

3G order for North America

Ericsson is to be one of the main suppliers as the American operator Cingular Networks selects Edge technology for the upgrade of its North American network to 3G mobile telephony. This as a real breakthrough in the region.

News, 4



Vodafone focuses on Japan

The operator Vodafone is to take control of J-Phone and become more closely involved in the development of 3G services in Japan. Vodafone intends to apply the experience it gains in Japan to other markets.

World Watch, 6-7

contact



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Rows of new cars parked outside one of Beijing's thousands of restaurants. Despite the downturn in the world economy, China's economy remains strong and will grow by more than seven percent this year. This is likely to mean even more business for Ericsson. Photo: Lars Åström

China increasingly mobile

Did you think that the streets of Beijing were full of bicycling Chinese in blue uniforms? Time to think again. In recent years, China has developed at an incredible pace, with a rate of growth that other countries can only dream of.

China has also emerged as Ericsson's most important market and there are more mobile users there than in any other country – and

their numbers continue to grow. Recently, the Chinese government decided to invest a further USD 100 billion in the extension of the telecom and datacom networks in the next few years.

In this issue, *Contact* begins a series of reports on the world's largest telecom country, China.

Feature 11-13

Global Services in starting blocks

The Global Services division has become the Global Services business unit. Major restructuring measures have been implemented throughout Ericsson as well as Global Services to increase sales of services and support. Bert Nordberg, the head of the unit, is highly optimistic about the future and believes that Global Services is in an ideal position to make major achievements for Ericsson.

Corporate, 3



Foto: Ecke Küller

AT WORK

Some people grab a salad in front of their computers. Others gather in a large group to eat lunch together. Regardless of how you choose to do it, it is important to eat regularly and well. You can then perform better and keep going throughout the afternoon, according to health educationalist Sofia Lindblad. 18-19



TECHNOLOGY

The AMR standard, which always selects the best voice-coding, will soon be available on the market. Read about the "Inventors of the Year" and "Stack-on-a-Card," which creates a shielded signaling environment by gathering all the SS7 signaling on a single card. 20-21

3G Making it pay. It's all about confidence.

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System service set for great deeds

The new Global Services business unit has its glory days ahead of it. Its operations were recently promoted to the corporate level, and the unit's manager Bert Nordberg, is convinced that system integration will become one of Ericsson's largest revenue sources.

► The Global Services division has become the Global Services business unit. While the change in name may not be great, the move within the organization is momentous.

"The greatest change is that we have eliminated our five regional offices around the world. Instead, we intend to build up a service organization through the approximately 30 market units now being established within Ericsson,"

says Bert Nordberg, adding that he is pleased with the new organization.

"This is really the ideal way for us to work," he continues. "It means that we will have a more natural and direct link to the end customers. Unfortunately, this was not possible previously, since there were too many market units."

Bert Nordberg's ambition is to get all managers at market units and local companies to understand how important it is to increase the emphasis on service offerings in customer presentations, for example.

Great accomplishments

"I cannot overemphasize how important service and support will become in the near

FACTS/GLOBAL SERVICES BUSINESS UNIT

The Global Services business unit offers companies in the telecom industry service and support for networks and systems in the form of both total contracts and individual services. Core areas are system integration, network support and network operation.

future when contracts have been signed and the base stations are in place," he says.

"System integration, network operation and network support are core areas for Global Services, and I believe that we can accomplish great things if we only try. The reality today is that operators are more interested in recruiting customers to the network than operating the

network itself," emphasizes Bert Nordberg.

In fact, he believes that system integration can be the next major source of revenues for Ericsson.

"We will be presenting a completely new offering in system integration for customers that I believe will revolutionize the industry. That much I can say now," says Bert Nordberg.

For this effort to succeed, however, it will not be sufficient to be able to integrate and service Ericsson products.

"No operator in the world will have only Ericsson products in its system. We must therefore become experts on our competitors' systems so that we become the only alternative for the customer," says Bert Nordberg.

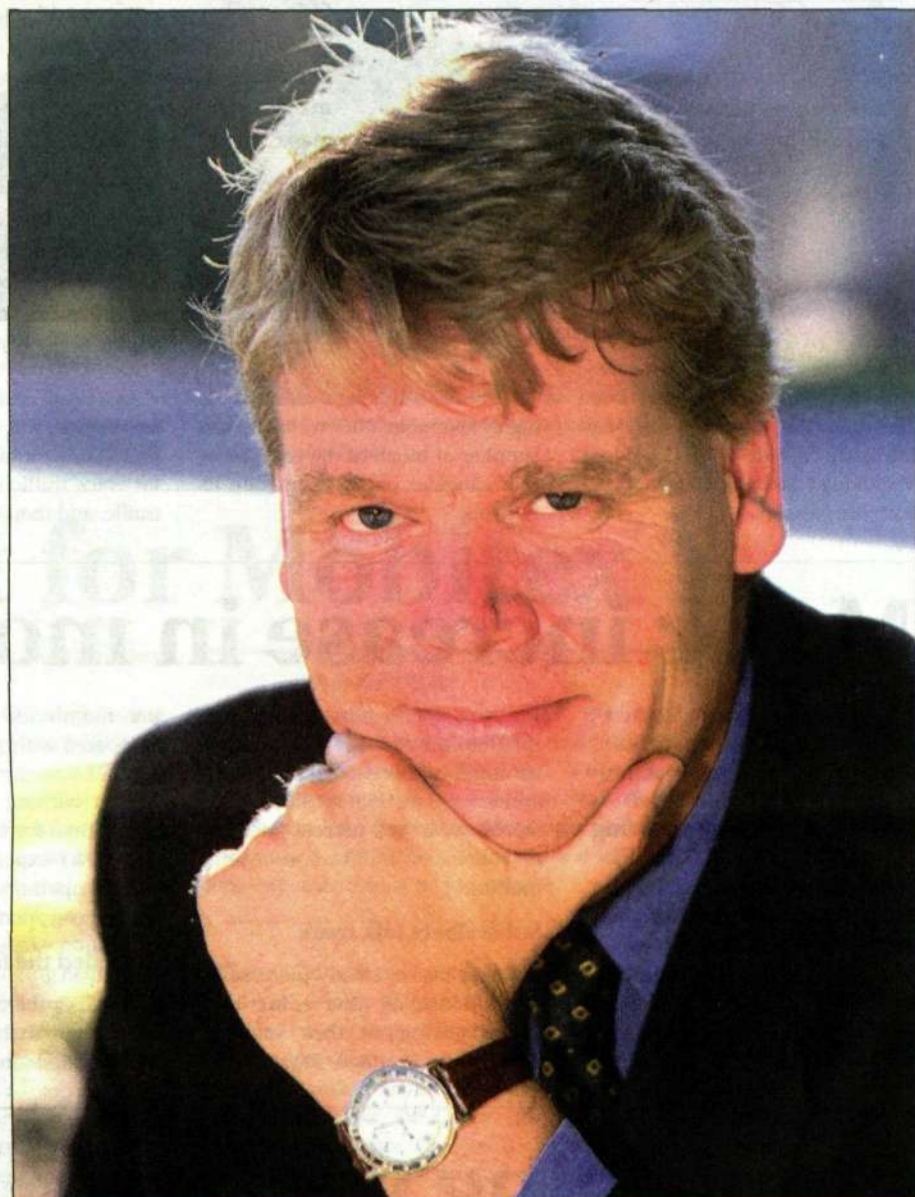
Global Services is also extremely dependent on Ericsson's success in mobile system sales.

"Systems are our livelihood. While there may be existing contracts that continue to generate substantial sales, we need constant growth in customers. In my judgment, we need to have a major share of the global market for mobile systems, if our business is to succeed," he says.

Central resource

In conjunction with the major reorganization within Ericsson, the executive management team recently gave Global Services the task of

System integration, network operation and network support are core areas for Global Services, and I believe that we can accomplish great things if we only try.



Bert Nordberg, manager of the Global Services business unit, is convinced that Ericsson will soon enter a phase in which the sale of maintenance and support services will be increased significantly.

Photo: Ecke Küller

acting even more clearly than previously as a resource center for more advanced expertise in wireless networks.

"Some expertise must naturally remain at the local level, but for more complicated matters, expertise is now concentrated to one of our five global competence centers. These centers can provide qualified personnel for as long as they are needed," says Bert Nordberg.

Bert Nordberg is aware that Global Services has thus far been perceived as a rather anony-

mous unit with operations that are difficult to comprehend for outsiders.

"We have not made ourselves seen and heard enough, but we intend to change that now. Personally, I will be spending more time on sales and securing order bookings than I have done previously," concludes Bert Nordberg.

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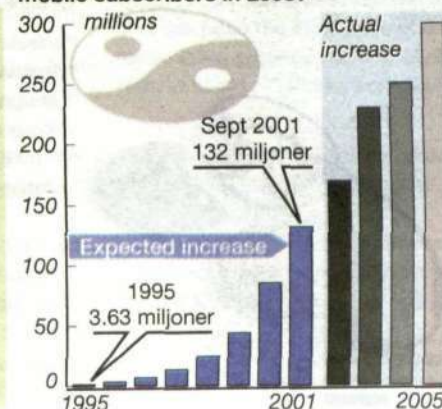
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DID YOU KNOW THAT...

...China is expected to have 300 million mobile subscribers in 2005?



US breakthrough for Edge

Ericsson has signed a strategically important contract with American mobile operator Cingular Wireless. Ericsson will be one of the main suppliers of network equipment and phones based on such technology as GPRS and Edge when Cingular upgrades its network to 3G.

With Cingular's order, another major US mobile operator takes the pivotal decision of moving toward third-generation mobile telephony – the decision facing all North American mobile operators.

"I see this as a real breakthrough for Edge in North America. Earlier this year, two major US mobile operators – AT&T and Voicestream – announced their decision to embrace Edge. They have now been joined by Cingular Wireless," says Ericsson's Senior Vice President, Marketing & Strategic Development, Torbjörn Nilsson.



Torbjörn Nilsson, Ericsson's senior vice president, Marketing & Strategic Development, sees the contract with Cingular as a real breakthrough for Edge in North America.

Photo: Lars Åström

FACTS/EDGE

Edge is a technology that upgrades GSM to support the mobile services supplied by third-generation telephony. Edge has been developed to handle a high volume of data traffic at a speed of 384 kilobits per second.

"For us, Cingular's decision is highly favorable, since we will be the supplier of much of the equipment that Cingular needs to operate its network."

As a result of the decision, Cingular Wireless will move from its current TDMA mobile standard to GSM for voice traffic and GPRS for data traffic, and then to Edge. As early as

the first half of next year, Ericsson will begin delivering the equipment, which includes a broad range of products.

"First, we will deliver radio net-

works for the 1850 and 1900 MHz frequency bands. In connection with these deliveries, we will install the common backbone network for GSM/GPRS/Edge and network functionality for cooperation with the TDMA network," says Torbjörn Nilsson.

"Sony Ericsson is also involved in this contract and will provide mobile phones for TDMA, GSM and GPRS. As regards products equipped with Edge technology, we expect to make the first deliveries at the end of 2002, although we will carry out the majority of the deliveries in 2003."

Cingular Wireless, with nearly 22 million mobile subscribers, is the second largest mobile operator in the US.

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– November 6

Major increase in mobile customers in US

Use of mobile phones in the US exceeded expectations for the third quarter of 2001. Mobile customers are increasing in number and they are spending a greater amount of time talking on their phones, according to figures for the third quarter, published by the operators AT&T Wireless and Sprint SPC.

AT&T Wireless, the third largest mobile operator in the US, reports gain-

ing 750,000 new subscribers during the third quarter this year, bringing its total number of mobile customers to more than 17 million. This represents a 35.5-percent increase in subscriber numbers in twelve months.

Subscribers talk more

There is also a steady increase in the amount of time subscribers spend talking on their mobiles, which now averages 389 minutes

per month for AT&T customers, compared with 348 minutes a year ago. The company's total third-quarter earnings were 25 percent higher than for the year-earlier period. AT&T expects earnings for its mobile operations to continue to rise by 30–35 percent.

Exceeded the forecast

Sprint SPC, the fourth largest mobile operator in the US, also exceeded the analysts' forecasts, increasing

its number of subscribers even more than AT&T by attracting 1.2 million new subscribers. Sprint SPC's earnings rose 11 percent compared with Q3/2000.

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The number of mobile customers in the US is constantly increasing.

Photo: Ecke Küller



Combining the best of three worlds

Ericsson and American mobile operator Verizon Wireless have developed a multi-access solution that enables the user to combine CDMA2000, WLAN and Bluetooth in order to always obtain the fastest possible connection.

The solution was presented at the CDMA American congress recently held in San Diego.

The system enables the operator to create a solution in which the various technologies complement each other.

The CDMA2000 network covers large areas with mobile packet-switched data, whereas WLAN supports high-speed services in limited areas – so-called hot spots, such as airports. Bluetooth is used as a cost-effective communication technology for the home or some other personal network.

