enskilda Securities.

Although the alliance is not a patent solution to Ericsson's mobile telephone problems, Mats Nyström believes that investor confidence in the company will be bolstered by its cooperation agreement with Sony. Overall, he also agrees with Ericsson's executive management that Sony is the perfect partner for Ericsson in its present situation.

"Sony does not have a very large market share for mobile telephones, but the company offers a strong brand and a proven ability to develop new functions and accessories," says Mats Nyström.

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COMMENTS ON THE ALLIANCE

What will Ericsson gain from the alliance with Sony?



Jester Chen, Ericsson Taiwan:

"This could be a good strategy to help Ericsson increase its market share. Sony is a leading electronics company; its

share of the mobile telephone market is not very high, but their products have a good reputation. I'm looking forward to seeing the results of the cooperation project."



Anna Konstenius, Ericsson Enterprise, Sweden:

"It will offer a fresh start for Ericsson; the company can regroup and move forward. Hopefully, we

will be able to get away from the "square" reputation of our telephones."



Medjda Baroudi, Sitel Algeria:

"We don't have a great deal of mobile telephony in Algeria, so I'm not very familiar with the market. But I definitely think the alliance will open up new markets for Ericsson."



Lars Nilsson, Ericsson Internet Applications, Sweden:

"I hope the alliance will result in better designs for our telephones. At the same time, I think we

should ask what Ericsson stands to lose from the alliance, especially since we are not going to use the brands of either company on the telephones. They have to establish a completely new brand. Furthermore, Sony does not have substantial sales of mobile telephones.



Abdul Rahman, Almstari, Teliyemen, Yemen:

"Sony's brand is famous. Ericsson will also benefit from not having to pay so much to market the telephones."

A fleet-footed giant in electronics

Sony products are known and recognized on every continent in the world, and the company has made several major acquisitions during recent years, including ownership interests in the American entertainment industry. Its international element has contributed to Sony's reputation today as one of the most modern Japanese companies in terms of management philosophies and corporate culture.

"There is no doubt that Sony is the easiest Japanese company to cooperate with. The company has a great deal of experience of collaboration with Western companies, particularly in the US, and it is one of the most global of all Japanese companies," says Jon Sigurdson, a Professor at the European Institute of Japanese studies at the Stockholm School of Economics.

Sony is also leading an ongoing transformation of industry in Japan, a restructuring that will create a flatter organization by separating its operations into different divisions and outsourcing production to independent manufacturing companies – a mode of operations familiar to Ericsson employees.

"There are several indications that Sony's corporate culture is less traditionally Japanese than other Japanese companies. This is partic-

ularly obvious during informal contacts with the company," says Jon Sigurdson.

The prevailing image of traditionally managed Japanese companies reflects very top-heavy control through a well-defined hierarchy. Decision-making channels are long and it takes time to reach decisions. A clearly defined advancement path has also contributed to a situation whereby the number of years within a company is valued higher than ability. In Sony's case, however, the picture is different. The company is focused strongly on a younger group of customers, and its employees have a relatively low average age of about 38.

Have a lot in common

"The company is relatively unconventional – not bound by traditional rules and hierarchies. It does what needs to be done and has very successfully learned what the market wants," says Hans Rhodiner of the Swedish Trade Council in Japan. He has 20 years of experience in Japan and, prior to joining the Trade Council, he worked as a systems engineer for Fujitsu.

"Swedes and Japanese people actually have a lot in common. It is part of our personality to refrain from forcing ourselves on other people or boasting about our accomplishments. Japanese people, like Swedes, are also rather quiet.

But, like us, they start to open up after a beer. The similarities might also be one explanation for the fact that Swedes and Japanese work very well together," he says.

Several ties

There are also several ties between Sony and Ericsson. Göran Lindahl was recently elected as the first European to serve on Sony's Board of Directors. He is also a member of Ericsson's Board of Directors. His election, however, was totally unrelated with the alliance between Sony and Ericsson, he says.

But, of course, there are also differences between Japanese and Swedish corporate cultures, and Hans Rhodiner says it's important to be aware of these differences, despite Sony's less traditional structure. One of these differences is related to what might be called a conference, or meeting's, culture and how decisions are reached. In Japan, the expression *nemawashi* is used, which means to "drum up opinions."

Before a meeting, accordingly, persons scheduled to attend the meeting are approached and asked about their opinions and viewpoints, a sort of preparation of the issue at hand. The system avoids conflicts at the meeting, and the Japanese always prefer to avoid conflicts.

Another difference lies in the

Lars-Magnus Kihlström

Cash flow must change

While the latest interim report revealed that Ericsson's earnings fell, the most revealing fact was that the company had almost SEK 18 billion in negative cash flow. Turning that trend around is currently the top priority of management.

But what is cash flow really? Contact attempts to sort out the terminology.

A company's accounting consists primarily of three parts: an income statement, a balance sheet, and a cash flow statement.

An income statement reports on a company's earnings, either a profit or loss. Earnings are essentially equal to a company's revenues minus its expenses, such as salaries and other costs. During the first quarter of 2001, Ericsson reported a profit of over SEK 400 million after taxes.

Summary of debts

A balance sheet, on the other hand, is primarily a summary of assets and liabilities. Assets include claims that Ericsson has against customers as well as inventory, while liabilities include the company's debts to subcontractors and banks.

So what is cash flow? And how can the cash flow be nearly minus SEK 18 billion for the first three months?

Cash flow is, quite simply, the difference between a company's cash positions at the beginning and end of a particular period.

The figure is based both on the income statement and the balance

sheet, and shows how much money is passing in and out of the company over a period of time.

Loan to cover for cash

As part of the cash flow analysis, in addition to earnings, accounts receivable and inventory since the last interim report are also taken into consideration. If accounts receivable have increased during the period, they are counted against holdings, and the same is also true if inventory has increased.

From a practical standpoint, this means the company is without that money, although expenses continue to accrue as usual. If this continues for too long, the company has to borrow money to avoid running out of cash.

In Ericsson's case, some customers experience a financial downturn and hold off as long as possible before paying. At the same time, there was a drop in demand, which led to more components and products remaining on the warehouse shelves.

Had Ericsson not made a profit of SEK 5.5 billion from the sale of Juniper shares, the cashflow would have been even worse.

Generate earnings

In order to ease the situation, Ericsson has taken a loan of SEK 4.5 billion, although this is not a long-term sustainable solution. One of the main requirements that management has placed is that operations must generate earnings to cover expenses.

So what can be done?

Part of the answer involves receiving payments as quickly as possible, and that customers not be given the opportunity to delay in paying their invoices because the product has not yet been delivered or installed.

Part of the solution might involve writing contracts in a clearer manner or pressing clients that are sloppy about making payments.

"We've been demonstrating steady improvements for quite a long period of time. But customers are having a difficult time right now, and their balance sheets are strained as well. This is due to the slowdown within the industry, even as many operators have paid large sums for their 3G licenses", says CFO Sten Fornell.

"By extending their repayment schedules, they are using our balance sheet, which is providing us with negative cash flow", he continues.

Direct factors

Yet another factor is to ensure that invoices are actually sent out as soon as Ericsson's part of the deal is completed.

To change the cashflow also in the long run, the expenditures have to be restricted. This is being done now through the implementation of various cutbacks.

Part of this process involves reviewing contracts with suppliers to ensure that inventory is not growing and that projects are being operated efficiently.

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FACTS/CASH FLOW BEFORE FINANCIAL ACTIVITIES

Year	SEK billions
1999	
Q1	-10.1
Q2	-7.9
Q3	6.7
Q4	9.5
2000	
Q1	-6.2
Q2	7.2
Q3	-6.2
Q4	11.6
2001	
Q1	-17.7

As the list shows, cash flow over the past nine quarters has been approximately minus SEK 13 billion.

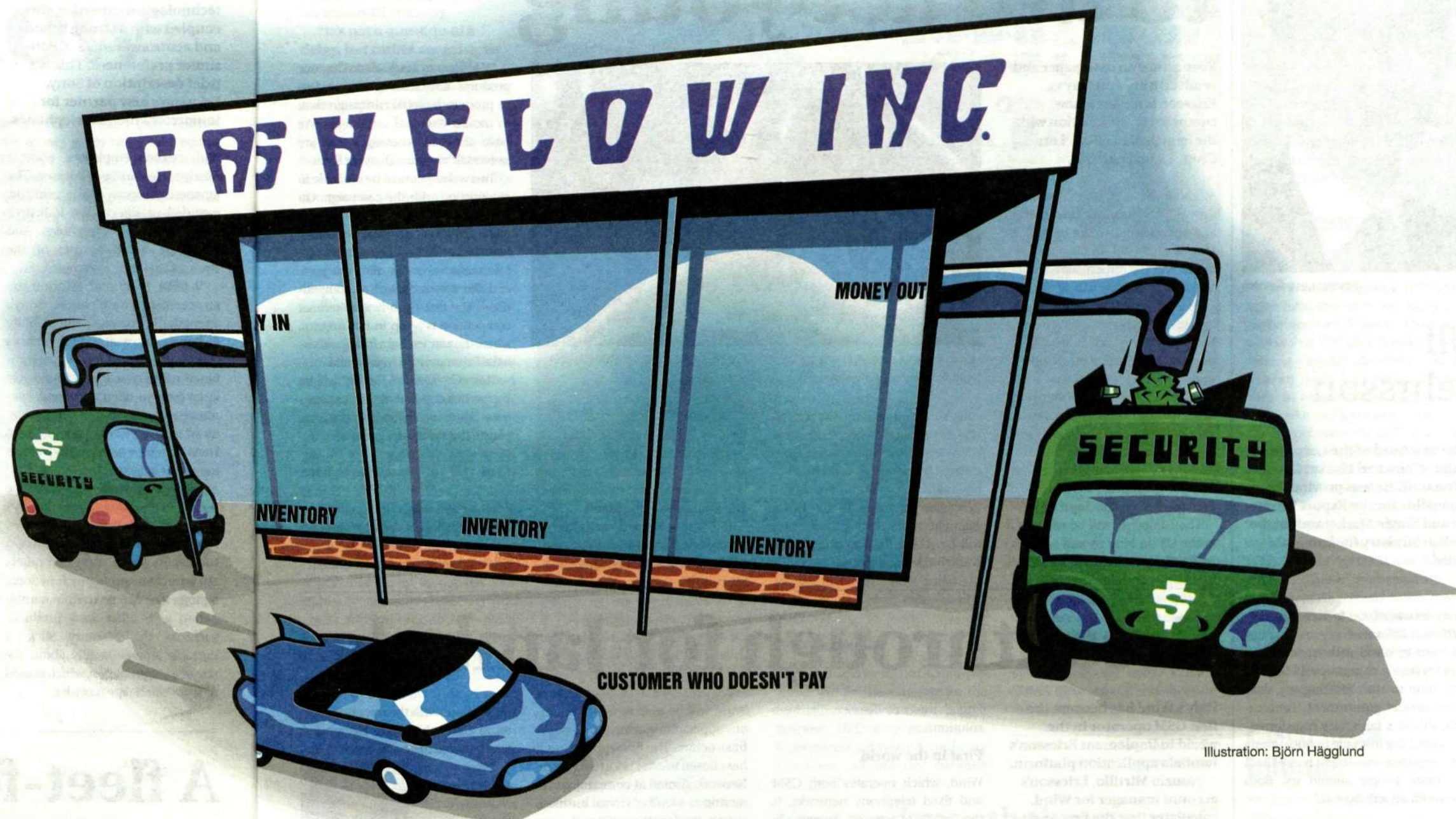


Illustration: Björn Hågglund

New ways to market Engine

The Multi-Service Networks Division has decided to withdraw a planned ad campaign for the Engine solution due to the current financial situation. Instead, Engine will be marketed directly to customers.

The Engine campaign was based on the same strategy as the successful Mobile Internet campaign, and was to have started up in the middle of May, as a way to reinforce the Ericsson brand name.

About a dozen countries were scheduled to see ads presenting the advantages of the system, with an ad campaign running in the business and trade press, together with a number of other activities. Ericsson's financial situation has, however, forced management at Multi-Service Networks to rethink their strategy.

"We've altered the focus of the marketing campaign and will forego purchasing advertising space in the media. Instead, Engine will be marketed in other ways that are aimed more directly at customers," says Mitch Lewis, head of marketing within the division.

Engine is Ericsson's successful so-



Due to cutbacks, the planned campaign for Engine has been scaled back. Instead of expensive advertisements, the multi-service solution will be marketed more directly to customers. One example is participation at trade shows, such as here at the CeBIT trade show. Photo: Ecker Küller

lution for combining telephone and data traffic in the same network, and the division responsible for fixed networks has great ambitions for it. It has been previously stated that the goal for this year was to shape the market,

which still consists largely of unchartered territory. Furthermore, 50 new Engine contracts are to be secured this year. This will now have to be accomplished without the support of an advertising campaign behind it.

One of the foremost sales arguments is Ericsson's reliability, says Mitch Lewis. A study that was conducted in conjunction with development of the campaign, showed that today's operators are worried about

the uncertain market and are more guided by fear of the wrong investments than a desire to improve the technical quality of their networks. This knowledge will now be utilized, even if the ad campaign has been withdrawn.

"Marketing of Engine will continue in other, more cost-efficient ways. Customer gatherings and meetings with the press and analysts are some examples. Trade shows such as SuperComm in the US and CommunicAsia in Singapore this summer will also provide favourable opportunities to promote the concept that Engine can solve operators' problems," says Mitch Lewis.

The ads that were developed for the campaign will still be used for activities such as trade shows, direct mailings and publishing brochures. There will also be pages on the Internet and intranet with detailed technical descriptions and other information for marketers and customers. Altogether, Ericsson has secured 51 Engine contracts, including 14 so far this year.

Lars-Magnus Kihlström

Emphasis on quick results

The Mobile Systems Division is currently conducting a cost analysis that will form the basis for the division's savings program.

"The analysis should be ready in May, and will hopefully allow all employees to find out prior to the summer vacation how these measures will affect them," says Jan Ögren, who is overseeing the savings program at the Mobile Systems Division.

A program group has been appointed within Mobile Systems' management group to review the division's operations through a comprehensive plan. A consequence assessment will then be conducted,

based on this information, resulting in a detailed plan that should be ready by late June. The goal of these efforts is to be able to notify people about how they will be affected.

The Cost Adaptation Program (CAP) implemented in March 2001 has already been expanded. Its overall purpose is to considerably reduce cost levels within Mobile Systems and reduce capital tied up, especially in inventory and accounts receivable. This should improve cash flow and ensure profitability in 2002. The program consists of seven different areas and savings measures will be implemented within each of these.

"We're reviewing all projects. Some

will be terminated, while others will continue with some cutbacks. By

shutting down a number of projects, we'll be able to transfer employees to projects that previously employed numerous consultants."

"As for internal projects, the ones that will generate quick results will be prioritized. By quick we mean within one quarter," explains Ögren.

The structure of Mobile Systems will remain the same, with certain



Jan Ögren

additions. This will include a review of how product units should be organized. It is also important to have good coordination among the division's business units when it comes to product development.

Another important area is supply, which includes provisioning and purchasing. Currently, supply is being overseen from many Ericsson locations and on multiple levels, including product unit, business unit, division and corporate-level basis. The goal is to make this work more efficient, with more clearly defined responsibilities. The program group is working closely with market areas and market units. Among its tasks

will be to ensure that duplication of work is avoided. The Mobile Systems Division already works closely with the Multi-Service Networks and Global Services Divisions regarding savings and efficiency.

"The program group meets once or twice a week, and we conduct follow-ups to ensure that what has been planned actually gets done. The most difficult aspect of the savings program is to actually implement these measures. Line managers have a major responsibility to shoulder," says Jan Ögren.

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Collaboration to reduce costs

The Data Backbone and Optical Networks Division continues to work on its contribution to create a more efficient Ericsson.

The division has determined that it needs to reduce its costs by USD 50 million.

This goal is the result of discussions with the Multi-Service Net-

works and the Mobile Systems Divisions. Products that the Data Backbone and Optical Networks Division manufactures are important to the portfolios of the other two divisions.

This is why it is essential to make operational changes. The effects that they could conceivably have when it comes to customer commitments, are in line with the goals set

for CET and the other divisions. All three divisions are working together to maximize cost efficiency, while simultaneously seeking out revenue-generating areas.

A final budget will be completed by mid-May.

Jesper Mott

Board supports actions

Four of Ericsson's board members will help track the progress of Ericsson's savings program. The group has been labeled a crisis group by the media, a term that Ericsson President and CEO, Kurt Hellström, refutes.

"This is not at all a crisis group. It is a

group of board members who I can contact when I need to discuss the savings program," says Kurt Hellström. The four board members who will be monitoring the program are Lars Ramqvist, Sverker Martin-Löf, Göran Lindahl and Eckhard Pfeiffer.

Jesper Mott

HELLO THERE...



Photo: Lars Åström

Ulf Pehrsson

...the new head of the Corporate Public Affairs and Market Coordination unit. He was previously responsible for the Export Promotion and Single Market unit at the Swedish Ministry for Foreign Affairs.

What persuaded you to accept a position at Ericsson?

"I've been involved with trade-related issues for nearly 18 years, and I felt that it was time to start utilizing my skills outside central government. Unfortunately, this is a fairly rare transformation – switching from the political arena to the corporate one – but it is one that I think more people should try. Both sides would benefit from it."

How familiar were you with Ericsson when you received the offer?

"You could call Ericsson one of the Ministry for Foreign Affairs' biggest clients. The ministry and its agencies assist companies in making contacts with government offices and ministers in various countries, as well as with issues such as credit guarantees. So I was already quite familiar with Ericsson."

Corporate Public Affairs and Market Coordination – that's quite a title, what are you involved in?

"Governmental contacts in Sweden and in other countries are an important feature. Our unit is also responsible for Ericsson's office in Brussels."

"The people working there promote issues to decision-makers in Brussels that are important to the company. You could call them lobbyists. Overall responsibility for customer organizations, the KAM and GAM organizations, is also based here."

What kind of experience do you bring with you from your previous work that you think will be of use here?

"I have considerable experience in international negotiations, and I know the regulations pertaining to trade issues very well. Moreover, I have a broad network of government agency contacts that will likely be of use."

Ulrika Nybäck

Energetic campaign to attract young

Keep an eye on newspaper and tv advertising – on May 15, Ericsson is to start a new campaign in conjunction with the launch of the film "Lara Croft. Tomb Raider."

At about the same time, two websites will be launched, one internal and one external, where employees and the general public can win prizes and learn more about Ericsson, the film and the game.

"The campaign is full of energy, tempo and lively music. I can't find a better word than 'cool' to describe it," says Dusyant Patel, who has global responsibility for the campaign.

Most people are aware that Ericsson is placing its products in the film, which is based on a computer game. In conjunction with the film campaign, Ericsson is starting its own marketing campaign to make use of the attention surrounding the film.

The campaign will be rolled out in the US on May 15 and will subsequently run in about a dozen



"Ericsson's campaign will be cool", says Dusyant Patel, global responsible for the campaign. Angelina Jolie plays Lara Croft.

countries – including Brazil, Taiwan, France and Sweden – for a few weeks in the lead-up to the film premiere. The campaign will feature in newspapers, as tv commercials and in retailers' premises. In the US, for example, more than 37,000 stores will be selling the T20 phone with Tomb Raider accessories.

The advertising agency BBH (Bartle Bogle Hegarty) is behind the campaign, which is mainly targeted at young people aged 18–28. The aim is to increase sales of mobile phones and awareness of the brand.

But why is Ericsson investing so much money in an advertising campaign in these times of cutbacks?

"We have to keep marketing our products. The fact is that it costs less to produce a global campaign than to mount ten local campaigns. We have also used messages that are universal," explains Dusyant Patel.

Two websites are to be available in conjunction with the campaign. On May 11, the internal website opens, with the external website being launched on May 15. The sites contain information about the film, the game and the actors, as well as competitions. The first prize in the intranet competition is a trip to Los Angeles, where the winner and a friend will visit the Paramount Pictures studio.

"Lara Croft. Tomb Raider" will be shown at 8,000 cinemas in 44 countries. Some 100 million people have played the computer game.

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inside.ericsson.se/tombraider

Breakthrough for Jambala

Italy's Wind has become the first GSM operator in the world to implement Ericsson's Jambala application platform.

Nunzio Mirtillo, Ericsson's account manager for Wind, calculates that the first applications could be introduced during the second quarter of this year.

Jambala is a platform for applications in both fixed and wireless telephone networks. Some of the platform's advantages include the fact that it is built around open standards, has a high degree of scalability and an architecture that is open to 3G development.

Jambala is part of Ericsson's

larger Internet Service Platform solution.

First in the world

Wind, which operates both GSM and fixed telephony networks, is the first GSM network operator in the world to incorporate Jambala. Until now, the platform has only been used in TDMA networks.

"This is a very important step. The market for GSM and fixed networks is large and this is a good way for them to evolve towards UMTS and 3G," says Marie Large, who is overseeing the launch of 3G within the Service Capability Servers and Applications unit, which is part of Internet Applications.

Using the Jambala platform,

Wind will be able to offer numerous applications using the same infrastructure. The first application it has chosen to offer is Virtual Private Network. Aimed at companies and serving as a kind of virtual business switch, it offers the option of using internal extensions. These extensions work with both fixed and wireless telephony.

3G license

With more than five million mobile phone subscribers and between two and three million fixed telephony subscribers, Wind is Italy's second-largest operator. It is also one of the Italian operators that have acquired a 3G license.

According to Nunzio Mirtillo,

discussions with the operator started in December 1999. The project was initiated in spring 2000.

"They are very pleased. Now we're in the final phase of internal testing. The application platform and server have been installed and we are testing calls over the network. A few months of work still remain before final integration, but everything is looking positive so far," he says.



Nunzio Mirtillo

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Time for super broadband

Ericsson's Multi-Service Networks division is expanding its product portfolio to include a broadband solution based on Ethernet and fiber-optic technology.

The project, conceived within Ericsson Business Innovation, is now ready for expansion in order to reach a market that could grow quite large.

This broadband fiber-optic Ethernet technology was developed a couple years ago and has, to date, been a project under Ericsson Business Innovation, a company whose task it is to foster good ideas that might become part of Ericsson's

core competencies. Having matured, the Ethernet broadband project will become a product unit within the Access Networks area, which belongs to the Multi-Service Networks business division, effective May 1.

It has already been demonstrated that a market exists for the product, as evidenced by a general agreement reached with Telia-owned Skanova.

"Ethernet via fiber optics offers huge business potential. There are really no limits to the number of services that can be offered, and the solution itself is very cost-effective," says Ove Anebygd, head of the Access Networks business unit.