In combination, the three technologies provide cost-effective mobile communications without seams between the systems, where the user is always automatically connected to the fastest connection available.

Ericsson's head-start

"It feels great to work with Verizon Wireless in this multi-access demonstration," says Larry Britain, Ericsson's sales manager for CDMA.

"The solution is further proof that Ericsson has a technical

head-start and is able to help operators give their customers the most advanced solutions for the mobile Internet."

"The possibilities opened up by this multi-access solution and our customers are very exciting," says Bill Stone, head of technical strategy for Verizon Wireless.

Extensive coverage in the US

Verizon Wireless is the largest US mobile operator, with over 27 million mobile subscribers for voice and data. The company's networks cover 90 percent of the country's population.

Ericsson and Verizon recently signed a contract for telephones for the company's cdmaOne system. The contract includes testing of Ericsson's CDMA2000 1X model T60c.

At the recent CDMA American congress, Ericsson also presented its new TEMS CDMA2000 portfolio, which is used for network supervision and planning.

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Merge with Mediatude

In order to offer a complete turnkey solution for mobile marketing, Ericsson's Mobile Advertiser has been merged into the product offering from Mediatude AB, a leader in the new and emerging market of profile-based mobile marketing.

The Mobile Advertiser is a technical platform for mobile marketing. Mats Eriksson, CEO of Mediatude, developed the invention at Ericsson in the late 1990s.

"This product allows mobile operators to capture and maintain profiles on subscribers, and execute targeted interactive mobile marketing services," he says.

Mats Eriksson believes profile-based marketing adds value.

"Consumers typically don't want advertising that is not relevant to them. Targeted marketing then becomes a service, and we think it's very important that it's permission-based."

"The whole idea of the inclusion of this Ericsson product is that we can provide software products, and we can run these marketing based services on behalf of operators, as hosted applications," says Mats Eriksson.

Mediatude will offer technology

platforms, tools and services as well as consulting on market potential and more.

Mediatude's Mats Eriksson believes that mobile marketing could help operators finance 3G network investments, and enable operators to launch competitive new value-added services to create a more loyal customer base, attract new customers and to increase network traffic.

Ericsson is still involved in several ways. Since 2000, Ericsson Business Innovation has been part-owner of Mediatude and will remain so. Recent developments include a distribution agreement between Mediatude and Ericsson. This allows Ericsson to sell Mediatude's products and services, and in turn, Mediatude has access to Ericsson's global distribution network.

"This gives Ericsson a good opportunity to expand the offering of complete technologies and services in a field which we believe will become important in Mobile Internet," says Håkan Österberg, senior investment manager at Ericsson Business Innovations and chairman of the board of the new merged entity.

Dodi Axelson



Bluetooth, one of the three components of Ericsson's new solution.

Wireless broadband to Russian operator

Leading Russian operator Combella has chosen Ericsson to supply equipment and technology for a wireless broadband access network. The contract reinforces Ericsson's number-one global position in supplying wireless transport and access networks.

In Russia, Ericsson holds a 40 per cent market share for microwave-based "first-mile" or local loop systems. This is the first MINI-LINK contract calling for wireless broadband access in Russia for any supplier, and the first contract between Ericsson and Combella.

With rapid deployment of Ericsson's MINI-LINK system, Combella will be able to cost-efficiently launch broadband services by year-end.

New customers have broadband services just hours after signing up, by installing a small unit with an antenna on a rooftop. Combella then "broadcasts" services to users.

Ericsson will supply multi-sector base station hubs, remote access terminals and will provide roll-out and ready network design services. The contract provides for the Wireless Broadband Access (WBA) system to cover the major parts of the city of Moscow in phases. The population of Russia's capital is close to nine million, and its geographic spread is close to 1,000 square kilometers.

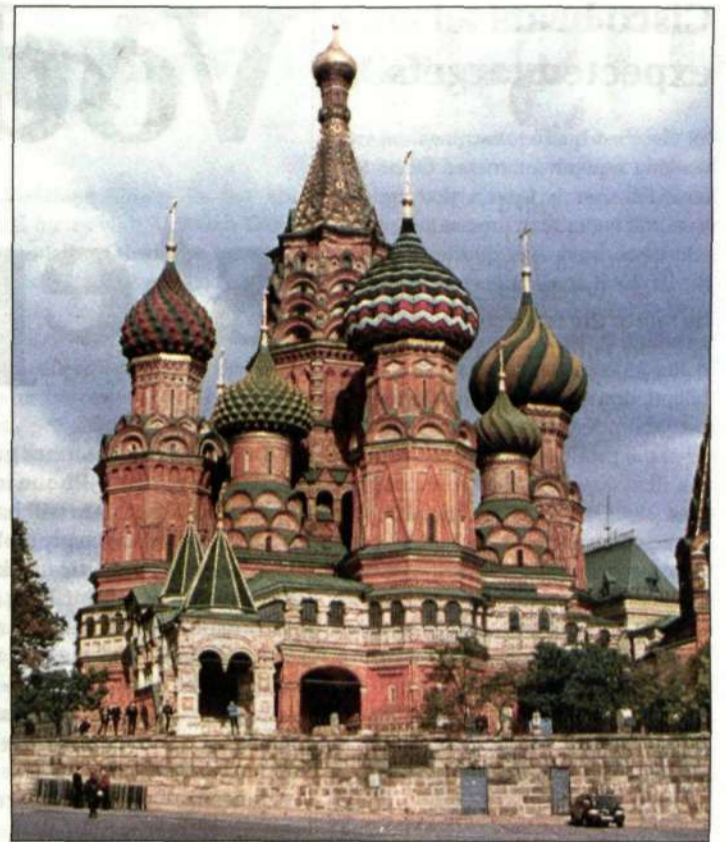
"Ericsson's MINI-LINK access solution fits our growing ATM network like a glove," says William Svedberg, COO of Combella. "This is the most efficient way we can rapidly increase our presence in the region, offering

broadband datacom services, leased lines and telephony to our customers, fast and at competitive prices."

"The Combella expansion is another good example of how our leading microwave solutions help operators to save both time-to-customer and network costs," says Eddie Ahman, president of Ericsson in Russia.

MINI-LINK systems are used mainly as essential parts of Ericsson's range of end-to-end mobile systems. Other installations of the MINI-LINK products are in wired networks or enterprise networks – and as in this contract when leveraged for an LMDS network. The point-to-point product family is deployed in more than 110 countries.

Dodi Axelson



Ericsson will deliver wireless broadband access system to Russian operator Combella. Photo: Mia Widell Örnung

China new market for Mobitex

At the recent annual meeting of the Mobitex Operators Association (MOA) in Gothenburg, a large amount of interest was focused on China.

"We are investing in Mobitex because it's a technology that suits areas of high population density such as Beijing," said Chen Yuanming, president of Sky Networks Communications Group Co. Ltd. in China.



Chen Yuanming
president of Sky Networks Communications Group Co. Ltd. in China.

The three-day MOA meeting in Gothenburg, Sweden, was hosted by Ericsson Mobile Data Design. Over 100 people from some 15 countries attended the meeting.

A few weeks ago, Ericsson announced in a press release that it had secured a large order for a Mobitex system for mobile Internet services from Chinese operator Sky Networks Communications Group Co. Ltd.

Anders Westfeldt, area manager in China at Ericsson Mobile Data Design, gave a talk at the MOA meeting about introducing Mobitex in China.

It started with a market study about two years ago. The study revealed a considerable demand for mobile-data services, and that there was a place for Mobitex since many Chinese pager operators were anxious to provide more advanced services to their customers. The study also showed that the 800 MHz frequency would be available for Mobitex, which meant that Ericsson Mobile Data Design had to quickly

develop a base station and a modem for that frequency.

China requires technical testing licenses and three such licenses were issued by the Chinese Ministry for the IT industry. Two pilot systems were installed in December 2000. In June, following a decision by the Chinese authorities that the 800 MHz frequency could be used for Mobitex, Sky Networks obtained a regional license covering Beijing and three northern provinces. The customer was subsequently also assigned frequencies for Shanghai and Tianjin.

The installation, which is scheduled to start in December, is expected to continue throughout next year. The network is being dimensioned to support 500,000 subscribers, to whom the customer plans to offer e-mail and share trading on five

FACTS/MOBITEX

Mobitex is a narrowband wireless system for packet-switched data. The system has nearly one million users. Mobitex provides constant access to many applications, such as e-mail services, share trading, news via WAP and information from databases. Mobitex is also suitable for ambulance-related applications, credit-card verification and logistics solutions, all of which are time-critical and must be fully reliable.

different Chinese and Korean terminals. The Chinese Mobitex operator will also be working with advanced mobile-data solutions.

Sky Networks may be the largest Mobitex operator in China, but Hong Kong operator Telecom Digital Limited is the first in the world to have signed a contract for an 800 MHz Mobitex system.

Preparations are in full swing for the system, which is scheduled to

start operating commercially at the beginning of next year. The company has operated a successful paging system in Hong Kong for the past 20 years.

In addition, Telecom Digital will be using its Mobitex system for mobile Internet services.

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"Investments in China will double in five years"

"Asia is one of Ericsson's most important markets and we are planning to double our investments in China over the next five years." That was one of the messages that CEO Kurt Hellström conveyed to the Asian market when Ericsson's top management met in Hong Kong.

Last week Ericsson's management gathered in Hong Kong to meet the collected Asian trade press and analysts. More than 160 people, including a hundred or so journalists, came to listen to the strategic messages.

This was Ericsson's first summit in Asia, and the third this year. The first one was held in May in New York for the American market, and the second in September in London for the European and African market.

The aim of the meetings is not to present news, but rather to give the markets an overall picture of Ericsson, both in terms of strategy and technological choices. In London and New York the financial market received the most attention. In Hong Kong however, focus was mainly on strategies and technology, partly due to the fact that Ericsson is not listed on the stock exchange in Asia.

"China is the largest market in the world for mobile telephones with half a million new subscribers every day", said Kurt Hellström, and continued to say that Japan is the largest market for Mobile Internet and Taiwan has over 80 percent penetration of mobile telephony, which is the greatest in the world. "So there is no doubt that Asia has a central position in our strategy."

Other important messages were

that the whole market for mobile telephony is now going through a great technology shift at the same time as the world economy has slowed down. In addition, a consolidation of operators into larger so-called Mega networks is taking place. Ericsson is adjusting to these trends by slimming the organization and focusing on customer relations.

Ericsson could also present positive figures. For example, the sales of GSM has increased by 17 percent during the year and the market share for UMTS is approximately 40 percent. Furthermore, positive development can also be seen on mobile telephone operations, the 3G-systems are being rolled out and GPRS has started up.

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Roland Klein to leave

Roland Klein, senior vice president of Corporate Communications at Ericsson, has announced plans to leave the company to join a British-German venture partly owned by him. He will join as managing partner some time next year.



This has been the most difficult decision in my professional life, says Roland Klein. Photo: Ecker Küller

Roland Klein joined to Ericsson two years ago. In a letter to his colleagues, he says:

"Over the last two years, I have invested more than ever in a job, and I have been rewarded highly with performance, friendship and support. It is always the wrong time to decide such a move (...) this has been the most difficult decision in my professional life."

Roland Klein intends to build an international communications consultancy together with some well-known partners from the corporate and political sector:

"After 22 years in journalism and

communications, this offers what I believe is a unique opportunity to build my own business."

Ericsson has begun an international recruitment process to replace Roland Klein.

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Cisco beats expected targets

» The first-quarter earnings of networking equipment maker Cisco Systems fell sharply from a year ago but were still better than the market expected. Cisco said first-quarter earnings for its fiscal 2002 came in at USD 332 million, compared with earnings of USD 1.4 billion in the same quarter a year ago.

Revenue for the quarter was USD 4.4 billion, down 32 percent from the same period last year. But sales had increased from the previous quarter, representing the first sequential growth in nearly a year.

According to Cisco CEO John Chambers the company expects the revenue to grow further in the next quarter. Chambers told CNN that Cisco would be looking at eight-to-twelve acquisitions for the nine months to come.



Photo: Lars Åström

Court ruling stops mobile advertising

» A court of law in Japanese Yokohama has prohibited a company in the area from sending mobile advertising messages to NTT DoCoMo's mobile subscribers. The ban is effective immediately and extends over a year, according to the Kyodo News service.

The company affected by the ruling has sent thousands of e-mails and messages with more or less tempting offers to the operator's subscribers. As a result of the ruling, other companies using similar tactics will be affected.

Flextronics buys Telia units

» Telia of Sweden has agreed to sell 91 percent of the Orbiant Group for a minimum price of about USD 110 million.

The buyer is the global electronics company Flextronics. Orbiant consists of several companies: Neterna, Telia Service, Telia Systems, Evega, Relacom and Wireless Network Management.

The final price will be fixed at the end of year 2004, and is expected to total a maximum of USD 240 million. Sales invoiced by Orbiant in year 2000 amounted to USD 600 million. The divestment will reduce Telia's present workforce, 22,000 employees, by a quarter.

Ollila will stay until 2006

» Jorma Ollila, President and CEO of Nokia, will remain at his post for five more years, which was generally expected.

"He's done a good job. And this announcement provides continuity in a time of uncertainty," says Mika Paloranta, an analyst at Nordea Securities, to the Reuters news agency.

The 51-year old Ollila joined Nokia in 1985. He was appointed President in 1992 and elected to the Board of Directors in 1995. In 1999, he was appointed Chairman.

Vodafone takes step into Japan

When Vodafone assumes ownership control of J-Phone in Japan, NTT DoCoMo will have to compete with a truly global player in its domestic market. In addition to establishing a strong position in the Japanese market, Vodafone will also narrow the gap in development of 3G services in Japan and gain greater access to the Asian nation's comprehensive experience in Mobile Internet applications.

Vodafone, the world's largest mobile operator, announced last spring that it was taking over ownership interests in Japan Telecom and the J-Phone Group from BT of the UK. In order to gain ownership control of J-Phone, which is not listed on the stock exchange, Vodafone had to go through Japan Telecom.

"Vodafone has declared its intention to acquire 66.7 percent of shares in Japan Telecom," says Lennart Malmi, who works with the Japanese market at Ericsson Radio Systems.

One reason for citing this particular ownership share is probably rooted in the Japanese Companies Act. If a shareholder owns 33.4 percent of voting rights, that party has the right to veto any decisions by the company's Board of Directors.

"If Vodafone acquires 66.7 percent of total voting rights, no other owner will be able to block any of Vodafone's proposals, which means the Vodafone will assume full control of the company," he explains.

Experience in Japan

During the autumn, J-Phone has been restructured from a holding company with three regional operating companies to form a single company named J-Phone.

Vodafone will appoint the President, Chief Financial Officer and the Marketing and Sales Manager of J-Phone. Vodafone will also appoint six of the 13 members of J-Phone's Board of Directors.

Darryl E Green, the designated managing director of J-Phone, has comprehensive experience in the telecom industry, with particular emphasis on telecom in Japan.

He has lived in Japan for more than 15 years, speaks fluent Japanese and was previously president of Asia Global Crossing Japan.

FACTS/J-PHONE

- J-Phone has more than 11 million mobile subscribers and 17 percent of the market in Japan, which means it shares second place in terms of market dominance with KDDI. NTT DoCoMo is the number one.
- J-Phone plans to offer 3G-services beginning in October 2002.
- Ericsson supplies both PDC and 3G-systems, with market shares of about 80 percent for PDC and slightly more than 50 percent for 3G. (PDC stands for Personal Digital Cellular, one of the world's three main standards for wireless communications along with GSM and TDMA).



Through its entry into the Japanese market, Vodafone will compete directly with NTT DoCoMo and gain valuable 3G-experience that can be used in Europe. Photo: Lars Åström

Koichi Sakata, chairman of Japan Telecom, commented on Vodafone's increased ownership in a recent press release.

"I am convinced the merger with Vodafone is important for our effective launch of the next generation of mobile telecom services," he says.

"It will lead J-Phone onto a path that will help create a strong position as Japan's second largest

operator and a true rival of NTT DoCoMo."

Valuable experience

Helena Nordman-Knutson, telecom analyst for the Swedish brokerage firm Öhman, believes that Vodafone's investments in Japan will be successful:

"To establish a presence in the first market to launch 3G services will provide valuable experience that can be utilized in other markets. It's important to get out of the blocks

early in Europe with investments in both 3G and 2.5G (GPRS). An understanding of customers and their needs is also important," she says



Helena Nordman-Knutson

"In Japan, a great deal of Mobile Internet content has been brought to market through NTT DoCoMo's very substantial success with i-Mode," she continues.

Helena Nordman-Knutson also explains that telephone marketing is aggressive in the Japanese market. During recent months, J-Phone has increased its market share and captured one-third of all new subscribers.

One explanation for its success could be the popular telephones the operator has launched for J-Sky, J-Phone's answer to i-Mode.

It is interesting to note that while Vodafone focuses on Japan, its rival NTT is striving to become more global through stronger marketing efforts outside Japan.

Big British pioneer

The world's largest mobile operator was established 19 years ago as a small subsidiary of Racal Electronics, a British electronics company. In those days it had less than 50 employees. Today, Vodafone has more than 100,000 employees and 93 million subscribers around the world.

When the first licenses for mobile telephony were awarded in the UK in 1982, Vodafone was one of the first to receive a license. The company was based in Newbury, in southern England, where the head office of the now global operation remains. In those days, however, Vodafone was a small subsidiary of the UK electronics company Racal Electronics.

The name Vodafone was introduced three years later, in 1985, when the first mobile telecom system in the UK was launched – a

so-called analog Tacs system. With its new name, this progressive and visionary operator wanted to show the world that its future was based on both voice and data communications, "Vo" for voice, and "da" for data.

From British to cosmopolitan

At the end of 1985, Vodafone had 19,000 subscribers in the UK. Its progressive development from a British to a global force started two years later, when it entered various consortiums in different parts of the world to bid on mobile licenses.

Vodafone Group International was established in 1993 after the company had entered consortiums in Germany, South Africa, Australia, Fiji and Greece. It assumed an even greater global aura in 1995 through cooperation programs in the Netherlands, Hong Kong, France and other countries.

Vodafone England's first GSM-system was launched in 1991, the same year it was separated from Racal and listed on the stock exchanges of London and New York.

It was also in 1991 that Vodafone and Telecom Finland held the world's first roaming call with GSM, followed a year later by the first international GSM-roaming agreement in the world.

Vodafone reached another milestone in 1995, when it became the first operator in the world to launch prepaid services. Today, almost every operator in the world offers prepaid services, which are the market's fastest growing payment form.

World's largest

Vodafone has expanded strongly since the late 1990s. In 1998, it acquired New Zealand's only privately-owned GSM operator. One year lat-

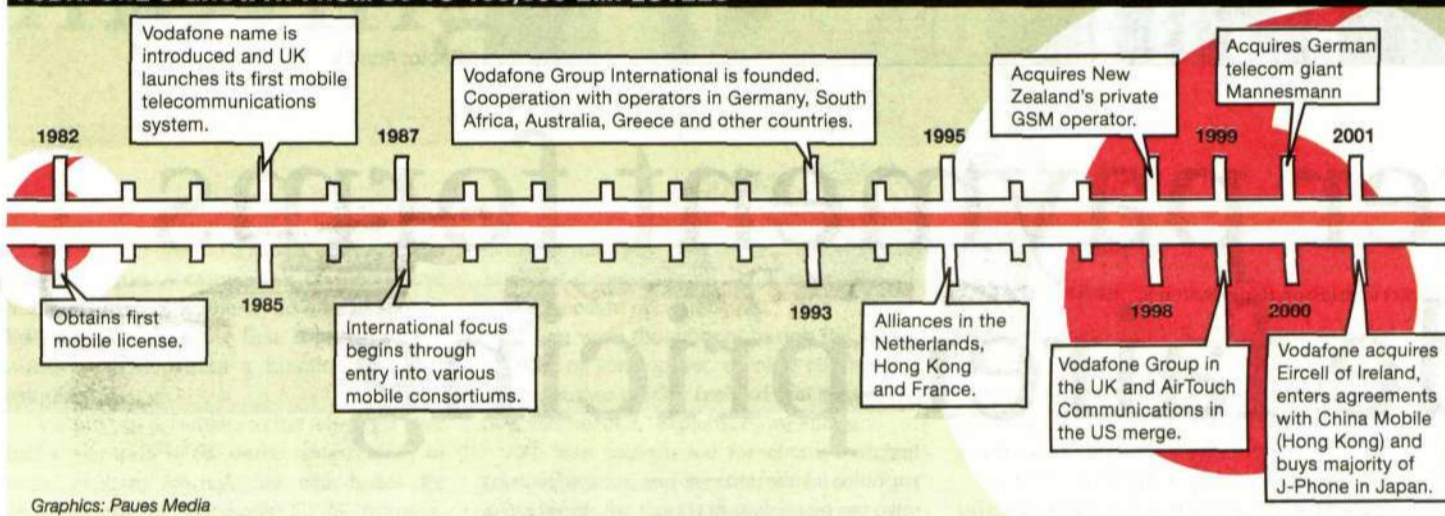
er, Vodafone Group in the UK joined forces with AirTouch Communications of the US to establish the world's largest mobile communications company, a unit with more than 31 million subscribers and business interests in 24 countries on five continents.

In April 2000, the EU approved Vodafone's acquisition of Mannesmann of Germany. Later in the spring of 2000, Verizon Wireless was launched, a company comprising the mobile telephony and personal paging activities of Vodafone AirTouch and Bell/Atlantic.

This year, Vodafone has acquired Ireland's leading mobile communications company Eircell, signed a strategic cooperation agreement with China Mobile (Hong Kong) and acquired a majority ownership interest in J-Phone of Japan.

Gunilla Tamm

VODAFONE'S GROWTH FROM 50 TO 100,000 EMPLOYEES



Graphics: Paues Media

Czechs boycott 3G-licenses

Mobile operators in the Czech Republic are boycotting the first phase of bidding in the country's renewed offer of three 3G licenses. The prices are too high and the conditions too tough, according to operators such as Eurotel (joint venture between Verizon and AT&T Wireless), RadioMobil (owned by Deutsche Telekom) and Cesky Mobil (part of global operator TIW).

The boycott is a setback for the Czech government, which would like to use the 3G funds to recover some of its budget deficit, according to the Reuters news agency. The government's asking price is USD 270 million for the current year and the same amount for the next 10 years for the three licenses. Telecom industry analysts believe the licenses will sell for a lower price in the auction process which is the second phase of the licensing procedure. The auction will start on November 30.

Verizon lowers its expectations

Verizon Communications, the largest local telecom operator in the US, reported third quarter earnings of USD 2.04 billion, slightly higher than the year-earlier period. Net earnings were down 46 percent, however, and Verizon was forced to reduce its earnings forecast for the full year.

Verizon was one of the telecom companies that suffered the most serious effects of the terrorist attacks on September 11. Approximately 200,000 of the company's telephone lines were destroyed, in addition to 3.6 million data circuits and 10 cellular towers, which naturally weighed heavily on earnings.

Today, however, most of the company's customers in Manhattan have some form of temporary telephone service, Verizon says.

"Not all due to terrorist attacks"

The terrorist attacks have not had particularly pronounced effects on quarterly results of the IT and telecom sectors. In many cases the attacks were used as an excuse, according to the analysis company Gartner.

Prior to September 11 about 40 percent of all European companies already planned to reduce their IT and telecom budget allocations, according to Gartner. When 200 large European companies were surveyed again after the attacks, the original figure was about the same. Effects of the attacks on American companies were not included in the presentation.

Situation critical for NTT in Japan

NTT's economic situation has become critical, and net earnings for the year will be 30 percent lower than expected, the company has announced.

The profit warning from Japan's largest telecom group was released in the wake of similar announcements by leading competitors KDDI and Japan Telecom.

The situation is attributed to general economic decline in parallel with growing competition. NTT is

introducing an early retirement program that will cost USD 3.3 million.

Japan Telecom, following NTT's example, has also announced an early retirement program that includes all employees over the age of 45 – nearly a quarter of the entire workforce. The offer was prompted mainly by Vodafone demands reduction in costs and increase of the profitability.

NTT's mobile subsidiary NTT DoCoMo recently posted a drop of more than 50 percent in its first-

half net profit. The reason was mainly that DoCoMo had written down a big investment in Dutch mobile operator KPN Mobile. DoCoMo bought a 15 percent stake in the unlisted arm of KPN Telecom in August 2000 in order to promote overseas use of its i-Mode service and 3G technology.

But the company's President Keiji Tachikawa said on a press conference that the international strategy would remain "basically unchanged".

DoCoMo is still profitable, even if earnings have dropped. The net profit was 860 million US dollars compared to 1,8 billion a year ago for the six months.



Keiji Tachikawa

Elin Dunås
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A new standard is about to reshape all Ericsson products.