The combination of Ethernet and fiber optics provides very high capacity broadband connections of approximately 100 Mbps in both directions. This will complement Access Networks' portfolio, which also includes Instant ADSL and broadband via radio link, among other features.

"We believe that the future lies with Ethernet access and, thanks to Business Innovation, we have now got off to a quick start," says Ove Anebygd.

The first markets to receive the access solution, in addition to Sweden, are Spain, the Netherlands, Italy and Australia.

The Ethernet solution was developed within the Residential Com-

munication Services unit, which is part of Business Innovation.

"Introducing innovations within large companies is not that easy, but we have now developed a model for how to accomplish that, and in this case we have demonstrated that we have succeeded," says P O Sjöberg, head of the unit.

His unit is working on three other projects as well, including a digital converter for IP telephony in residential applications, the Digital Residential Gateway (DRG). Demonstrated at CeBIT, it has now been officially released.

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3G delayed in Japan

Japanese wireless operator NTT DoCoMo postpones 3G launch until autumn.

"It's not a question of a delay, but rather ensuring we can offer the best possible service," says DoCoMo spokesman Yuichiro Kuwahata.

Japan's largest wireless operator has stubbornly maintained its original May 30 launch date for the commercial 3G network – albeit on a limited scale.

Due to software problems, the operator has had to delay the launch by four months to October 1. DoCoMo will still start up a 3G network at the end of May, but is calling this a test.

Company spokesman Yuichiro Kuwahata says that DoCoMo wants to cull the experience of a limited group of users during the test period before opening the service commercially in the autumn. The test group will reportedly consist of 3,000–4,000 users in the Tokyo area.

"Our job is to guarantee a reliable service on the commercial network," says Yuichiro Kuwahata.

While the news came as a shock, not many in the telecom industry actually expected the commercial launch to take place this year. DoCoMo competitor Japan Telecom (J-Phone), for example, has postponed its 3G launch until the first half of 2002. And Japan's second-largest wireless operator, KDDI, is not planning to launch its 3G services until autumn 2002.

"It is in fact remarkable that DoCoMo has stubbornly persisted in claiming that there would be no delay," says Mark Berman, telecom analyst with Credit Suisse First Boston, quoted by Reuters.

Too small to be commercial

Instead, the first commercial 3G network in the world will be launched on the Isle of Man by Manx Telecom, which is owned by British Telecom (BT). This network, scheduled to open on May 30, consists of ten base stations and serves 200 3G terminals from Japanese



DoCoMo's 3G network will be tested by a group consisting of 3,000–4,000 users in the Tokyo area, before the service is placed in commercial operation this autumn.

Photo: Lars Åström

NEC. Most industry watchers, however, consider the Isle of Man too small to be considered commercial.

The postponement of the commercial launch in Japan does not mean the conservative forecast regarding the number of subscribers has changed. DoCoMo still expects that 150,000 subscribers will join the 3G network in 2001.

Stock prices dropped

The news caused considerable turbulence on the Tokyo exchange, however. The Nikkei dropped two percent while NTT DoCoMo's share price fell almost five percent. Stock prices for manufacturers of 3G terminals – Matsushita Communication Industrial (MCI) and NEC – also plummeted in response to the news.

However, both MCI (under the Panasonic brand name) and NEC do intend to deliver the 3G terminals for the test period, scheduled to begin at the end of May. DoCoMo has linked 16 terminal manu-

facturers to its 3G network. One of them is Ericsson, which is also contracted to deliver 3G equipment to DoCoMo.

Free terminals

The participants in DoCoMo's test group will not have to pay for the terminals, but they will be charged between USD 0.80 and 1.25 for three minutes of video. An ordinary telephone call will cost between

USD 0.16 and 0.24 a minute. Short text messages, usually e-mail, will cost a fraction of a cent – which is what it costs to send text messages in Japan today.

DoCoMo's 3G services are offered under the brand name of FOMA (Freedom Of mobile Multimedia Access).

Mats Lundström

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Foot and mouth threatens 3G

The risk of infection with foot-and-mouth disease is threatening the launch of the world's first commercial 3G network on the Isle of Man in the Irish Sea.

The launch of the 3G network at the end of May could be postponed, according to webzine Silicon. The reason is that several of the base stations and a number of antennas are in locations that have been iso-

lated to prevent the spread of foot-and-mouth infection.

However, wireless operator Manx Telecom, which is owned by British Telecom, obtained permission from the chief veterinarian to conclude its operations in all the locations in question, provided that its employees observed the stringent safety precautions.

Mats Lundström

Local medium soon global

Radio is the most local of the mass media. The advent of 3G, however, will transform radio into an eminently global medium.

Radio has long been the mass medium with the largest audience. Almost everyone listens more or less actively at some point in the day. At the same time, the medium is a commercial flyweight compared to television or newspapers.

This is because radio is generally a local medium without a particularly sizeable range.

In this respect, the Internet has created a revolution. The possibili-

ty of listening to regional channels via the Internet using streaming audio technology has lent a new global relevance to Guglielmo Marconi's invention, which is now more than a century old.

At the same time, radios have become increasingly compact, and we now have cellular telephone models with built-in FM radio. Ericsson offers an FM-radio module for its newer telephone models.

No geographic strings

Perhaps the most promising development in radio will appear once 3G becomes reality. The radio channels that are currently available through Internet radio will

also be accessible in the 3G networks. This will make regional radio channels available regardless of the receiver's geographic location.

At the same time, another more spectacular project concerning digital satellite radio is under way. At the end of March, coincidental with the re-entry of the Mir space station, the heaviest communications satellite to date was launched into orbit around the earth. The five-tonne low-flying satellite, called "Rock," has two transponders that will broadcast radio at three kilowatts of power. In May, another satellite will be launched – this one to be called "Roll." The twin satellites Rock 'n Roll will broadcast

news, sports or music, via more than 100 channels. Content suppliers such as the BBC World Service and USA Today have been engaged.

Special device required

The project is driven by XM Radio which has permission from the American FCC to broadcast satellite radio.

The question is whether anyone will listen. As with all digital radio broadcasting, it requires a special radio device. In addition, listeners must pay USD 9.95 a month to receive the satellite radio broadcasts.

Mats Lundström

Siemens lays off more

Siemens has laid off a further 3,500 employees as a result of the weakening business climate. The German group previously laid off 2,600 people primarily in its cellphone manufacturing. During the first quarter of the 2001 split financial year, Siemens reported a profit of slightly more than USD 700 million – up 32 percent from the preceding year. Net sales were slightly more than USD 18.6 billion – up 23 percent over the year-earlier period. During the first quarter of the current year Siemens sold 6.9 million telephones on a global basis.

Vodafone purchases Telecom shares

Vodafone is acquiring BT's share in Japan Telecom and its subsidiary, mobile phone operator J-Phone. The purchase means that the UK's Vodafone will become a majority shareholder in Japan Telecom, with a 60-percent ownership stake. In order to finance the purchase, Vodafone is implementing a new share issue of approximately USD four million. The agreement means that BT will almost completely withdraw from the Japanese telecom market, which is considered to be one of the world's most prestigious. For Vodafone, the purchase will create a number of opportunities, especially regarding J-Phone. Vodafone CEO Chris Cent says to the Total Telecom news service that, "our goal is to make J-Phone competitive and challenge DoCoMo." Currently, DoCoMo has a 60-percent share of the market compared to J-Phone's 16.4 percent share, which corresponds to 10 million mobile phone subscribers.

Cisco loses billions

One of Ericsson's main competitors, US networking giant Cisco, reports a loss of USD 2.69 billion in the quarter ending 28 April. The losses are the result of 1.17 billion for reconstructing the company with a plan to cut 8,500 jobs, or 17 percent of its work force. Operating profits fell a 77 percent to USD 230 million compared with 1 billion a year earlier. President and Chief Executive John Chambers described the first months of 2001 as "extremely challenging".

"This may be the fastest deceleration any company of our size has ever experienced. We believe that the challenges we face are primarily based on macro-economic and capital spending issues, although there is always room for improvement in our own operations".

Mobile antennas on high

Wireless operators' hunt for suitable locations for mobile antennas has reached the church steeple. In Sundsvall, Sweden, antennas for a GSM network have been installed in the Gustav Adolf Church. The reason for this placement is that Sundsvall is located in a "basin", and it has therefore been difficult to find suitable locations for the antennas, writes Computer Sweden.

"Telecom operator Telia contacted the diocesan administration and inquired as to whether they could install antennas for telecom traffic in the church steeple," says Bengt-Olov Wallin, cemetery manager and property manager for the Gustav Adolf Church.

The enormous boom in the Polish economy during the past decade has been reflected in the development of Poland's telecom industry. The country's GSM networks are far from complete – yet 3G is already at the door.

For Ericsson, the establishment of 3G in Poland represents considerable growth potential. The Company recently signed a ground-breaking GPRS contract.

Pace in Poland picking up

► When *Contact* visited Poland three years ago, only 2 percent of the Polish population had a cellphone. Experts predicted that the number of cellphone users would increase by 10 percent after the start of a new millennium. As it turned out, the increase was even greater than that, and today nearly every fifth Pole has a mobile phone.

"This is only the beginning. The country has high hopes for mobile technology and only state-of-the-art will do," says Björn Welmer, who is the head of mobile systems at Ericsson in Poland.



Björn Welmer

The Polish government decided to install 3G in the country as rapidly as possible. Poland was slow in implementing GSM networks, and Björn Welmer believes that this will – paradoxically – benefit the country.

"Expensive intermediate stages were skipped, so Poland can proceed directly to 3G. There is a powerful push from the government and from technology companies to transform the country into a land of high technology. I actually believe that in five to ten years, Poland will have progressed beyond several western European countries in telecommunications."

For Ericsson, Poland's transition to third-generation mobile telephony is a golden opportunity to become established in the

country. In mid-February, Ericsson signed a ground-breaking GPRS contract with PTC, one of Poland's three mobile operators. This spring, Ericsson's assignment is to integrate GPRS equipment in the PTC network, a network that has currently attracted three million subscribers throughout Poland.

Before this contract was signed, the Polish GSM network was strictly divided up between Ericsson and Siemens. Ericsson carried out projects involving GSM networks from Warsaw and areas to the north, whereas Siemens operated in southern Poland.

"We now plan to implement GPRS in the Siemens network as well, which may enable us to increase our share of the wireless market in the future," says Björn Welmer.

The contract also places Ericsson in a favorable position when the time comes for the Polish operators to choose UMTS operators. Like PTC, the other two wireless operators, Centertel and Polkomtel, have permits for 3G networks and are planning to roll out the networks some time in the second half of 2002. There is also a UMTS permit for a fourth operator. The battle for the contracts will mainly involve Ericsson, Siemens and Nokia.

"I believe we have an excellent chance to obtain a UMTS agreement with PTC, and hopefully with one or a few other operators as well."

Jenz Nilsson
jenz.nilsson@me.ericsson.se



The economic boom in Poland during the past decade persuaded Ericsson and other large foreign companies to establish themselves there. The route toward 3G in Poland has been uneven, but the government is investing substantial effort in turning Poland into a technologically sophisticated country. The first UMTS licenses will be distributed soon. Photo: Ecke Küller

A formidable new player

Energis Polska is a formidable new arrival in the Polish telecom market. The company has enlisted the help of Ericsson to capture the position of leading data communications operator in the country in the shortest possible time.