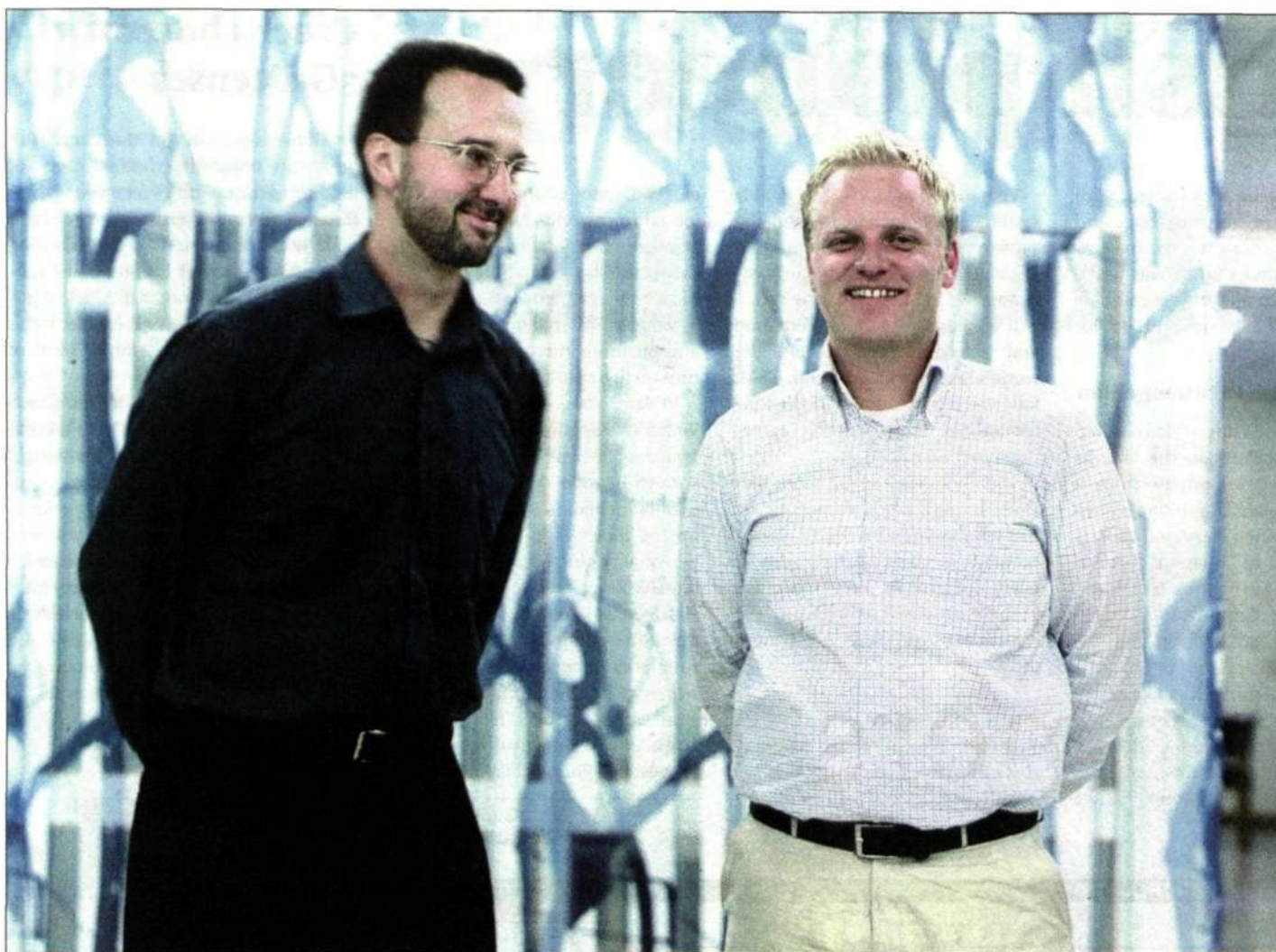
A new standard that will affect all Ericsson products and all areas of the company is about to be implemented. Internet Protocol Version 6, IPv6, will improve the speed and efficiency of Internet traffic and allow users to be continuously connected. IPv6 is a prerequisite for 3G.

Are you getting ready to answer questions from customers? Are you involved in the design of new products? Do you want general information about what's going on? Ericsson University offers seminars and courses adapted to the specific needs of each category of staff.

The complete program of seminars and courses and a registration form is available at <http://university.ericsson.se>

university.ericsson.se

ERICSSON



FACTS/CHARGING AND BILLING

Three areas are central to being able to sell and receive payment for telecommunications services: charging, billing and CRM.

- Charging involves the handling of transactions in the network and the registration and checking of usage.
- Billing involves sending invoices to customers, receiving payment from customers and connecting these to the operator's financial system.
- Customer Relations Management (CRM) involves keeping track of particular customers and groups of customers.

Björn Sandström, strategic product manager at Charging Solutions, and Jesper Nyström, who markets the products. Both see great advantages with the new system of charging per service rather than per megabyte.

Photo: Ann Ek

Smarter payment forms provide fairer pricing

New services and pricing models for GPRS are the subject of much discussion. Operators around the world are searching for payment solutions that are better suited to Mobile Internet services. Ericsson has developed a solution whereby users pay according to content rather than per megabyte.

► It is Friday afternoon and you enter your local supermarket to do the weekend's shopping. At the checkout you notice to your horror that the cashier weighs and charges for everything at the same price per pound, be it for steak or flour. Sound absurd? But that is what it would be like if we transferred the current debit models used for GPRS services to the grocery store.

At Ericsson's Charging Solutions product unit, the view is that operators must be able to charge according to criteria other than quantity of data downloaded.

"For example, if you want to download U2's latest number one hit to your mobile, it may take up one megabyte. If, on the other hand, you download 'Sunday Bloody Sunday,' that's probably about the same size and would therefore cost the same. But of course it is unreasonable that you should pay the same price for a brand new song as for one that is 20 years old," says Björn Sandström, strategic product manager at Charging Solutions.

Ericsson supplies charging systems for all types of subscribers. Charging Solutions has developed a system specially adapted to operators offering prepaid subscriptions.

This form of payment is growing more popular than traditional postpaid charging in which the subscriber receives invoices at regular intervals. Today, 63 percent of mobile subscriptions in Europe are prepaid and, glob-

ally, the figure is 39 percent. In Italy, as many as nine out of ten subscribers use prepaid services.

Ericsson is the world's largest supplier of charging solutions for the prepaid segment. A study carried out by the Ovum research company this spring among more than 100 operators showed that Ericsson is also the supplier with the best reputation.

Jesper Nyström, who markets the products, explains that interest in Ericsson's charging systems is extensive, not least from operators.

"We already have several operators around the world testing our new solution. To date, there has been much talk about what type of mobile Internet services will be launched for GPRS. Now it is how you should pay for the services that is the center of attention," he says.

The great interest has an explanation. Operators who have launched GPRS have been highly criticized for their complicated and not particularly fair payment models. Jesper Nyström says that operators must therefore adapt their systems to support new charging methods for mobile services.

"Charging is a key factor in the success of Mobile Internet services in the consumer market," he states.

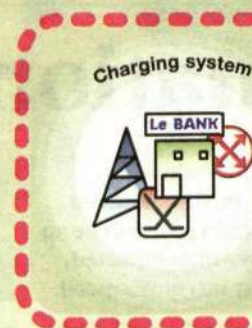
Björn Sandström explains that with today's prepaid solutions, it is possible to check that there is sufficient cash in the customer's ac-

MOBILE CHARGING SYSTEM



Can he afford it?

He sure can!



Charging for prepaid services is no stranger than charging customers who pay by card in a store. In the same way that cashiers check that customers have money in their accounts before making the transaction, the mobile charging system checks that there are sufficient funds in the account. If there are, the service is provided.

Graphics: Paules Media

FACTS/PDU CHARGING SOLUTIONS

Ericsson's Charging Solutions product development unit is the world's largest supplier of charging solutions for prepaid subscriptions. Competitors are traditional telecom suppliers (for example, Siemens and Nokia), traditional billing suppliers (such as Amdocs of Israel or Convergys of the US), and IP billing suppliers (for example, Portal of the US).

count before the service is delivered. This will be even more important with the Mobile Internet, where operators not only offers their own services but also services from other companies.

"The really smart aspect of charging solutions for prepaid subscriptions is that they imply a minimal credit risk for the operator and its business partners while giving the

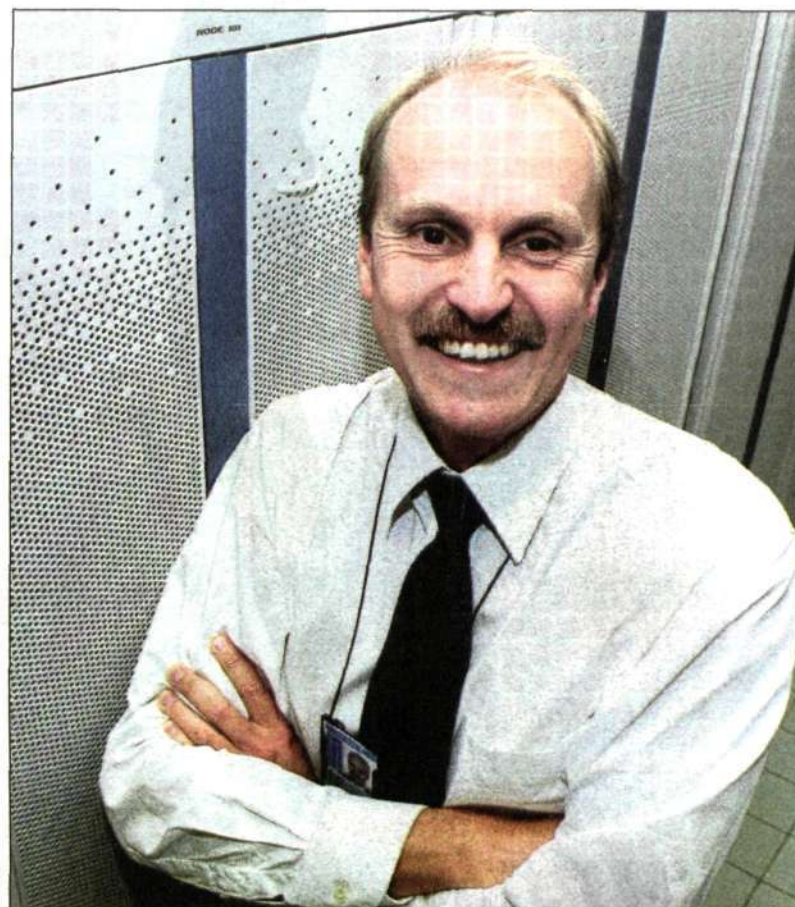
customer full control over expenditure. These are two important factors that will get the Mobile Internet market moving," says Björn Sandström.

Approximately 600 people work at the unit in Sweden (Karlskrona and Stockholm), Canada, the Netherlands and Ireland. They are also responsible for Ericsson's strategies on charging.

Ericsson collaborates closely with Practice Customer Management within Global Services, which supplies total solutions for charging and billing.

Ericsson has become one of the front-runners in the GPRS race. The comments from operators are unambiguous. When the second version of the switch, the actual brain of the system, was launched this spring, Ericsson's competitors were left straggling behind. The engineers at Ericsson Mobile Data Design are ready to continue the process.

New switch gets customers moving



"We are the world leaders in systems expertise in the development of GPRS and 3G." Björn Allén, who heads the development of Ericsson's GPRS solution, is not afraid to show his confidence. Photo: Niclas Henningsson

► At the GSM trade fair in Cannes in 1998, visitors flocked around a model railway at the Ericsson stand. A camera on the locomotive transmits images wirelessly to a large screen. Ericsson was thus the first supplier in the world to demonstrate a functioning GPRS solution.

"We put our shoulders to the wheel for over half a year to have the demo system ready in time," explains Björn Allén, who heads the development of Ericsson's GPRS solution. "It was important to us to be first. It was a matter of taking charge and trying to repeat the success of GSM."

At the heart of Ericsson's GPRS solution are the GGSN and SGSN switches, which ensure that all data packets are delivered to the correct address. When a decision was made in 1996 to construct the switches on an entirely new platform, the task was assigned to Ericsson Mobile Data Design in Gothenburg.

Experience from the Mobitex wireless data communication system, and the American CDPD standard had built up a solid expertise in packet data at the company.

For Ericsson Mobile Data Design, which

had, until then, worked on niche products, living a relatively obscure existence within Ericsson, the assignment signified stepping into the limelight of center stage.

"There were thoughts of basing the switch on AXE or some other, existing commercial server, but we quickly realized that something new was needed," explains Björn Allén.

AXE was constructed for circuit-switched communication and the commercial solutions available on the market simply could not cope with the demands on availability and scalability.

Occupies 800 people

Today, the development of Ericsson's GPRS solution occupies close to 800 people. Most of them work at Ericsson Mobile Data Design, which bears the overall responsibility.

Much of the programming is carried out at Ericsson Norway, in Grimstad, while support and maintenance are coordinated from Ericsson Eurolab in the German city of Aachen. Ericsson Compitex, the company based in Mölndal, outside Gothenburg, which has played an important role in the develop-

ment of the switches, will merge with Ericsson Mobile Data Design at the beginning of 2002.

Difficult route

The demonstration of the GPRS demo system in Cannes in 1998, and later the same year at CeBIT in Hanover, was a great success, although the continued development of Ericsson's GPRS solution has not been entirely smooth.

First the standard created problems. The process dragged on and continual changes frequently forced the engineers at Ericsson Mobile Data Design to make design changes.

"The result was software that did not really make the grade," explains Björn Allén. To start with, our design was far too complicated.

The turnabout came this spring. In March, version 2.0 of the platform that both switches are based on was released and development efforts with a determined focus on stability paid off. The 2.0 version meant that several of Ericsson's customers were confident enough to release their GPRS systems commercially.

From the ranks of the operators came the message that Björn Allén and his colleagues

had been waiting for, that with the 2.0, Ericsson had overtaken Nokia in the GPRS race. With 75 contracts in comparison to Nokia's 51, Ericsson also leads in the battle for market share. The gap down to the other suppliers is large.

A long way to the finishing line

However, Björn Allén is careful to emphasize that the race has only just begun. A steady stream of new releases, with increasingly greater capacity and more functions is needed if Ericsson is to achieve its goal of a 50 percent market share. The engineers at Ericsson Mobile Data Design, Ericsson in Norway and Ericsson Eurolab have accepted this challenge.

"I dare say that we are currently the world leaders in systems expertise in the development of GPRS and 3G," says Björn Allén confidently. "During the past five years, we have gathered experience and knowledge, which will be enormously important for Ericsson in the future"

Niclas Henningsson
freelance journalist

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Ericsson University



Development is rapid in China's capital Beijing. Just a few years ago, this street did not exist. Today it is one of the city's most frequented shopping venues, offering Beijing residents everything from the latest Western fashion to hamburgers.

Photo: Lars Åström

The road to success

China is the world's largest mobile nation and Ericsson's largest market. And while people continue to talk about an economic downturn in other parts of the world, China continues to grow.

Today, *Contact* publishes the first in a series of articles about China, describing a country that has grown increasingly important for the company.



► There is much happening in China at the moment. This is particularly noticeable in the capital, Beijing. Skyscrapers and shopping centers are sprouting from the earth like mushrooms. Across the entire city, construction cranes can be seen at work.

To cope with increasing traffic, new six-lane circular expressways are being constructed. But these are still insufficient to ease the tailbacks of new Japanese, US and domestically produced cars. During the rush hour, it takes an hour just to get out of the city. At the same time, air-pollution is a growing problem.

The change has been rapid. Just a few years ago, there were no neon advertising signs at all in the city and it was a major event when McDonald's opened its first restaurant in Beijing in 1992. Today, some sections of the city shine just as brightly with flashing lights as do Hong Kong or Singapore and soon there will be American hamburger restaurants on almost every block.

"Even if you leave the city for a week, lots of things have changed when you return. Sud-

denly an entire block may have disappeared and work has begun on a new one," says Elisabeth Mähler, who has lived in Beijing for the past two years.

Growth of more than seven percent

During 2001, the economy of the country is expected to grow by between seven and eight percent. As a comparison, we can take Japan, where there are concerns that GDP will decrease by one percent due to the flagging world economy.

While the government stands firm on maintaining China's planned economy, market forces have come to stay. Today, the Communist Party has 54 million members, while it is estimated that 80 million Chinese invest in shares on the country's various stock markets. Both of China's two state-owned mobile operators are listed via subsidiaries. China Mobile is listed in Hong Kong and China Unicom in both Hong Kong and New York.

In September, there were more than 130 million mobile users in China, more than in

any other country. Four years from now, this figure is forecast to grow to more than 300 million users. One might ask how it can be that communist China can avoid the economic decline currently being felt by the rest of the world.

Size decisive

In general terms, this could be said to be due to China's size. As everyone knows, this is an extremely large country with 1.3 billion inhabitants and is thus such a large domestic market that the country is largely self-sufficient. In recent years, China has also achieved a large surplus in its international trade balance, although this will weaken this year. Furthermore, the country's exports no longer consist of poor quality ornaments and ugly plastic toys. Today, China is a world leader in the manufacture of electronics and high-tech products.

Another important factor is the way in which the economy has been opened to competition and foreign capital, despite being a

communist planned economy. This has led to China currently attracting more foreign investment than any other country, with the exception of the US.

In addition, a great deal of capital is generated within the country's own borders. It is calculated that China has 16 million millionaires. At the same time, this wealth is unevenly distributed and a fifth of the population earns less than USD 50 per month.

On the whole, China's economy is extremely strong and no tangible downturn in its economic development is expected during the foreseeable future. The government has stated that it intends to continue its investments in infrastructure and that approximately USD 250 billion will be invested in data and telecommunications in the period until 2005.

Ericsson is determined to capture a sizeable portion of that pie.

Lars-Magnus Kihlström

lars-magnus.kihlstrom@ime.ericsson.se

Bright prospects in Chinese market

At the turn of the last century, China was one of Ericsson's largest markets. Now, once again, the country is topping the list, with more major, promising changes to come.

► In China, most indicators are currently pointing upwards: the economy is strong, deregulation is beneficial to the telecom industry, and the country is soon expected to become a member of the World Trade Organization.

China is also Ericsson's largest market. Moreover, Ericsson is the largest mobile systems supplier in the country, commanding nearly 40 percent of the systems market.

"Of course it's great to be the boss when things are going well. And the future outlook is stable, and the market secure. Our best tip would be that, in terms of investments, next year will be about the same as this year," says Jan Malm, president of Ericsson in China.

Prospects over the next few years are even brighter. In the most recent five-year plan for 2001 to 2005, the Chinese government

allocated the equivalent of USD 150 billion for telecom investments, and just recently, it was announced that this sum would be increased by an additional USD 100 billion.

The Chinese authorities have also decreed that the number of mobile operators shall be increased from two to four.

Favorable position

The fact that Beijing was chosen for the 2008 Olympics is also a shot in the arm for the entire country and will result in an even greater need for investment, particularly in infocom.

"With the expertise that we have, as well as our production capacity, marketing and established relations with the authorities, the prospects for maintaining our strong position in the Chinese market are excellent," says Zhang Xingsheng, marketing manager at Ericsson China.

Perhaps the greatest change, however, will occur as China soon joins the WTO, which will open borders further with respect to foreign investments and opportunities for trade with China.

"All major operators are now making plans. Vodafone is opening an office in Beijing, and BT, Deutsche Telekom, NTT DoCoMo and all the others are waiting at the gate, eager to enter the market. They will need local partners, and we are ready to serve them," says Zhang Xingsheng.

Panda Electronics is one of China's largest manufacturers of electronic equipment and Ericsson's business partner in Nanjing. Panda President Li Anjian shares Ericsson's view of the importance of WTO membership.

"We have long dreamed of joining the WTO, and now we are almost there. This is one of the most important events for China and will benefit the country in all respects, politically, socially and economically. With the elimination of trade barriers, it will become much easier to establish operations in China," notes Li Anjian.

Rapid growth

First-time visitors to Beijing are easily surprised by how modern and developed the city has become. Jan Malm came to China in 1995.

"During these past few years, there have been incredible changes – in terms of both the size of the market and, of course, its growth. But most importantly, perhaps, our customers have become so much more professional and knowledgeable. In that sense, doing business here has become even more challenging. Business is still based on a type of traditional Asian/Chinese approach, founded on relationships and friendship between business partners, but this alone is no longer sufficient. Customers demand that we take a professional approach."

There have also been a lot of changes in terms of technology. In 1995, China's analog mobile system, TACS, was still in operation. Very few people had cellphones, since the subscriptions cost a fortune – around USD 2,500. Nowadays

Guangdong: GSM and GPRS expansion contracts valued at USD 530 million
Hong Kong: Sole supplier for SmarTone's 3G network
Sichuan: GSM expansion contract valued at USD 100 million
Heilongjiang: GSM and IP contracts valued at USD 110 million

In addition, Ericsson is the main supplier for China Unicom's CDMA networks in seven provinces.

mobile subscriptions are free and increasing by 4–5 million a month.

Growth in itself is currently one of the key challenges facing Ericsson.

Many challenges

"Maintaining quality is one of the challenges we must meet in order to retain our market position in the future. As a collateral benefit, the strong service organization that we are currently building to fill the support needs for networks already delivered is creating new business opportunities."

It is also important to ensure that Mobile Internet becomes a strong trend. Substantial investments in GPRS technology are under way. Next year, China Mobile plans to increase its current capacity of 2 million GPRS users to 10 million users, and Ericsson is poised to help them make these investments profitable – by cooperating with application developers at Ericsson Mobility World, for example.

The technology shift from 2G to 3G presents a third key challenge. Testing will be done this year in cooperation with the regulatory bodies, and Ericsson will participate in these tests with WCDMA and CDMA2000.

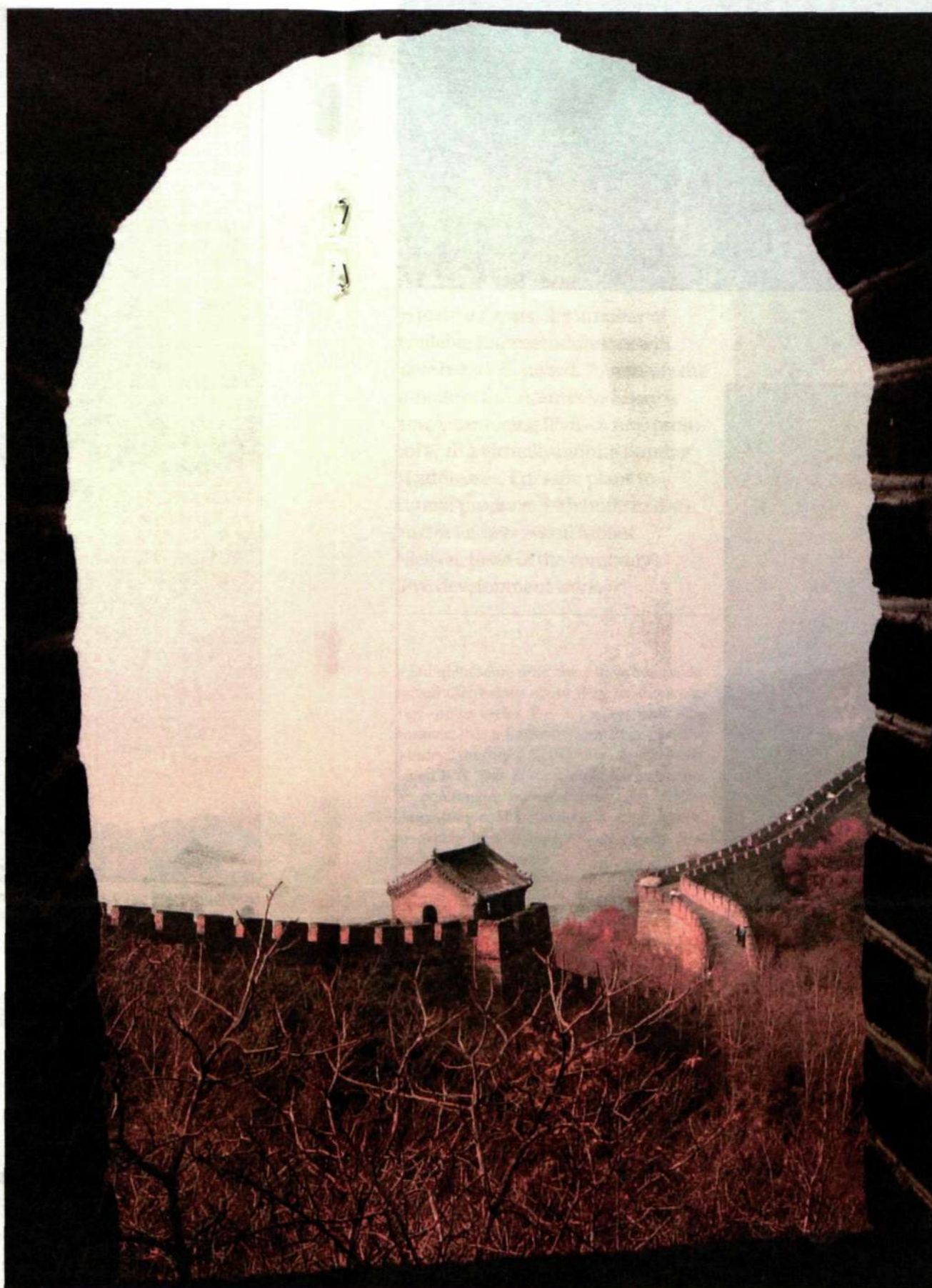
Earlier this year, China Unicom, the other operator, decided to build CDMA networks. Ericsson, with 15 percent of the market to date, is aiming to increase its market share.

"In my opinion, we have to be big in the sectors in which we choose to operate – otherwise, we shouldn't be there," says Jan Malm.

With 30 percent of the market in core routers, Ericsson is successful in wireline networks as well. Now the campaign to sell the Engine concept is beginning.