► Last autumn, Ericsson and Energis Polska signed the first Build, Operate and Transfer contract (BOT) between a telecom supplier and an operator in Poland. Energis Polska has ordered a 5,000-kilometer fiber-optic network based on Ericsson's Engine solution and the Erion transmission technology.

"In choosing the BOT contract form, we have engaged Energis Polska to carry out essentially all operations. Ericsson will build the operations centers and install all data and traditional AXE stations. We will also operate the entire system for Energis during the first year, while simultaneously recruiting and training personnel to take over the operation of the system," says Owe Falkenå, account manager for the Energis account.

The network is being constructed in two phases. When complete, it will cover the entire country. The cooperation also includes a link-up of the Polish network with Germany, the Netherlands and the UK – countries in which Energis Polska's principal

owner, the UK's National Grid, already owns extensive fiber-optic networks. In Poland, on the other hand, the Polish railway Administration (PKP) owns the network and Energis Polska's only option to be allowed to use the network is through leasing.

Ericsson is currently building a large operations center of 2,000 square meters for Energis Polska, in a gigantic warehouse in Piasezno, which is a small community just south of Warsaw. In a few months, when the structure is complete, it will contain more control rooms, an ATM station, and offices and training premises for about 150 people.

The Energis contract, which is worth USD 60 million, involves cooperation between the two Ericsson divisions, Multi-Service Networks and Global Services. The contract is Ericsson's largest in Poland to date, and the third-largest contract signed by any Polish business last year. Energis Polska's management is firmly focused on the company's goals and employs effective marketing to achieve those goals.

"We want to be the leader in data communication in Poland. We are expecting Internet use to increase enormously in the future, and we must be able to offer customers the best service," says George Makowski, who is in charge of Energis' business with Ericsson.

Ericsson was awarded the contract in competition with Cisco and Nortel.

"We chose Ericsson because we are interested in its Engine solutions and because we believe the company can deliver fastest."

Jenz Nilsson

FACTS/ENGINE AND ERION

Ericsson's Engine solutions enable operators to send both voice and data over their existing networks. Energis Polska has selected a solution based on the multi-service Tigris platform and ATM switches.

Erion is a connection technology based on a DWDM (Dense Wavelength Division Multiplexing) solution that increases transmission speed and capacity in fiber transport network.

FACTS/POLAND

Capital: Warsaw
Population: 40 million
President: Aleksander Kwasniewski
Currency: 1 Zloty = 100 groszen
Mobile subscribers: 7 million
Subscribers to fixed telephony: 11.5 million
Internet users: 6 million



FACTS/ERICSSON POLAND

No. of employees: Approximately 450
No. of offices: Head Office in Warsaw (400 people) and one office in Gdansk specializing in GSM services. Ericsson has been established in Poland since year-end 1996.
Company President: Björn Magnusson
Market share, fixed: 20 percent
Market share, wireless: 17 percent
Net sales in 2000: Slightly more than USD 300 million

Jacek's sold on WAP

Jacek Wojciechowski is a young Polish student with a keen interest in mobile telephony. One of his WAP services won first prize in a WAP competition held recently by Ericsson in Poland.

► Jacek Wojciechowski, 24, has been studying engineering software at the University of Technology in Biastok for the past five years. He loves engineering, and his goal is to obtain a full-time job as a developer of wireless services. Mobile telephony is not part of his study timetable, but rather an interest he pursues in his leisure time.

"I spend about three or four hours every evening reading engineering magazines or searching the Internet for the latest news in mobile telephony," he says.

Jacek is particularly interested in WAP (Wireless Application Protocol), and when his peers are playing sports or going to the movies, Jacek can usually be found his dormitory room working out new WAP solutions.

"It's like any hobby, and it's easy. All you need is a basic understanding of computer programming, then you just let your imagination flow," says Jacek Wojciechowski.

Last summer, he read in a newspaper ad that Ericsson in Poland was seeking contestants for a WAP competition. He registered and started working on the service that was later to be selected as the winner.

"My service is called Radio WAP FM, and it helps radio listeners stay informed about their favorite radio programs," he says.

Radio WAP FM provides information via mobile phone on what radio programs are currently being aired, who they are hosted by, what topics are being discussed or what music is being played. Listeners can send in their requests or greetings to friends directly to the program hosts in the radio studio via links.

"WAP is not a major issue for Polish radio stations, but I have actually been in contact with a radio station that was interested in my invention," he says.

Another of Jacek's big projects is a WAP Web page about his place of birth, Suwalki in northeastern Poland. He has filled this page with information about entertainment and outdoor life in the town of Suwalki.

"I want people in Europe to discover Suwalki, which is a fairly unknown place in a beautiful natural setting. To date, all the information on the Web page is in Polish, but I hope to have it translated to German and English eventually."

As the prize for winning Ericsson's WAP competition, Jacek was



Jacek Wojciechowski is a young Polish student who desires nothing more than to work as a developer of mobile services. In his spare time, he creates his own WAP solutions. Recently, he won a WAP competition arranged by Ericsson in Poland.

sent on a two-day trip to Stockholm at the end of March this year. He visited the Ericsson head office in the Telefonplan district as well as the development center in Kista.

"Impressive – I'll never forget the sight of the people in the labs at Kista walking around dressed like astronauts," he says.

Jenz Nilsson

Brains more important than brawn

The monopoly in wireline networks in Poland was finally dissolved at the end of 1999, freeing Ericsson to compete with the other players on equal terms. The Company has made deep inroads: in only two years, Ericsson has gone from zero to nearly 20 percent in market share.

► "Last year, the Company reaped slightly over USD 10 million in wireline-network orders – compared with nothing in the preceding year," says Olle Backgård, who is in charge of wireline networks in Poland.



Olle Backgård

Ericsson does not own any wireline networks in Poland, but rather focuses on selling modern network solutions based on packet-switching. Business is strong,

due largely to the increased number of Polish users of both fixed-line telephony and Internet.

"The current wireline networks are not sufficient for all new users. The operators are crying out for new solutions that can help to satisfy customer demand for services beyond ordinary voice telephony," says Olle Backgård.

When Ericsson became established in Poland at year-end 1996, Alcatel, Siemens and Lucent were already there and had a monopoly on all switch equipment following a bidding process at the beginning of the 1990s. At year-end 1999, following ministerial-level negotiations in Brussels, the monopoly was dissolved.

Alcatel, Lucent, Siemens and Intel, which have traditionally been the largest suppliers of wireline networks in Poland, are currently fully occupied providing service and maintaining their networks.

"Ericsson, with no such commitments, is free to concentrate operators' urgent requirements. We devote our resources to finding opportunities for us to discover better and cheaper solutions than the competition," says Olle Backgård.

The financial success of wireline networks in 2000 was the result of three major transactions. Last autumn, Ericsson and TPSA, the largest

government company in wireline networks, signed a contract for access systems valued at nearly USD 30 million. Elektrim, another government company that in turn owns wireline-network operator El-tel contracted Ericsson to deliver ATM/IP-based switch systems – an order valued at more than USD 22 million.

The single largest deal, however, was signed with the privately owned operator, Energis Polska. This contract pertains to delivery of a nationwide transport network based on Erion, and it includes a number of Engine packages involving the Tigris access solution and ATM technology. Olle Backgård believes that Ericsson will continue to increase its market share for wireline networks in the next few years.

"We are actually no longer interested in traditional technology. We will continue to focus on future network solutions and support operators in their plans to transform their existing networks to multiservice networks. We expect to have invoiced sales of about USD 100 million a year, and are aiming to command not less than 25 percent of the market within a few years."

Jenz Nilsson

Aura of creativity in temple of design

Ericsson's new design center was inaugurated recently. Here the company's new design culture is being shaped. Nikolaus Frank, head of design at Ericsson, showed us around the center.

"This was one of my first initiatives when I started working for Ericsson," says Nikolaus Frank as he waves his hand around one of the rooms in the design center.

The rooms are bright and project a spacious image, with white walls and large windows. The interior design is unobtrusive. We have entered security zone two, a restricted area open only to authorized personnel only: the industrial designers who work here. On one wall hangs a large chart that monitors the life cycle of every prototype. Product prototypes can be seen on a nearby table. Several chairs and tables are placed in front of a large TV at one end of the room.

"At three o'clock every afternoon, we have a video conference with our colleagues at Research Triangle Park in North Carolina as they start their workday," says Nikolaus Frank.

Industrial designers are the only people working in the new facility right now, but the design manager wants to bring together several different groups of skilled personnel under the same roof, including, for example, specialists working with graphic interfaces, telephones and mechanical engineering experts. The center offers an opportunity to show both Ericsson and the outside world that industrial design has a central and natural place in the organization.

"This is the beginning of a new design

culture – but its creation will take time. We are now developing different work methods, and the workshops and brainstorming sessions (see article on next page) are part of these," explains Nikolaus Frank.

At the moment his goal is to raise the quality of design in the products developed at the center as quickly as possible. He believes that Ericsson's T20 and T68 reflect a change in attitude with regard to the company's design language.

"The language of design should be different for different products that are aimed at different groups of customers, but it's also important that customers see the connection between the products and that they belong to the Ericsson brand."

It is still too early for Nikolaus Frank to discuss if and how the design center might be affected by the cost-cutting measures now being implemented throughout the company, but he believes the program of corrective measures and a smaller product portfolio will enable Ericsson to meet its cost-reduction requirements.

He also believes it is too early to discuss the Sony alliance in any significant detail.

"But it's certainly exciting – I believe in Sony as a business partner, and I have high hopes for the alliance."

Ulrika Nybäck
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This is the beginning of a new design culture – but its creation will take time



Nikolaus Frank sees the design office as the beginning of a new design culture – but he emphasizes that change cannot be implemented overnight. About the alliance with Sony, he says: "I believe in Sony as a business partner, and I have high hopes for the alliance."

Photo: Tomas Bergman



Ericsson's new design center in Lund was inaugurated a few weeks ago. Nikolaus Frank, head of design at Ericsson, and industrial designer Joshua Murray discuss a new mobile telephone prototype.

Andrea brainstorms design ideas in Lund

Ericsson's latest mobile telephone models are certainly quite attractive and include more games than previous versions. This fact was noted by Andrea Ringblom, a well known figure from the Annual General Meeting, during her recent visit to Ericsson's design center in Lund.

► At the Annual General Meeting in 2000, a teenage girl stood up in the midst of thousands of middle-aged men in dark suits and asked why Ericsson made such ugly telephones. At this year's Annual General Meeting, the same girl stood up again and asked why it takes so long to change the design. At that time, Kurt Hellström asked the girl to present her opinions to the company's industrial designers. No sooner said than done. A few weeks ago, Andrea Ringblom boarded a plane in Stockholm and flew to Lund, in southern Sweden, to participate in a workshop focused on industrial design.

"The workshop was a follow-up to the meeting Vijay Anand had arranged in London a few weeks earlier, which concentrated on developing new ideas about how the company can reach young people better by using different marketing activities," says Nikolaus Frank, head of design at Ericsson. (Vijay Anand is the new marketing manager of the Consumer Products Division's youth segment.)

Nikolaus Frank's workshops are concentrated strongly on a concept whereby all participants are encouraged to think freely and, by using this approach, produce a large number of new ideas about how mobile telephones should be designed and used.

Participants at the meeting included industrial designers from the design center in Lund, interface designers from Kista, employees of the Consumer Lab in Lund, a number of specially invited young men and women from Lund and Helsingborg – and Andrea Ringblom from Stockholm.