"We're investing a lot of energy toward a breakthrough for Engine, which is essential to the long-term success of the wireline networks business. We've already succeeded in data networks, but this is not enough," concludes Jan Malm.

Lars-Magnus Kihlström



In recent years, China has become an important market for Ericsson. Today, China accounts for 12 percent of billing. China is expected to be a member of the

WTO in the near future, which is expected to further boost business opportunities.

Photo: Lars Åström

FACTS/PEKING OR BEIJING?

A few years ago, the capital of China was known as Peking. Nowadays, it is called Beijing – what has happened, has the city changed name?

No, not at all! The explanation lies in the fact that China has two main languages, Cantonese, which is spoken in the south, including Hong Kong, and Mandarin, which is spoken in the north, including the capital. Since the British and other westerners were based mainly in the south, where the capital is known as Peking, it was natural to use this name. Today, as the city has grown into an increasingly important economic center, westerners have learned to pronounce the name in the language of the city itself, Beijing.

Beijing, by the way, means the "Northern capital." Further south, near Shanghai, can be found, accordingly, the old "Southern capital," Nanjing. The Japanese capital, Tokyo, means the "Eastern capital."



Ericsson means love

What is the secret behind Ericsson's success in China? Clearly, many competitors wish that their name was as appealing to Chinese ears.

In China, Ericsson needs no slogan. The name itself carries the best possible message.

► In Chinese, Ericsson is pronounced "E-li-shin", which when written in Chinese characters conveys a very positive message. The first character means love and care. The second stands for building and development, while the third means trust and confidence. The message is thus that Ericsson with love and care for the people is developing the country in a reliable and trustworthy manner.

"Ericsson has China's best corporate name," notes Tu Min, information manager at Ericsson in Beijing.

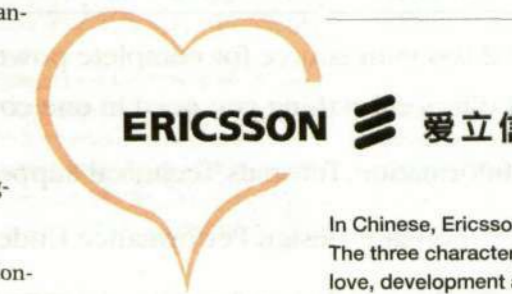
"Other multinational-

als also translate their names, but the names are merely alliterative and bear no meaning."

The importance of a name is apparent in several ways. One example is an English composition contest for university students throughout the country arranged by China's largest English-language newspaper. When "E-li-shin" became a sponsor, the name of the contest was changed from 21st Century Cup to 21st Century Ericsson Cup. None of the previous sponsors had been offered such an opportunity. When reporters interview Kurt Hellström, they use to ask him if he knows what the name means in Chinese. He knows, of course.

"However, the reason that we have been so successful naturally lies in our expertise, our technology and the service that we offer customers. A good name with a positive meaning is of course an advantage, but it is hardly the decisive factor when we do business," concludes Tu Min.

Lars-Magnus Kihlström



In Chinese, Ericsson is pronounced "E-li-shin". The three characters composing the name mean love, development and trustworthiness.

FACTS/ERICSSON IN CHINA

Population: 1.3 billion
Mobile subscribers: 130 million
Internet penetration: 3 percent
Telephone subscribers: 150 million (12 percent)
Ericsson employees in China: 4,500 (including subsidiaries and joint ventures). Ericsson has 26 offices in China's 31 provinces
First order: 2,000 telephones sold to Shanghai in 1892
Important orders in 2001:
Jiangsu: Contracts for CDMA, GSM, IP and AXE valued at USD 770 million



FACTS/WORLDS LARGEST OPERATORS FOUND IN CHINA

China Mobile: World's largest mobile operator
 86 million subscribers (June 2001)
 Has chosen GPRS as the path to 3G
 Launching Monternet inspired by i-Mode
 Subsidiary listed on Hong Kong exchange
 114,500 employees
 Vodafone part owner (2 percent)

China Unicom: Total operator – fixed, mobile and data services
 30 million mobile subscribers (June 2001)
 Growing faster than China Mobile
 Started roll-out of cdmaOne
 Listed on New York and Hong Kong exchanges

China Telecom: World's largest fixed-network operator
 More than 150 million subscribers
 Expects subscribers to double by 2005
 10 million modem-connected Internet users
 Plans foreign exchange listing
 Between 200,000 and 300,000 employees

A decision was recently taken to award two additional mobile licenses.

There are also several smaller operators with varying focus:

- China Netcom, growing fastest in broadband market.
- Railcom is also focusing on broadband.
- ChinaSat – satellite and IP telephony.
- Cnet – broadband networks.
- Ji-Tong was first to offer a commercial IP network.
- Power aspires to be a total telecom supplier.




Ericsson has nearly 40 percent of the mobile systems market in China. At the production plant in Nanjing, radio base stations are manufactured for the entire Southern and Central regions.

Are You Designing With Outdated Tools?

An Ancient Slide RuleOR..... Modern Graphing Calculator

Original Vacuum TubesOR..... State-of-the-Art Transistors

A 20th Century OscilloscopeOR..... 21st Century WEBENCH™ On-Line Electronic Design

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New protocol creates more Internet addresses

In just two years, the number of available Internet addresses will have been exhausted. To remedy the situation, the Internet industry is now introducing IPv6 – a new protocol with a virtually infinite number of addresses. Ericsson plans to launch products with built-in IPv6 next year, says Svend Möller Nielsen, head of the company's IPv6 development work.

► For quite some time, there have been widespread discussions about IPv4, its shortcomings and its savior IPv6. It was not until May, however, that it finally became clear that IPv6 is indeed the future. At that time, the EU established IPv6 Task Force comprising operators, IP equipment manufacturers and related organizations that are now working together to decide how Europe will introduce IPv6 before the end of 2005.

"Ericsson is a major force in the IPv6 sector through its chairmanship in a telecom industry unit established under the IPv6 Forum and its participation in other trade organizations such as IPv6 Task Force, 3GPP, IETF and standardization work in several EU-projects," says Svend Möller Nielsen.

His job is to make sure that IPv6 is built into Ericsson's products, including everything from terminals to routers, servers and applications.

"Every component in every IP-network is affected by this. It involves the entire company."

Looking for something new

Svend Möller Nielsen is the former President of Ericsson Telebit, which produced the world's first routers based on IPv6 in the mid-1990s. The name of the company at that time was Telebit Communications A/S. Ericsson, however, was looking for a player highly skilled in IPv6, and Telebit was targeted. In 1999, Ericsson acquired the Danish company.

Today, IPv6 is an integral part of RXI 820, Ericsson's real-time router for radio networks,



Svend Möller Nielsen is a pioneer in IPv6. He has worked with the revolutionary new protocol since 1995. Photo: Ecke Küller

which Telebit also helped to develop. But why does today's IPv4 Internet protocol have to be replaced by a new version?

First and foremost, the number of Internet addresses available through IPv4 is nearly exhausted. Many of the new services that will be offered in the future will require that everybody has a fixed IP-address, as opposed to the present structure whereby addresses are assigned to meet temporary situational requirements.

The dilemma is comparable to the early days of telephony. At that time, there were party lines, with several groups of people in the same community sharing the same telephone number – and everybody had to lift the receiver and wait for the operator to say "Number please?"

"If I want to contact you, I have to know which IP-address I should use to reach you, in the same way that I need to know your telephone number when I want to call you. Many future services will require you to have your own private IP-address. It will be needed, for example, when you want to talk while sending pictures via the telephone. This is called

'conversational multimedia,'" explains Svend Möller Nielsen.

Also worth mentioning is a concept known as peer-to-peer, which will enable you to communicate directly with another party without going through a server. To do this you will need your own IP-address.

IPv6 will be particularly important for 3G-services. All 3G-suppliers are now integrating IPv6-support into their products. The most significant progress has been achieved in Asia and the Pacific region. Gartner Group projects that 50 percent of all telecom operators in this region will have IPv6 in their networks by year 2006.

Japanese players are the strongest force behind IPv6. They regard IPv6 as a chance to penetrate the IP-market.

"NTT Communications is working extensively with IPv6 and was the first company to offer a global IPv6 service," says Svend Möller Nielsen.

Infinite number

The number of addresses will be virtually infinite in IPv6 with 128-bit addresses. Svend

FACTS/ADVANTAGES OF IPV6

- More addresses: IPv6 uses 128-bit addresses, creating a theoretical limit of 340,000,000,000,000,000,000,000,000,000,000,000,000,000 fixed IP-addresses – a virtually infinite number. Today's IP-protocol uses 32-bit addresses, which theoretically are able to accommodate approximately 4 billion fixed IP-addresses.
- Greater security: A new security standard will be introduced to guarantee greater security throughout the entire chain. A critical feature for mobile bank services, for example.
- Mobile telephony: Supports direct peer-to-peer communications between two users and continuous on-line connections.
- Easier to manage: The IPv6 architecture will make it easier for operators to manage their networks, enabling them to save more time and money.
- Better quality of services offered and greater security.

Möller Nielsen says when IPv6 was originally designed, he wanted even 180 bits, which is the same number of bits used in the ATM network technology.

"But the final tally was 128, and that's really quite adequate," he says with a wry smile.

Using 128 bits translates into a 39-digit figure, which should definitely be sufficient.

Svend Möller Nielsen's job as coordinator of Ericsson's work with IPv6 involves frequent contacts with people working with everything from terminals to routers and applications development. Everybody is excited about the ongoing process of change, he says.

Ericsson is now planning to build a 3G-test network based on IPv6 in Kista, in Sweden.

"We should all remember that IPv6 is an evolution, not a revolution. We're not throwing away everything we've had until now – both protocols will co-exist side by side for many years," says Svend Möller Nielsen.

"But the results might be revolutionary," he concludes.

Elin Dunås

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Improved on-line employment agency

A new and improved version of Ericsson's job vacancy site was recently released on the Net. In the future, the Ericsson Job Site will be the company's only channel for web-based job vacancy announcements.

► Ericsson's electronic employment agency was rolled out on the Net in November 2000. The service enables employees to review all job vacancies in the company, and recruiters to insert ads.

Carl Brooling, Resource and Competence manager at Ericsson, says the job site provides critical support in the company's ongoing restructuring process.

"We want to increase internal mobility and encourage people to look for job opportunities in areas that support Ericsson's strategies."

The most significant improvement in the new version of the Ericsson Job Site is the dynamic nature of the search function, whereby selection options are limited based on the criteria entered by each user.

For example, if a user specifies that he/she is looking for work in a certain area of operations, the information shown on the screen will be restricted to countries with vacancies in the specified area.

As a result of the Efficiency Program, the printed edition of Job Vacancies at Ericsson

that was previously included in *Contact* has been discontinued. All units with jobs to offer are encouraged to use the on-line job site instead.

In the future, the Ericsson Job Site will be the company's only channel for job announcements on the Net. Local job sites now available throughout the organization will eventually be discontinued, and all vacancy ads will be entered in the central system.

"The new approach will provide global visibility for all jobs available in all parts of the company, and we will save a great deal of money by operating and maintaining only one site," says Carl Brooling.

Tonya Lilburn

tonya.lilburn@ime.ericsson.se



A single channel for new jobs will be available for those seeking employment opportunities within Ericsson.

jobs.ericsson.se

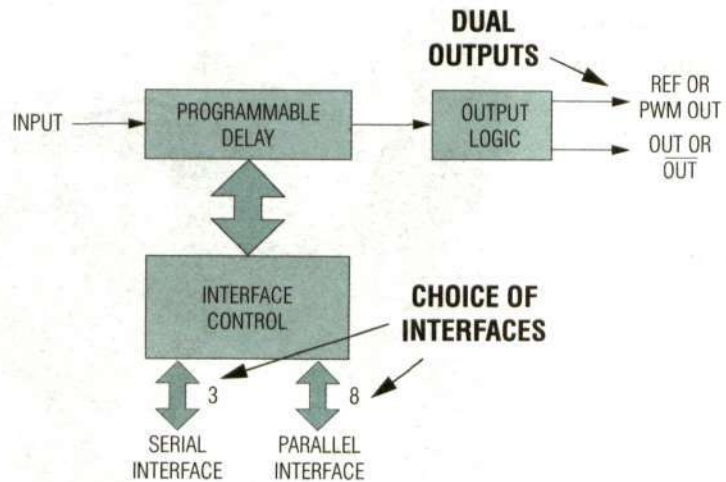
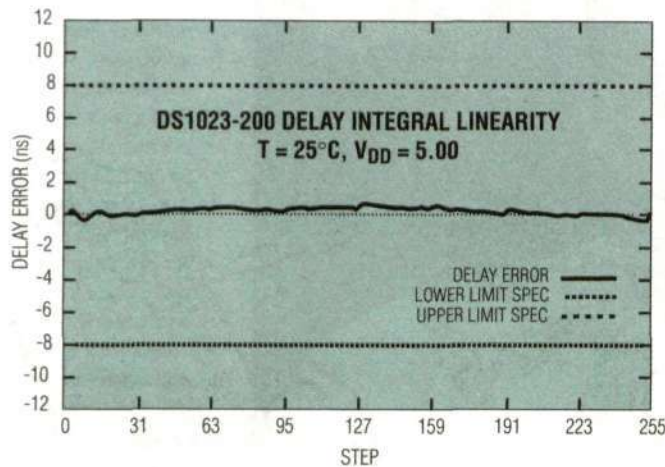
An external version of the site is available on

www.ericsson.com/jobs

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DS1023S-500	5.0	1275	6.10

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GSM and WCDMA hand in hand toward 3G

"It's essential to understand that GSM and WCDMA are not two separate networks. They are a single network." Torbjörn Nilsson, Ericsson's senior vice president for marketing and strategic business development, has underlined this message on several occasions. It is also the fundamental theme in "Ericsson Seamless Network," a program established by Ericsson as the most prudent approach to 3G, comprising both GSM and WCDMA.