Nikolaus Frank explained that only a few but very strict rules would apply during the course of the day but that these would be very strict. "In this room, there are no bad ideas. If we don't think along these lines, we have already restricted our thoughts. We have to accept a bad idea to arrive at a better idea.

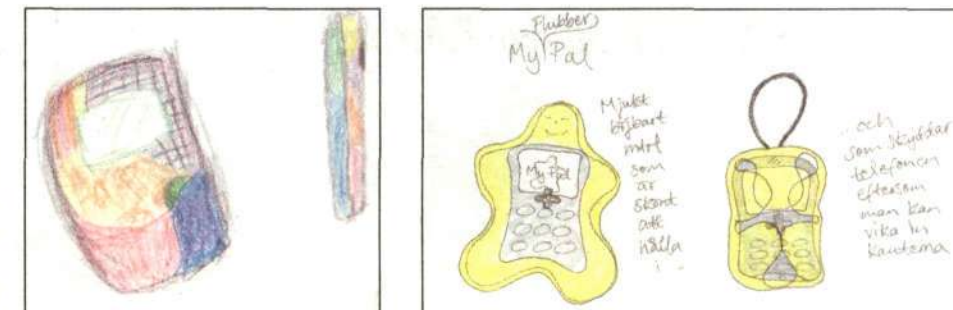
"All ideas must be duly noted so we can better understand the thought behind them and refer to them again later," he explained. Nikolaus Frank developed an affinity for the brainstorming method when he worked as an industrial designer for the American company Ideo.

Ideas are born, registered and presented throughout the entire session – creative, insane and brilliant ideas.

"Imagine a telephone without a battery," said Rodolfo Deleon, an industrial designer from Research Triangle Park in North Carolina, as he showed a sketch.



Andrea Ringblom, the young girl from Ericsson's Annual General Meetings, recently visited the new design center in Lund, where she participated in a workshop focused on industrial design. "This was a lot of fun. It was exciting to see and hear all the ideas that were presented during the meeting," she said.



Two of the design proposals that came up during the workshop. The design to the left was drawn by Andrea Ringblom, the "jigsaw puzzle telephone".

"The telephone could be charged by kinetic energy generated while we walk, drive our cars or work out," he explained and pointed toward the drawing.

The idea was registered on a whiteboard panel, and Andrea Ringblom continued.

"What about a mobile telephone with a casing sealed by different pieces comprising different colors and materials. It would be like a telephone you designed yourself," she said and displayed a colorful sketch.

Andrea Ringblom has a personal interest in form and design, especially interior design work, she told us during the lunch break. She is an eighth-year student at Högsåtra High School in Lidingö, just outside Stockholm.

Andrea shook her head when asked if she plans to continue to attend the company's annual general meetings.

"I don't think so; it's a little boring with so many older men there. A company that operates in a field characterized by rapid development also has to develop itself. There should be more young people on the Board of Directors," she says.

The features that Andrea Ringblom would most like to see included in Ericsson's telephones are functions that support the transmission of

pictures and allow more games to be played. Henrik Pålsson, who is responsible for the Consumer Lab, showed her the new telephones that were introduced recently at the CeBIT telecom trade show. Andrea agreed that most of the functions and forms she thought were lacking in the older models were actually included in the new telephones. According to Nikolaus Frank, a much sharper focus will be placed on the company's design language in the future.

"Work is now in progress to freshen up the design language. The results of our efforts will yield their full impact toward the end of this year," he said.

When the day ended, 64 new ideas were crammed onto the whiteboard panel in the room where the workshop was held. Each one will be registered in the minutes of the meeting for further evaluation; and all of the drawings will be collected and saved.

"This was a lot of fun. It was exciting to see and hear all the ideas that were presented during the meeting," said Andrea Ringblom before rushing through the door to a taxi that was waiting to take her back to the airport.

Ulrika Nybäck

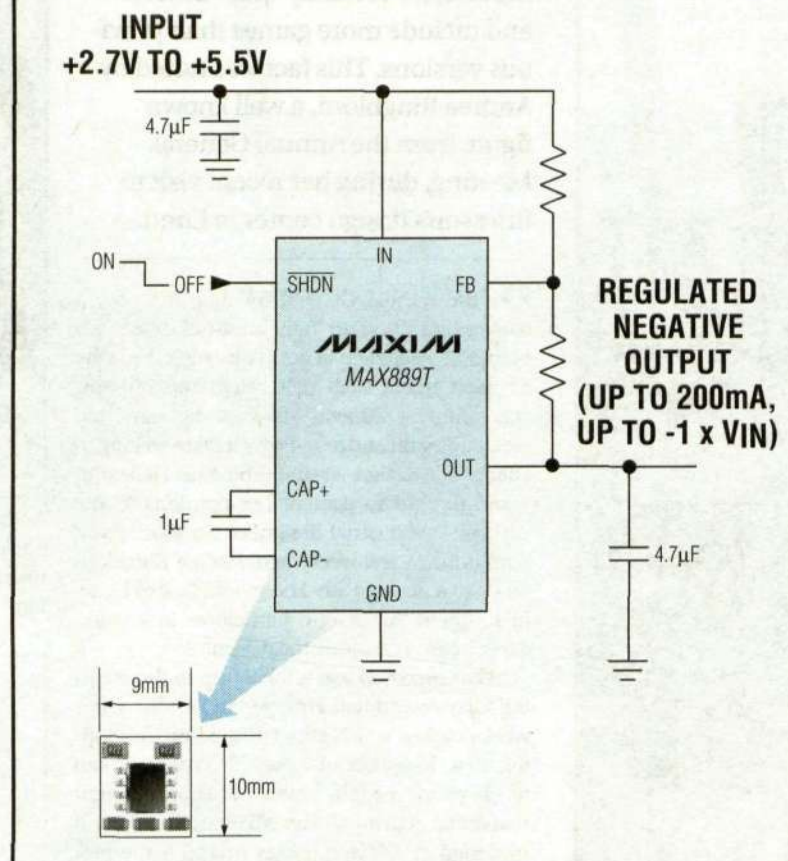
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In-house consultants holding their own

To lower costs as required, Ericsson must reduce the number of consultants it employs. The majority of these consultants provide IT support and manage the company's business systems. Ericsson's own computer consulting company, Ericsson Process & Application Consulting (EPAC), is preparing to take over the assignments previously carried out by external consultants.

► "Our status as an internal consulting company has, at times, entailed a certain hesitancy from our customers. We are now working intensively to demonstrate that we are the supplier of choice, based on our merits, and that we can hold our own against the external competition," says Jens Knobe, President of EPAC.



Jens Knobe

EPAC was launched near the end of 2000 and was registered as a company at the beginning of this year. Today, it has slightly over 1,000 employees and is established in Stockholm, Norrköping and Östersund in Sweden, Kuala Lumpur in Malaysia, Rijen in the Netherlands and Dallas in the US.

EPAC grew out of several companies conducting various types of consulting operations – among them Ericsson Business Consulting. The operations that merged last year to form EPAC had combined net sales of USD 300 million.

"The consultancies were amalgamated and reorganized as EPAC, which concentrates on applications, processes and Global IT-Services, focusing on infrastructure. The aim was to create a clearer picture of what services were available, and to streamline the roles of supplier and customer.

Previously, the consulting companies had both internal and external customers. Jens Knobe says there used to be a certain confusion regarding customer focus. There were far fewer external assignments than internal assignment. However, the external assignments received the most attention. EPAC still has certain external assignments to be completed. Key links in the Ericsson chain, such as Flextronics, will be able to use EPAC.

EPAC competes with external consultants and must be able to offer quality and favorable prices. Jens Knobe points to the advantage of a long-standing familiarity with Ericsson's operations.

"We are thoroughly familiar with the Company's delivery processes, business processes and solutions. Moreover, it is essential that Ericsson maintains its knowledge of the big-picture processes such as Time to Customer and Time to Market."

EPAC serves Ericsson throughout the world, which enables it to reuse ideas and solutions. But EPAC cannot offer all the expertise Ericsson seeks.

"We focus on the areas where we can be most useful to the Company – particularly where it would be more expensive to engage other suppliers. It is essential to provide a contact interface. If necessary, we can bring in subconsultants."

Jesper Mott

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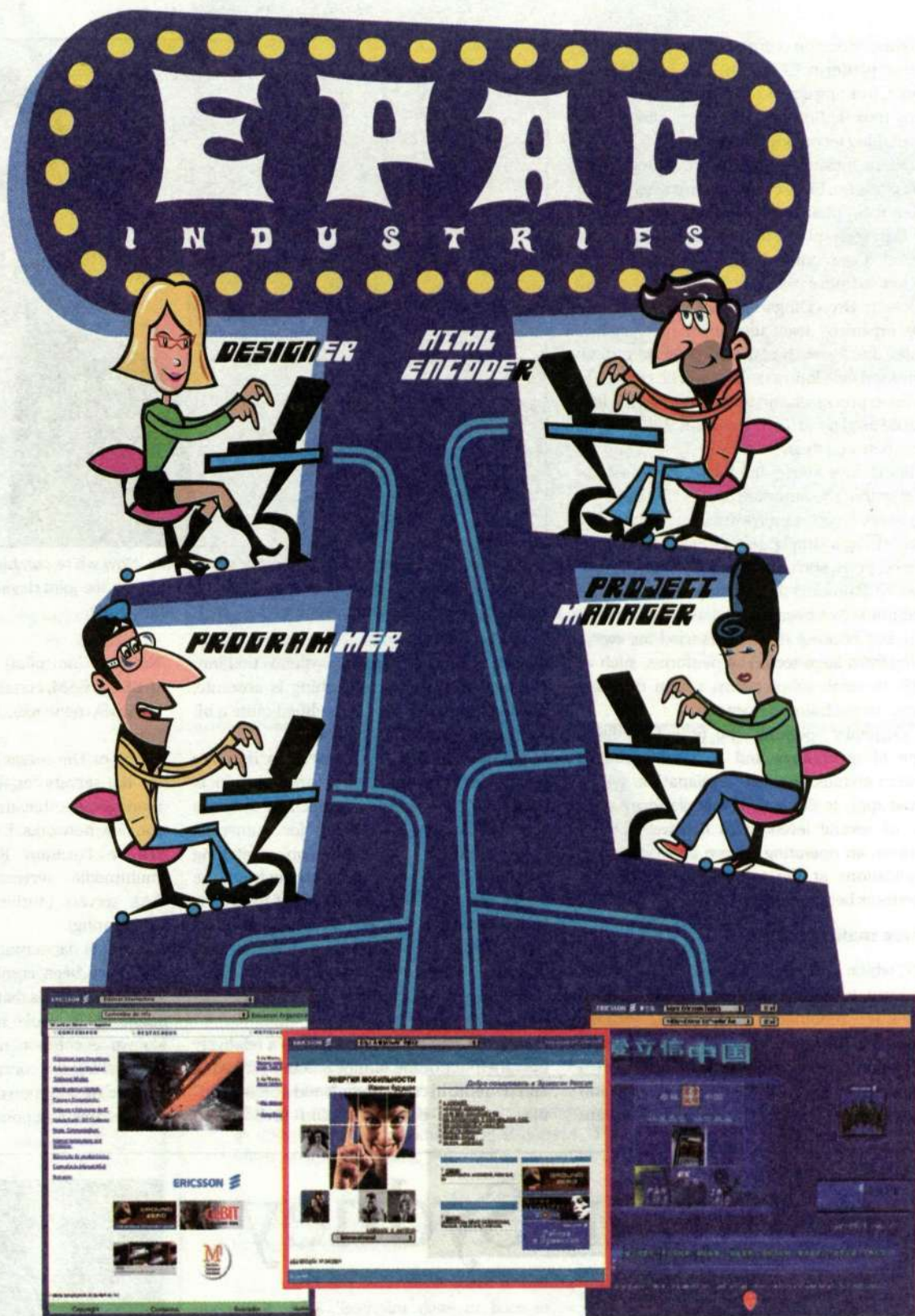


Illustration: Björn Häggglund

Company knowledge key when times are tough

► EPAC is on its way to becoming the leading consultancy serving Ericsson's divisions. While the new company may still have things to learn about the role of supplier, customers' reactions are positive. EPAC's familiarity with the entire Ericsson organization increases its efficiency. Last year, the Consumer Products division handed over responsibility for the operation and maintenance of the SAP business system to EPAC.

"EPAC took over from Andersen Consulting and is now our No. 1 supplier of applications," says Britt Crevér, who is in charge of IT for the division.

EPAC has absorbed personnel from the division's own IT staff, and cooperating with the consultants is an important aspect of the division's Back to Profit program.

"We are still in contact with other consultants, but eventually we plan to let EPAC take care of contacts with them, employing them as subconsultants. In view of the need to cut costs, it would be an advantage if we could focus our contacts through a

single company only. It is time-consuming for us to have to deal with several."

Britt Crevér thinks EPAC is very service-oriented, and that they are every bit as professional as external consultants.

EPAC is also instrumental in integrating the web pages of the local Ericsson companies with ericsson.com. The local companies are provided with publishing tools, and spared the task of working with HTML code.

Mats Renée is in charge of ericsson.com. He thinks it is important to have an internal consulting company when times are more difficult economically.

"They still charge us at market prices, but their familiarity with Ericsson translates into efficiency gains for us. The entire ericsson.com project is a cost-cutting project, in that we no longer have various people sitting doing the same jobs in different locations."

Consumer Website is the part of ericsson.com that provides information on consumer products to customers, partners and

dealers. Mats Frisk is in charge of site architecture and e-business on the website. He explains that EPAC takes charge of producing functional design, and is assuming more and more of the total process involved in creating a web site. During the initial conceptual stages, however, external consultants are still needed.

Mats Frisk thinks that working with EPAC is great, but that the roles of customer and supplier could be made clearer. Major improvements have taken place in the past six months, however. Just like external consultants, EPAC staff put in long hours, often working late in the evening, when the customer is under pressure.

"Together, we have created a web factory, and EPAC helps us keep our pages running once they're up on the site."

Jesper Mott

Over the next three issues, *Contact* will describe the technical platforms AXE, CPP and TSP. This article provides a general overview of Ericsson's platform strategy.

Platforms under one roof

► When Ericsson combined its new radio access platform CPP with AXE and TSP on April 1, forming a new platform unit, the company took its first step towards a new way of developing technology platforms.

"We're moving away from a strategy with one platform, like we used to have with AXE, to three main platforms," says Erik Örnulf, head of Ericsson's platform strategy. As a result, CNCP (Core unit Network Core Products), which includes the development company Ericsson Utvecklings AB and design offices, has organized itself into three product line units, one for each platform. Moreover, three common development units will be created to develop processes and other components that can be used by all three platforms, bridging the gaps between them.

Platform is a term that is commonly associated within the automotive and IT industries. However, if you ask the average person what a platform is, a simple definition seems elusive. Even experts, such as Ericsson's Urban Hägg at the CNCP product unit in Älvsjö, have to pause and think. Not because he doesn't know what it is, but because the term is used for everything from large technical platforms, such as AXE, to small subplatforms within the platform, or much simpler systems.

"Generally speaking, the term includes a type of technology and a certain kind of system architecture. One explanation, which could apply to Ericsson, is that platforms consist of several levels, with hardware at the bottom, an operating system above that and applications at the top. There are distinct interfaces between levels."

Three main platforms

AXE, which is a deep, broad and very complex platform, is built around certain system principles. It is modularly constructed in sections in terms of hardware and software, with clearly defined interfaces, and primarily uses its own language, PLEX. A division into central and regional processors is also an important



"Ericsson has been very good at creating platforms. Now we're combining AXE, CPP and TSP under one roof in order to allow them to expand through the joint development of hardware and software," says Urban Hägg of the CNCP platform unit. Photo: Ecke Küller

aspect, as is how the group switch is tied into the rest of the system. Nothing is absolute, however, and AXE can be modified quite a bit without losing its AXE qualities.

The task of CNCP is to develop its three technology platforms for the various products of the company's business units. That includes AXE, which forms the basis for numerous system applications in Ericsson's switching systems. These are located throughout the world and form the foundation of fixed network switches, Mobile Switching Centers (MSC), Base Station Controllers (BSC) for GSM and other systems, and other support nodes. AXE is primarily used for voice and circuit-switched traffic.

CPP or Cello Packet Platform, is a relatively new member of the family. It is used for ATM and IP traffic in core network and access products, such as third-generation RNC (Radio

Network Controller) units, which correspond to BSC in GSM, certain routers, base stations in WCDMA networks, and future Media Gateways.

TSP or The Server Platform, forms the basis for the servers for the services and network management that are planned for inclusion in the new networks. Examples include the HLR (Home Location Register) database, new multimedia servers and third-generation AAA servers (Authentication, Authorization, Accounting).

What is happening now that AXE, CPP and TSP have been combined under one roof at CNCP in Älvsjö, is that a transformation is being made to a whole new development model known as component-based architecture. The idea behind the concept is that platforms have so much in common that it is easy to reuse many of the same components. That way, platforms

can, over time, move towards greater integration of hardware and software, with the specific combinations defining what they are. Processors, switches and so forth will be integrated, becoming the bearers of system products.

This new architecture will be matched by a new organization, with the three platform units working with three joint development units – one for Switches & Devices, one for operating systems and one for processors.

"AXE has previously been a monolithic system with proprietary components, but that has now changed, with AXE becoming largely an open system like other systems," says Urban Hägg. "TSP has already followed suit in this regard and CPP is well on its way."

Profitable base

The concept of separate platforms has proven to be valuable to Ericsson.

"We've been very good at creating systems with good overall qualities. Our platforms perhaps account for a major portion of our added value. AXE has been very profitable for many years."

At the same time, one must remember that everything changes. What companies used to manufacture themselves, is now purchased. Which begs the question of whether it might not be possible for customers to purchase entire platforms and develop products themselves.

"We haven't yet reached the point where we're selling our platforms, and I think it is completely understandable that we maintain responsibility for our platforms since our systems are so complex and affect so many users. Another factor to consider is that developments within the telecom industry are moving in the same direction as the computer industry, where companies no longer manufacture everything themselves but instead purchase various parts from different suppliers."

Lars Cederquist

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Record in Sydney

While last year's Olympic Games in Sydney have been consigned to history in sporting terms, one technical record was overlooked in the general medal count. The Sydney Olympics broke the world record for the highest ever GSM network density.

► Telstra's network, which provided coverage at the Olympic village and arena, reached 2,000 Erlang per square kilometer. That is more than double the density in Hong Kong, which is usually considered to be very high. Using Ericsson equipment, Telstra provided GSM 900 and 1800 coverage, with 8 MHz blocks available to each frequency band.

What made it possible to achieve such high capacity was that frequency hopping was used for all signals and that the radio network was synchronized so that all frequencies could be

re-used in each microcell. With RBS 2000 synchronization, both groups of transceivers (transmitters/receivers) and several base stations could be synchronized.

In each cell, frequency-hopping with 16 frequencies (1/1) was used, and in groups of three cells, 18 hop frequencies (1/3) were used. The 1/1 and 1/3 groups were then used in the same cell. All radio base stations had to be installed in the same location. From there, RF signals were distributed via fiber-optic cables to antennas, located primarily in and around the Olympic Park and Olympia Stadium.

During the opening ceremonies, 125,000 calls were placed from within the stadium, and a total of 10 million calls were placed over the course of the Olympic Games.

"Everything hinged, of course, on synchronization, but it all worked outstandingly," says Roger Nordlund and Conny Axæus, of Ericsson's RBS Technical Support.

Lars Cederquist



ÅF takes over base station

► Ericsson has ceased production of its RBS 200 radio base station, although it will remain on the market for another decade. A Swedish consulting firm, Ångpanneföreningen (ÅF), will take over management and oversee continued development of the GSM base station. At the end of April, a new lab was inaugurated at ÅF's facilities in Kista.

Their primary task will be to ensure that the RBS 200 keeps up with GSM developments, and that they function properly out in the field, primarily by responding to fault reports and ensuring the supply of components.

Milestone for AXE 810

► Another milestone for the next AXE generation, AXE 810, was passed in mid-April when a call was successfully connected through a complete node in the new system for the first time. An earlier milestone was reached last October when the first call was connected through the large group switch.

A third-generation AXE system, the AXE 810, incorporates Time to Market and rapid deliver-

ies as its primary goals. It is expected to reach markets by the middle of this year, with work so far proceeding largely according to schedule.

The AXE 810 can be described as a switching platform for both circuit- and packet-switched systems, with an extremely compact group switch and a standardized building practice with a generic equipment magazine (GEM) that can be configured.

Calibration critical for success

Ericsson purchases numerous measuring instruments for its production and development facilities.

At the Gävle facility, in northern Sweden, there are thousands of instruments costing anywhere from a few hundred to several thousand dollars each. It is not always so easy to prove that the instruments measure correctly, however.

► As part of a calibration campaign, Christer Larsson has been named a Senior Specialist within the field of metrological control of electronic instruments.

"Measurements are always inaccurate to a greater or lesser degree, that's unavoidable. What's important, then, is to be aware of the degree of unreliability and to take that into account when making measurements," he says.

Measuring instruments include, for example, signal generators, spectrum analyzers and power gauges. These are indispensable in verifying that radio base stations and other products are functioning according to specifications.

"I sometimes question manufacturers on how they can verify that their new instruments can provide such exact measurements," says Christer Larsson, who oversees the instrument maintenance unit at the Gävle plant.

"In their eyes, I'm a nuisance, but it's not at all certain that they can prove the specifications they promise through careful calibration. As for us, it's essential that we're able to calibrate our instruments and demonstrate that they perform satisfactorily."

No clear rules

In fact, there are no clearly defined rules for instrument calibration. ISO 9000 regulations merely stipulate that they must be calibrated, not how. And existing standards and international agreements are very general in nature. Ericsson collaborates with a handful of key measuring instrument suppliers, although small new cutting-edge companies are constantly offering instruments that are designed for a specific application.

"While those are interesting, they frequently have major shortcomings when it comes to calibration, requiring a great deal of effort on our part to ensure that they are correct."

In order to deal with this problem, Ericsson established a network group a number of years back called MIM, which stands for Metrology & Instrument Maintenance. (Metrology is the science of measurements and should not be confused with weather forecasting, meteorology.) Members of the group are evenly distributed throughout the company. Christer Larsson is the group's technical expert.

The primary purpose of the group is to serve as Ericsson's representative towards instrument manufacturers, as well as to assist the purchasing organization with technical specifications and requirements for the purchase of instruments and calibration services. Another area of responsibility is technical revisions among manufacturers and suppliers worldwide.

Pushing the limits

"One of our problems is that we really never have the instruments we need. The rapid pace of technological development means that we're sometimes forced to use the most sensitive instruments available on the market at the very limits of their capabilities, even within our production facilities. It becomes a real challenge to calibrate those instruments since there is hardly anything more precise to compare them with. Nor is it a sure thing that the calibration methods manufacturers suggest, will cover our areas of application."