► Today, an investment in GSM is an investment in the future, since GSM and WCDMA systems are being developed as a single integrated network. In concrete terms, this means that initial investments by operators to offer their customers various 3G services need not be prohibitively large.

In view of current economic conditions, less investment capital is now available, compared with past years. Many operators have paid large sums of money for their 3G licenses and want to be sure that any investments made today will also meet future requirements.

Development toward 3G should not be regarded as different technologies competing against each other. Rather, it should be viewed as a marriage of mutually supportive partners.

"For Ericsson, it is important to show that the functionality of our products and equipment will continue to be ensured in the future so that customers will maintain investment in their GSM networks in parallel with the installation and rollout

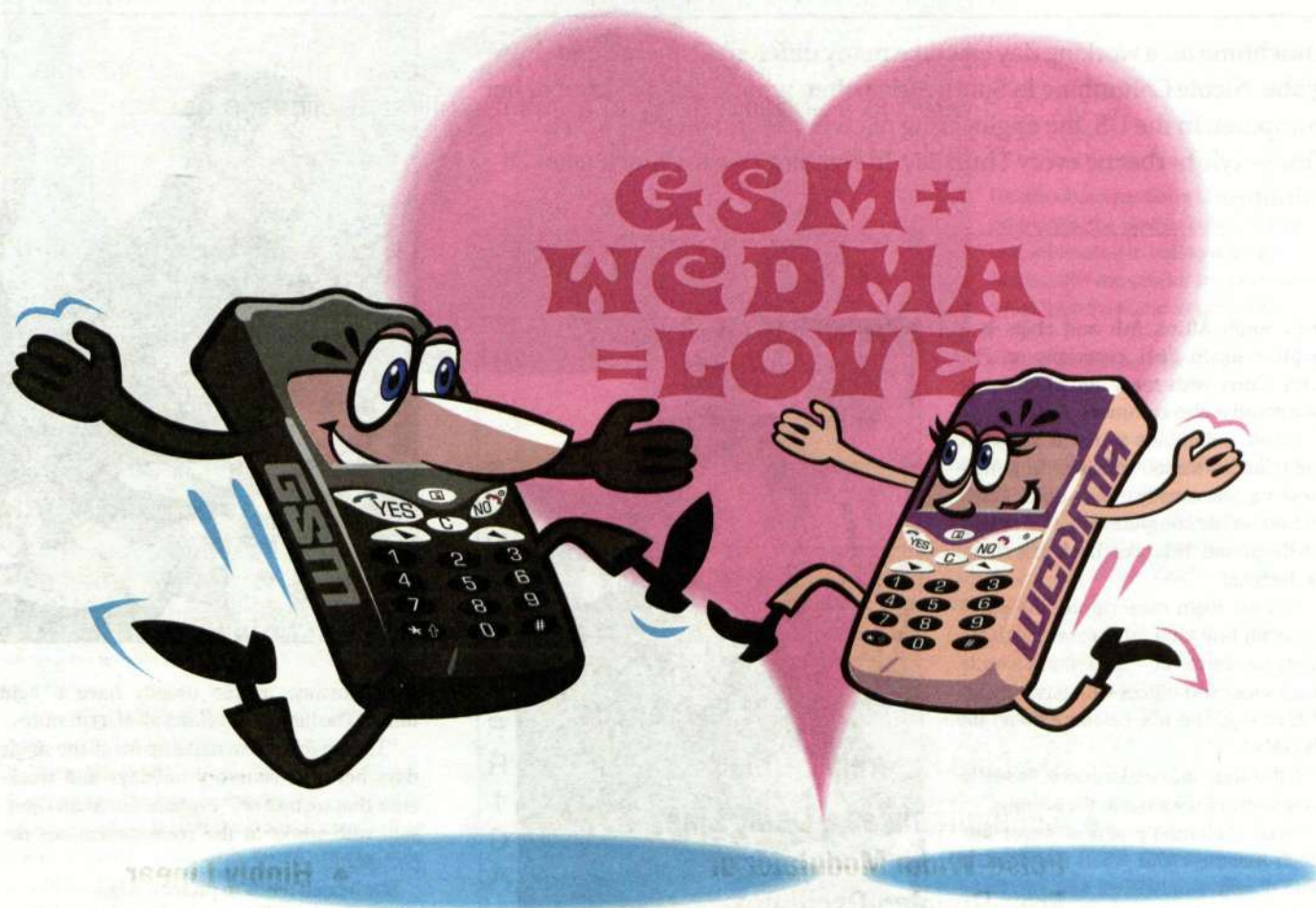


Bodil Josefsson

of the WCDMA networks. These are some of the basic concepts in the 'Ericsson Seamless Network,'" says Bodil Josefsson, manager of the program now being conducted by Ericsson Radio Systems.

WCDMA, combined with GSM, is very obviously the future for both telecom operators and Ericsson. Operators have a great deal to gain from continued investments in their GSM-networks.

"For all operators, subscribers are an asset.



Development toward 3G should be regarded as a marriage in which GSM and WCDMA systems will support each other.

Illustration: Björn Hägglund

To retain their loyalty, it is important to maintain a strong sense of customer satisfaction in terms of network quality and service," says Bodil Josefsson.

Infrastructure advantages

Radio spectrum and network infrastructure represent two other assets for telecom operators. The frequencies used for GSM, in combination with the new spectrum of frequencies for WCDMA, should be used optimally.

Through "hand-over" and "load sharing" between GSM and WCDMA, operators will be able to increase the efficiency of their networks. The introduction of Edge for data services will also support the improved utilization of GSM networks.

There are several advantages in terms of infrastructure. "Co-siting," or the capacity to use the same sites for both GSM and WCDMA base stations, is a major advantage. This is possible

in as many as 80 percent of all existing GSM sites. Substantial savings are also realized when both transport networks and core networks are used jointly for GSM and WCDMA. The same holds true for Network Management.

Gradual expansion

Since GSM and WCDMA will function together from day one, initial investments by operators need not be particularly large. Operators' decisions on WCDMA roll-out will be facilitated by the links with their existing GSM networks.

3G expansion will proceed gradually, based on individual requirements. In the initial stages, the expansion of WCDMA will be concentrated in and around major metropolitan areas. By introducing Edge in their GSM networks, operators will gain access to 3G technologies in all parts of their respective countries, thereby enabling them to offer customers

3G services even without nationwide WCDMA coverage. This option will support a more rapid and earlier introduction of 3G. However, even with GPRS, market-building efforts for 3G will be supported by the launch of sophisticated new services that will provide early evidence of the services and capabilities created by 3G.

Ericsson has a very large customer base for GSM systems.

"We are focusing on these operators, encouraging them to continue to invest in their GSM networks, since they will serve as the foundation for the future and for 3G," says Bodil Josefsson.

Gunilla Tamm

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Internal and external launch equally important

With both internal and external launches, employees and customers alike will be afforded a more accurate impression of the development from 2G to 3G. Although many people currently talk of GSM and 3G as two separate networks, it is actually all about extending and upgrading a 2G system.

► "Earlier this year, we met with about 30 European investors and introduced Ericsson Seamless Network," says Peter Hjorth, manager for the launch.

The program was launched internally within Ericsson in October and, during November, the same theme will be used to launch the program externally to our customers.

Launch efforts this year will be concentrated in Europe, where 3G has made significant progress, with Asia next in line for launch in 2002. During the internal launch phase, information was provided to a number of key account manager teams that expressed strong interest in access to a well-structured evolutionary message they could present to their customers.

"We want to alter general impressions of GSM and explain that it's not a matter of moving from one network to another, but rather a process of development that applies to the same network," says Carl Foucard, manager of value argumentation for Ericsson Seamless Network.

Operators will benefit

An important element of the launch consists of underlining how and why Ericsson's system solutions are failsafe in terms of future requirements, and that operators will benefit by continued investment in their GSM systems, since these facilitate the introduction of WCDMA.

The message to telecom operators that already have 3G licenses is somewhat different

from that directed to operators on the threshold of seeking their first license.

Nokia on the same track

Nokia is taking the same approach as Ericsson, emphasizing that GSM and WCDMA should be regarded as a single network.

"I see it as a strength that Nokia is on the same track as Ericsson. The common approach is beneficial for the development of telephones that can be used for both GSM/Edge and WCDMA," explains Bodil Josefsson, manager of the program surrounding Ericsson Seamless Network.

Gunilla Tamm

“Eating should be

Lunchtime on a working day can take many different forms around the globe. Nicole Columbine in South Africa often grabs a salad in front of her computer. In the US, the engineering team parties for an hour over a Texas-style barbecue every Thursday. In Norway, an early lunch takes 23 minutes.

► In South Africa, fish and chips is a popular lunch dish, especially on Fridays. Curry with meat and chicken on pita bread is also common.

Nicole Columbine works as an external relations liaison manager in Johannesburg. She usually takes a quick lunch in front of her computer or while talking on the phone. This takes her half an hour at the most.

“It’s my main meal during the day. I generally buy something to take with me from the cafeteria – something simple like a salad, sometimes with pasta, meat, fish or egg, and maybe some bread on the side.”

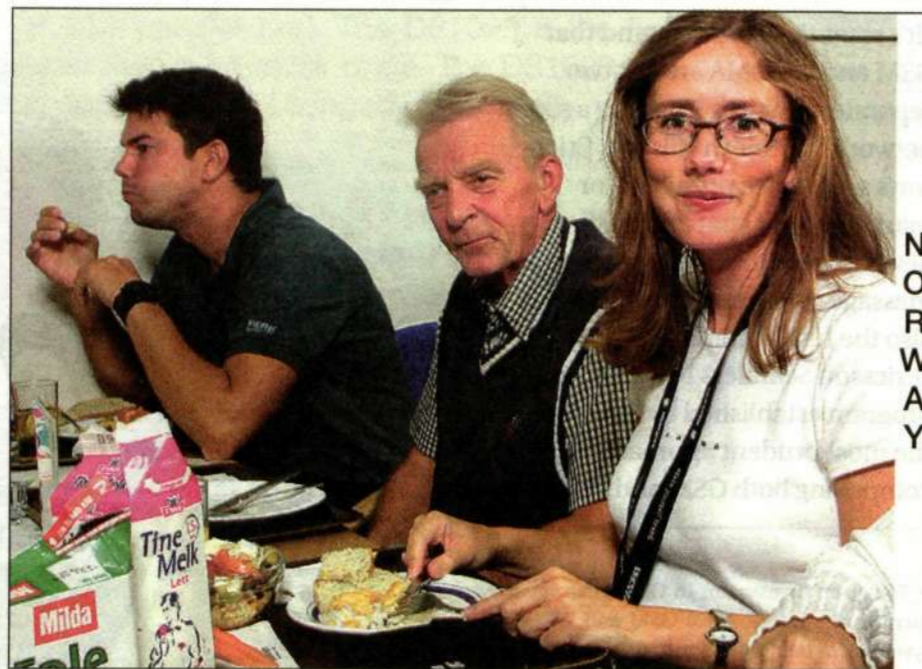
“I live alone and seldom cook. I usually have some sandwiches in the evening.”

Nicole Columbine almost never has lunch meetings. But when she does, a plate of cold sandwiches and snacks is ordered in.

The photo was taken by one of Nicole’s colleagues.



SOUTH AFRICA



NORWAY

► In Norway, people usually have a light lunch. The lunch break lasts all of 23 minutes.

“This enables us to make up for all the single days between statutory holidays and weekends that we take off,” explains Siri Ahlin Gjertsen, who works in the communications department.

She herself tends to prefer a salad. “People often brown-bag it, their lunch consisting of open sandwiches – a few slices of brown bread spread with soft cheese – but in my case, I usually buy a salad.”

Everyone goes to the personnel cafeteria,

which serves mainly simple fare such as salad, bread, various sandwich fillings, soup, juice, milk, coffee and tea.