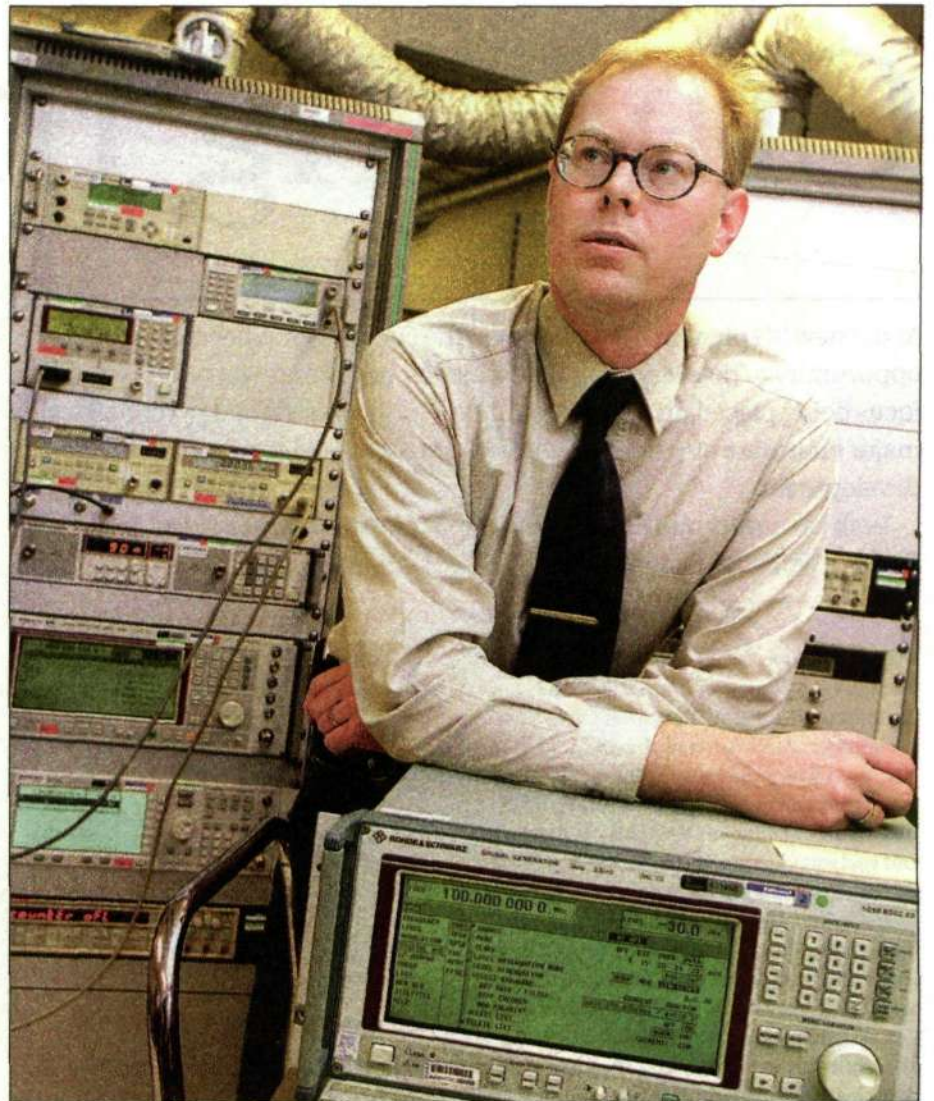
More than a gesture

The fact that Christer Larsson has been named a senior specialist within this field is more than simply a grand gesture. It also indicates that Ericsson takes the issue seriously, and for Christer Larsson himself, it provides him with greater clout when communicating with manufacturers and clients.

"The title on one's business card actually means quite a lot," says Christer Larsson.

"Nor can I deny that it is encouraging for me personally. It also serves as a carrot for me to continue with this important work and to ensure that we obtain measuring instruments that we can rely on. In my opinion, a certain amount of internal calibration work is absolutely essential in order for us to maintain the expertise we need to purchase the appropriate instruments and place the appropriate demands on manufacturers and suppliers."

Lars Cederquist



"Every measuring instrument is unique and must be calibrated prior to use in production," says Christer Larsson, who was recently named Senior Specialist within the field of metrological control of electronic instruments. Photo: Leif Jäderberg



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Creating the Positive

At the new 3G plant in Gävle, Sweden, the company has been given an opportunity to do everything right from the beginning. Not only is greater focus being placed on the environment – both physical and psychological – major efforts are also being made in the areas of leadership and personal development.

Both managers and employees are reacting favorably towards The Positive Workplace project.

► The situation was virtually unique. An entirely new operation housed in brand new facilities was built from the ground up.

"In other words, we had the opportunity to start from scratch, since we didn't have any facilities or any particular business culture or, for that matter, an organization that had been staffed. Our goal was to create a workplace with motivated employees, and to increase profitability and productivity. It has a great deal to do with establishing basic values and attitudes," says Brita-Lena Cederqvist, project and personnel manager at the Gävle plant's new 3G manufacturing unit.

A research team from Chalmers University of Technology in Gothenburg, Sweden, is also participating in the project and will, among other things, conduct interviews with employees before issuing an evaluation during the first quarter of next year.

"As far as I know, no similar undertaking has been made to create a positive workplace," says company physician Anne Peterberg, who also participated in the project. "The work at Gävle has been informative. If it proves successful, we might incorporate aspects of it throughout Ericsson."

A major part of The Positive Workplace program has been the design of the physical environment. Employees have, for example, been involved in selecting colors and the placement of the coffee room.

Visible and invisible

The people who work in production have workstations with adjustable tables that can be raised or lowered. Workplaces have also been designed to avoid repetitive stress injuries.

Assembly staff have naturally occurring mini-

breaks, since they are required to manually retrieve their work materials.

The most important aspect of the project is not visible, but consists rather of a positive atmosphere and general satisfaction.

All employees participate in twenty hours of training, which includes personal development, management by objectives, delegating and evaluations. Employees from various units are brought together during the courses in order to generate greater understanding among various employee groups. Course content has been the same for both workers and managers.

Delegating is an important aspect – managers have learned how to delegate in the best manner, while employees have learned how to be receptive to assignments. By delegating more and in the correct manner, managers are able to find more time for employees, even as they assume greater responsibilities and increased authority.

Training concludes with participants creating their own development plans, which are in line with the goals of the operation.

These plans contain not only goals for their jobs, such as skills development, but also their personal lives, such as starting to exercise or quitting smoking. Plans should be up to date and be revised in conjunction with developmental conversations or as needed.



Our goal was to create a workplace with motivated employees

Brita-Lena Cederqvist

Each work group should have "inspirers," who serve as links between managers and workers and detect early signs. It is their job to

Workplace

FACTS/THE GÄVLE PLANT

On September 15, 2000, the new production facility in Gävle, Sweden, was inaugurated. The Node Production Center (NPC) manufactures radio network products for UMTS, that is, the 3G system.

Currently, there are 100 employees at the plant, a number that will increase to 150 by this summer, and reach approximately 400 by the second quarter of 2002.



The project will continue in an ongoing process of change

Lars-Erik Eriksson

ensure that good feelings about the workplace are maintained and to encourage employees to come forward with their suggestions for improvements.

Students evaluating

The Positive Workplace program is designed to reduce personnel turnover and make it easier to recruit employees that possess the strategic skills that are needed.

Lars-Erik Eriksson, who oversees the 3G plant, says that it really boils down to common sense. The success of the project is up to each individual.

"Our methodology is aimed at increasing profits, which we will monitor over the course of the project. Actually, the project will never

really end, it will continue in an ongoing process of change," says Lars-Erik Eriksson.

Gunilla Tamm
gunilla.tamm@ime.ericsson.se



Anna-Lena Grip has learned certain tricks for relaxing. She utilizes them both at work and in her spare time. Photo: Lasse Halvarsson

ll are equally involved

"Through the training I received in conjunction with The Positive Workplace, I got to know myself better, how I react in certain situations and why. This has been useful to me both in my job and at home," says Anna-Lena Grip, who was one of the first to start working at the new plant.

► The mental exercises that employees received in conjunction with the project were useful, according to Anna-Lena Grip. She works as a joint project manager in logistics, a job that can be quite stressful. It partly involves getting materials submitted in time so that no delays for customers occur.

"I've learned to handle stress and am more observant of myself and when things start going too far. It's important to be able to leave one's job at work and unwind at home. I've figured out various tricks to make that happen. Exercising and walking the dog are two of them," she says.

Anna-Lena Grip also believes that she has benefited from the training in her personal life. There might, for example, be things that need doing but which are not always that much fun. Now she knows what to do to get these things done without having to nag.

Helped influenced vision

Anna-Lena Grip says it is noticeable that even the managers have gone through the same training. One example is that all of the employees in the unit, for half a day, were personally involved in influencing what the key word for the unit's vision would be. In that respect, everyone's participation has been significant.

Lars Embäck is quality control manager at the 3G plant. His group consists of eleven people.

"The best thing for me has probably

been that I've taught myself how I should clarify responsibilities to the individual employees, and that it is my responsibility to take charge of certain things. It took a while before things felt right, but now it has been incorporated into my work methodology. My managerial position has also changed, since I delegate more now and do so in a different manner," says Lars Embäck.

Challenging possibilities

Approximately every other week, Lars Embäck holds a half-hour conversation with each employee.

"We might talk about what is going on in the department, or about a particular problem or perhaps just have a little private chat. It is valuable to have time for these conversations. I didn't have that kind of time before," he says.

"Although not everyone has taken advantage of training, it's apparent that something positive has occurred within the department. We have had better results than I thought would be possible in such a relatively short time. People are talking about the project in a positive manner, and employees seem to be more motivated. I also think that the physical environment has helped. Now we have to maintain our new style of working and the opportunities that it affords. This will be the biggest challenge," concludes Lars Embäck.

Gunilla Tamm



RoxSystem cable entry seals make way for fast future expansion from the beginning, saving time and money throughout the entire project. If further cables need

to be added just open the sealing, add the new cables, and close it again. Using RoxSystem means avoiding additional purchases in the future.

Future included.



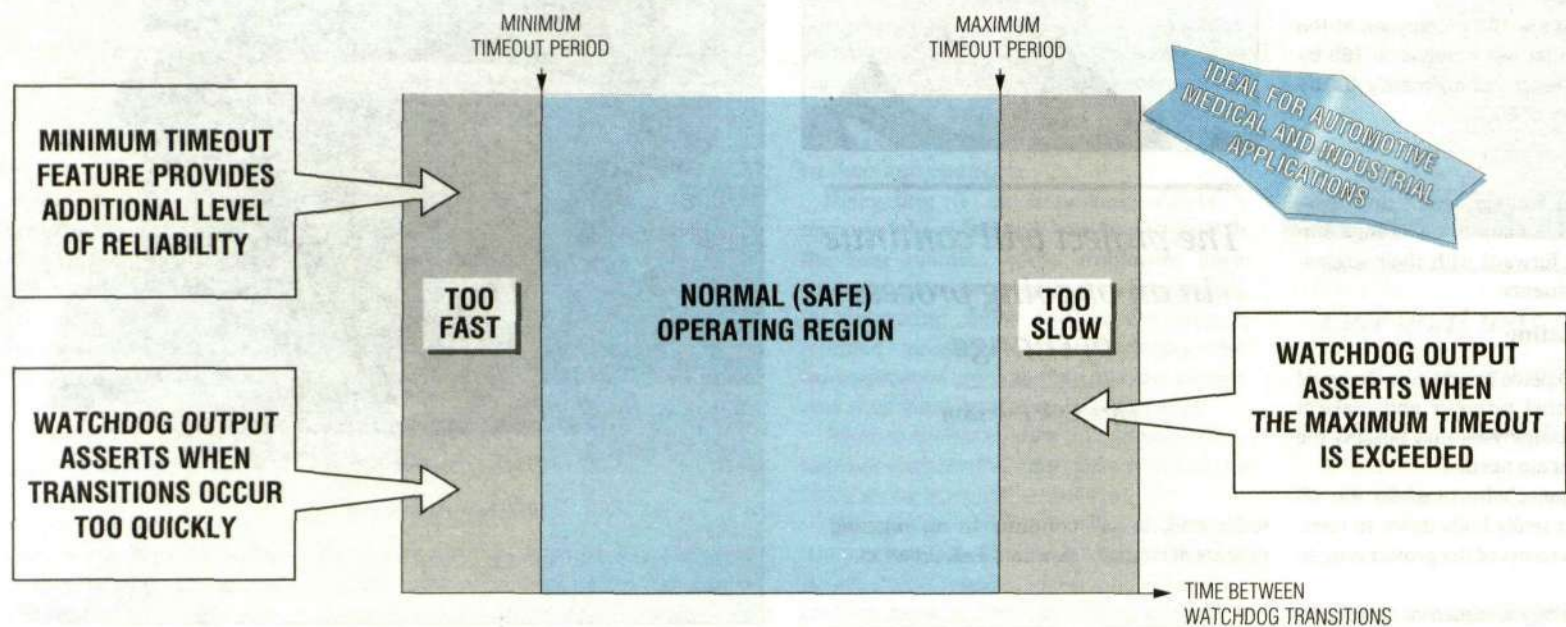
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The plant has a creative room, where it is possible to relax for a while and listen to some calming music. There are no computers or phones in the room, but it does have a small fountain. Lars Embäck is pictured here taking a creative break.

WINDOWED WATCHDOG TIMERS PROVIDE HIGHEST LEVEL OF SYSTEM RELIABILITY

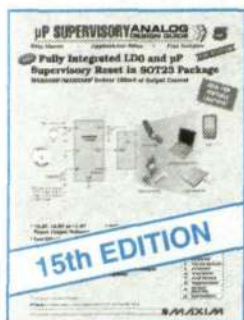
Windowed watchdog timers assert when falling edges occur **too fast** or **too slow** to reduce system lockup and data processing errors.



- ◆ Power-On Reset to Monitor from +2.5V to +5.0V Power Supplies
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MINIMUM/MAXIMUM TIMEOUT OPTIONS

SUFFIX	MINIMUM	MAXIMUM
A	1.5ms	10ms
B	15ms	100ms
C	15ms	300ms
D	15ms	10s
E	15ms	60s
F	23ms	47ms
G	39ms	82ms
H	719ms	1.3s



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Festive inaugural event



The festivities at the Telecommunications Museum in Stockholm on April 26 were in commemoration of two events. One was the opening of a new exhibition, "The Mobile Phone," which highlights 50 years of mobile telephony. The other was the recently completed major renovation of the entire Telecommunications Museum. Ericsson's Senior Vice President of Technology, Jan Uddenfeldt, was one of the inaugural speakers.

Photo: Denny Lorentzen



Mathias Radencrantz, Ewa Åkerlind and Petronella Wacker received a visit from some Disney characters, during the Mobile Entertainment Forum, which was held in Paris.

Photo: Jon Gamble

3G applications at Euro Disney

» The focus at Euro Disney in Paris at the end of April was on games, music, sports and multimedia, when the Mobile Entertainment Forum 2001 was held there. Approximately 500 delegates and 34 exhibitors, including Ericsson, participated.

Ericsson demonstrated several 3G applications, including its prototype phone Emil, which visitors were able to try out. Several other applications were also demonstrated, including myB, which offers entertainment for young people, and Mobile Advertiser, an application for ads.

Cold Coca-Cola without cold cash

» In Kuala Lumpur in Malaysia, residents can now use their mobile phones to purchase Coca-Cola from vending machines. Ericsson has, in collaboration with the operator Celcom, Coca-Cola and the service provider WAP Portal, made purchasing more convenient for thirsty city dwellers. Customers can dial a phone number to dispense their soft drinks, with the customer being billed directly via their phone. Initially, 30 vending machines will be put into service. But by the end of the year, some 300 of these vending machines will be available in Malaysia.

Mobile Internet drew attention

» TM@B is a Belgian telecom exhibition that was recently held in Brussels. Ericsson in Belgium was on hand, demonstrating the Mobile Internet for the first time. The trade show, which lasted two days, drew over 2,000 visitors from the telecom sector, and nearly all of them visited Ericsson's display.

"We demonstrated what we can currently do with WAP, as well as what will be possible with the Mobile Internet of the future. Our demonstrations of streaming video and local television news segments were very popular," says Peter Vandenberghe, who is Web Communications Manager at Ericsson in Belgium. The display included simulations of GPRS and UMTS networks and a special area devoted to the collaboration that Ericsson has with various partners.

"During the actual trade show, we secured numerous valuable contacts, but we've also received many interesting contacts afterwards," says Peter Vandenberghe.



Alaà El-Khatib and Mutasem Haddadin, of the Al Hussein College in Amman, were the two lucky winners of the T20 phones that Ericsson raffled off. Here they are pictured together with the personnel manager at Ericsson in Jordan, Inger Agdahl. Photo: Mohab Daquah

Ericsson supports youth in Jordan

High school students from six schools in Jordan participated in an essay contest, organized in conjunction with the European Friendship Day. Ericsson was a sponsor for the event, which was included as part of the EU's youth program.

» The subject of the essay contest was what a person can learn from European cooperation and how this knowledge can be applied at the local level. A panel of ambassadors from EU member nations chose the two winning contributions: essays written

by students from two schools in Amman, Jordan. Sweden's Crown Princess Victoria was on hand to present the awards to the winners.

Ericsson, which was the main sponsor of the event, handed out gifts and even raffled off two T20 telephones.

"We want to support the EU's youth project, and show our involvement in local issues," said Mohab Daquah, product manager at Ericsson in Jordan.

Ericsson's market unit in Jordan was established one year ago, at the same time as an important GSM contract was secured from the mobile phone operator Mobilecom.

Tonya Lilburn

tonya.lilburn@lme.ericsson.se

FIRMA ERIC & SON



KEROLD KLANG / JOURNALISTGRUPPEN



Michele Schmidt, head of marketing and communication of environmental issues within Ericsson, tries to take public transportation to work as much as possible.

Photo: Ecke Küller

Small changes make a difference

Do you shut off your computer when you leave work for the day? If you do, you are performing a valuable service for the environment. And if you prefer teleconferencing to business travel, you are really making a difference.

Ericsson's program for increased environmental awareness on the job addresses the small efforts.

► Environmental Profile at Work (EPW) is the name of one of Ericsson's environmental programs that was launched last autumn. The goal is to increase environmental awareness among employees and encourage them to think about the environment in their everyday work.

Some 40,000 office workers have already been encouraged to visit a website to view a presentation of the company's environmental efforts. On the site, they were asked to answer a number of questions about their own habits. The answers have been compiled into an environmental profile, unique to the individual who completed the survey, allowing everyone to see just how they are affecting the environment.

"We want to create an involvement in environmental issues by getting people to understand that they can make an impact," says Michele Schmidt, head of marketing and communications for environmental issues at Ericsson.

This challenge will eventually be forwarded to all Ericsson office workers, department by department. Questions cover everything

from getting to work to use of disposable cups. Small changes can, in fact, make a big difference. A flight from Europe to the US consumes twice as much energy as an entire year of commuting on the London Underground. So if a business trip can be avoided, much can be saved.

Ericsson's environmental program was recently featured on Swedish television as an example of an outstanding way to utilize IT for distance learning.

"This is an interesting example of how our own technology can be utilized to convey an environmental message. We work in an industry that offers people unique opportunities to take action for more sustainable development from an environmental viewpoint," says Michele Schmidt.

To date, some 17,000 surveys have been returned. Responses are registered in a database that will form a statistical basis to be used in the annual environmental report, among other areas. The intention is to regularly update the environmental profile, but no special follow-up has been planned.

"We can only provide information and

FACTS/ENVIRONMENTAL PROFILE

The Environmental Profile at Work survey shows that Ericsson employees...

- Turn off lights 60 percent of the time when leaving the office.
- Shut down their computer 67 percent of the time when leaving the office.
- Recycle 75 percent of all paper.

Moreover...

- One-third of Ericsson employees (33 percent) take public transport, cycle or walk to work.

hopefully help initiate a thought process among people that leads to greater environmental awareness. But the final decision always rests with the individual," says Michele Schmidt.

What is she, herself, doing to improve her environmental profile?

"I've started to take public transportation to work more frequently. I also try to work from home occasionally."

Tonya Lilburn

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<http://epw.ericsson.se>

<http://inside.ericsson.se/environment>

UPCOMING

May 17: 3G Tour TransContinental visits Prague in the Czech Republic.

May 26-27: Ericsson@Homelands dance festival at The Bowl, Matherley, Winchester. Line-up highlights are Pulp, Orbital, The Orb, Sonique and more.

<http://insideuk.ericsson.se>

June 3-7: The SuperComm exhibition takes place in Atlanta, in the US.

June 5-8: The Internet Society will organize the INET 2001 conference in Stockholm. Ericsson is the principal sponsor and Kurt Hellström, Ericsson's President and CEO, will be one of the keynote speakers.

June 19-22: CommunicAsia in Singapore.

<http://inside.ericsson.se/communicasia01/index.html>

UPDATES

May 10: Ericsson was the main sponsor of the Swedish EU Presidency Gala Concert in Brussels.

NEW ASSIGNMENTS

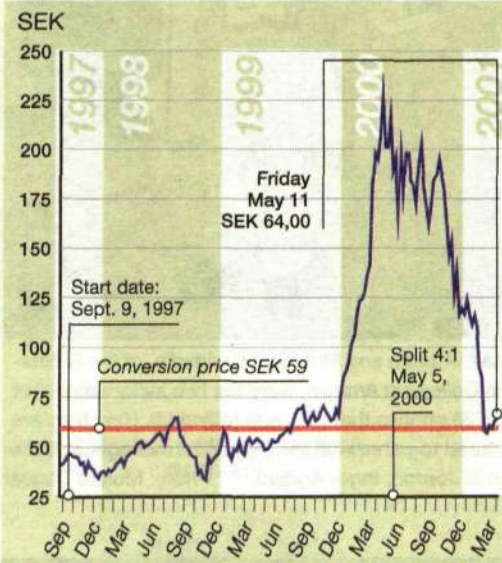
Sara Mazur of Ericsson Research has been named Director, Access Networks.

Christer Jungsand has been named Corporate Program Manager for Solectron, within the Sourcing corporate function.

Rolf Hansson from Ericsson Radio Systems has been appointed Expert in the field of PDC Radio and Packet Data signaling.

Ulf Månsson has been appointed President of Ericsson in Indonesia. He will assume his new position October 1, 2001. He will succeed Mats H Olsson who has been appointed President of Ericsson in Malaysia.

THE ERICSSON B SHARE



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