Siri Ahlin Gjertsen often goes for lunch at a quarter to eleven in the morning.

“I get up early with my children, so this suits me well. I often have a piece of fruit in the afternoon to keep my energy level up.”

Seated, from left: Jens Selmer Thon, Nils Petter Holström and Siri Gjertsen – having lunch in the cafeteria. The diners and their dinners were photographed by John Petter Reinertsen.



USA

► In the US, lunch can take a variety of forms – anything from a simple tossed salad or a sandwich to a lavish Texas-style barbecue.

“Every Thursday, the engineers’ group at Richardson gets together for a communal lunch in the dining room. There’s usually one person who orders food for the whole group and picks it up when it’s ready,” explains Linda Armstrong.

This might be Chinese food, Texas-style barbecue or sandwiches.

“During our lunch hour, we talk about our families, joke around and share some laughs. We look forward to our Thursday lunches. We gather around the table at noon and have a great time.”

Otherwise, like many Americans, Linda Armstrong generally spends part of her lunch hour at the gym.

“It’s important to work out,” she says. From left: Mondel Pollard, Stefan Grahm, Linda Armstrong, Ed Carreno, Tim Allen, Al Matthews, Jun Zhang and Carl Semback. The lunch party was photographed by Linda Morrison.

fun”

In the car, the travel computer tells us how far we can go on the gas we have left. With our own body, we have to learn to listen to the signals it sends.

It is important to eat regularly so these signals come through clearly and we have time to react appropriately.



Health educator Sofia Lindblad recommends the plate model for anyone interested in eating a good lunch, with the proper proportions of meat, potatoes and vegetables.

Photo: Alexander Farnsworth

► Contact interviewed Sofia Lindblad, health educator with Ericsson’s corporate healthcare service. While she hates to be moralistic, she nevertheless stresses two key principles of good eating habits: regular meals and the “plate model.”

“The brain needs carbohydrates and the body needs to be fed regularly to keep the blood sugar at an even level,” says Sofia Lindblad.

“For example, if we skip lunch, our body goes into starvation mode. The next time we eat, the body will store food, or we become famished for cookies, candies and pastries that give quick energy but lots of fat as well. Either behavior produces little long-term energy and is likely to make us gain weight.”

Sofia Lindblad also wants to stress the importance of lunch as an important pause during the working day.

“Meals should be tasty and fun. We change

environment and our bodies prepare for food. Hopefully we have pleasant company during lunch and a few menu alternatives to choose from. We recharge our batteries. We perform well and have energy to last the entire afternoon,” says Sofia Lindblad.

“I really like long, tasty lunches in a convivial atmosphere – the kind that seem to be so typical of Spain.”

Grabbing a light salad in front of the computer is not Sofia Lindblad’s cup of tea.

“Due to the stress we’re under, we hardly notice how the food tastes. Moreover, a plain salad is far too low in carbohydrates. On the other hand, a pasta salad with bread on the side would be fine.”

Many employees contact Sofia Lindblad for advice on weight reduction. Researchers have started talking about overweight as an epidemic.

“It’s a major problem. So-called yo-yo dieting, where people skip meals or eat tiny por-

tions on certain days causes us to gain weight instead. Moreover, the vacillating signals are highly stressful to the body.

“A better method would be to choose our lunch in terms of the “plate model.”

The plate model divides a plate into three sections – potato, rice, pasta and bread in one; leafy vegetables, root vegetables, fruit and berries in another; and smaller portions of meat, fish, eggs or beans and lentils in the third. There should be twice as much potato as beef.

“Many people think potatoes and bread will make them fat. But actually, it’s the cheesy topping on a potato casserole, or a thick slice of Brie on a sandwich that accounts for the fat – not the potatoes or bread by themselves,” says Sofia Lindblad.

To have enough energy to last the full day, meals should be distributed throughout the day – breakfast, lunch and supper, as well as

two or three snacks, preferably in the form of fruit.

A 90-gram chocolate bar contains 31 grams of fat. A banana, a pear, an orange or a bunch of grapes, on the other hand, contains 2.5 grams of fat.

“Fruit bowls at work are great. Naturally, we need a small amount of fat to protect our inner organs, but we get enough anyway.”

“For those who find it difficult to eat breakfast, taking a sandwich to work is a good idea.” Lapsing ever so slightly into a moralistic approach, Sofia Lindblad stresses that we still have stone-age bodies.

“We’re built to move. Incorporating movement into our daily routine is every bit as important as eating properly. Go for a walk after lunch, for example.”

Cecilia Sandahl
cecilia@pauesmedia.se



Fish and chips, sliced dark bread with a soft cheese spread, a tossed salad, or a Texas-style barbecue...



MALAYSIA

► Georgina Tan and her colleagues in Malaysia usually go out for lunch to a restaurant.

“I only stay at the office if there’s a lunch meeting,” she explains.

When that happens, a packed lunch is ordered in, with pizza, hamburgers or different rice dishes mixed with meat and vegetables.

But usually they have lunch at a restaurant or at some café. The menu typically offers rice, noodles and sandwiches. Occasionally, lunch will consist of fast food from McDonald’s or Kentucky Fried Chicken. There is no personnel cafeteria – only a small kitchen offering drinks.

Photographed, from left, are Penny Leong, Georgina Tan, Patricia Joseph and Valarie Wong. The waitress obliged by taking the photo.

Optimal voice coding

The new standard for voice-coding, Adaptive Multirate Codec (AMR), can significantly enhance voice quality and capacity in mobile networks. This is achieved by the ability to select the best voice-coding in relation to radio conditions in only a few milliseconds.

► "The technology for mobile networks is constantly being enhanced. An important improvement in existing GSM networks and a key element of future UMTS networks is the Adaptive Multirate (AMR) voice codec," says Henning Buhr, product manager for voice coders at Ericsson.

Voice codecs are a necessary component in digital networks. A call from a wireline phone to a digital mobile phone undergoes a number of coding stages. Initially, the analog signal from the wireline phone is pulse-code modulated (PCM) to a digital signal of 64 kbps per second, thus achieving high voice quality.

The radio channel in the mobile network, however, is a limited resource that is also subject to various forms of interference. The control unit for the base stations (BSC) contains a voice coder (TRA = transcoder), which removes all surplus information and compresses the voice signal once more, down to 12.2 kbps. This is known as full rate, as opposed to half rate, where the operator works with half the speed and reduced quality in order to fit a higher number of calls on a single channel.

Compression takes place in as natural a manner as possible without becoming unduly complex, since this would require powerful signal processors that are expensive and consume considerable power.

Making signals robust

The maximum transfer rate over the air interface in GSM full rate is 22.8 kbps (11.4 for Half Rate). This means that there is scope to make transfers robust by protecting important bits and adding check sums and other information that protects the signal. This is achieved in the channel coder in the radio base station. From there, the signal is then sent into the airwaves and is received by the mobile phone, which has the same coder, but in an inverted form.

"The smart aspect of AMR is that it can adapt proportions of transferred voice and control information according to the quality of the radio channel," notes Henning Buhr. "If there is a large amount of interference, more capacity is required to protect the signal, and if conditions are favorable, more capacity is devoted to voice coding. AMR works with eight pre-defined codecs, with bit speeds ranging from 4.75 to 12.2, of which the latter corre-



Henning Buhr

sponds to GSM's Enhanced Full Rate (EFR) codec that is used in today's networks. EFR is of poorer quality than the fixed network's PCM but is nonetheless completely acceptable. Of the eight predefined codecs, the GSM, TDMA and PDC codecs have been re-used, but there are also a number of new codecs.

Rapid shifts

In 40 milliseconds, AMR can shift from one speed to another. In practice, release 9.1 of the GSM system will make a selection from four of the eight pre-defined codecs. The selection is dictated by the new AMR standard. For WCDMA, the choice is not limited to four speeds. It is also worth mentioning that the system can use one speed for the uplink to the base station and another for the downlink.

As the figure shows, AMR will always be at least as good as the best alternative in terms of Carrier over Interference (C/I). When the radio channel is poor, it is still possible to talk because a codec is then used with a lower speed and more protection for the recreation of the correct signal.

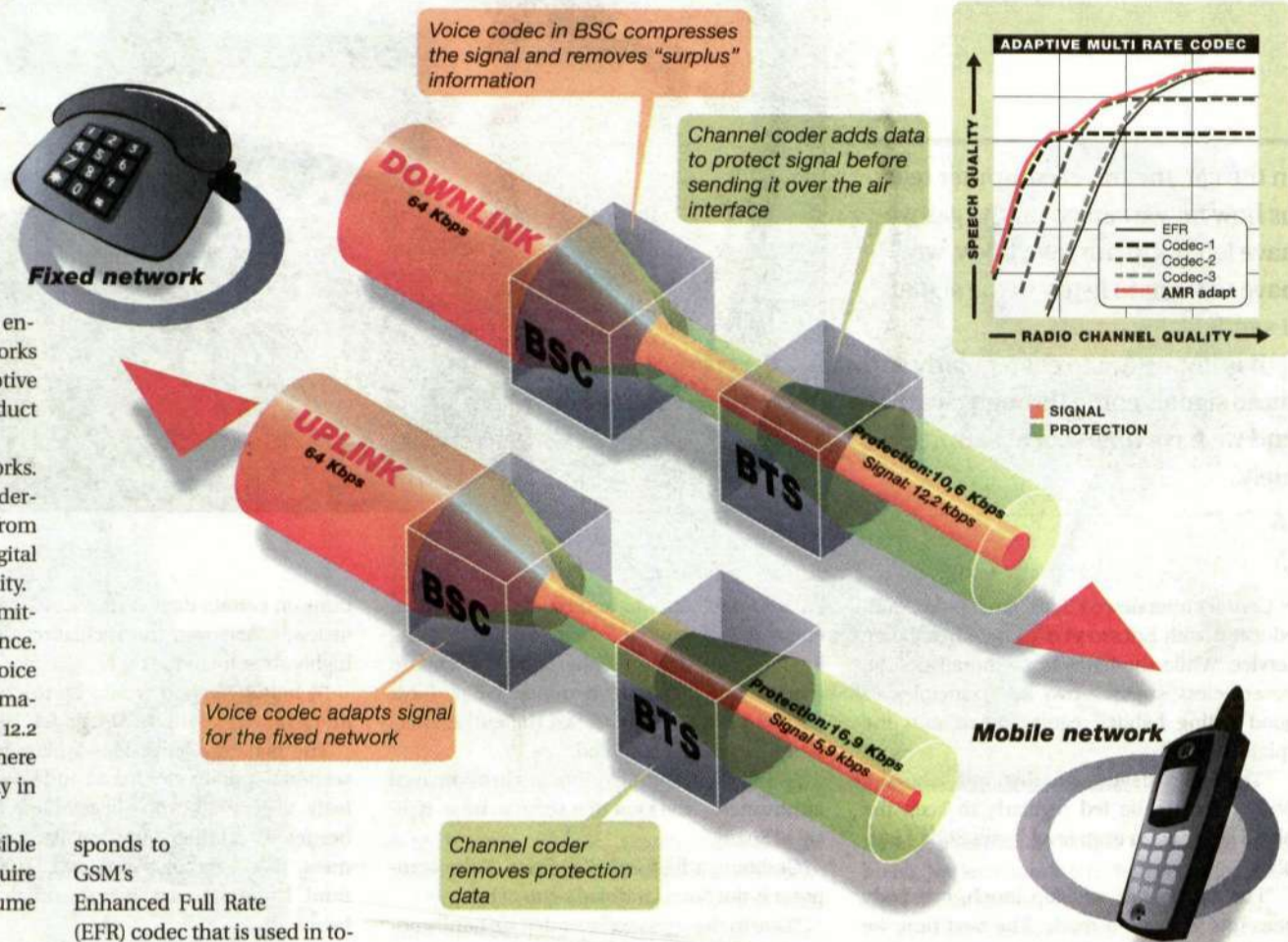


Illustration: Martin Gradén

AMR for GSM, which will require an upgrade of all parts of the radio network, including new phones, will be available in the market at the beginning of 2002. In the future, Wideband AMR will also be used in mobile networks. With this type of codec, voice quality will be even better than what is provided by today's fixed network.

"The major advantages for operators are enhanced voice quality with fewer dropped calls and the ability to use Half Rate to a higher degree, resulting in increased network capacity.

Ericsson, which works with AMR for both mobile systems and Media Gateways in the transport network, has a strong patent portfolio in the area.

Lars Cederquist

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Inventors of the Year rewarded for key patents

Ericsson has presented its internal "Inventor of the Year" awards for the seventh consecutive year. This year, important patents with major commercial value were recognized.

► "Through the years, Ericsson has built an extremely strong patent portfolio and, as a result, we are now focusing more on quality than quantity, and the importance of patents having commercial value," explains Måns Ekelöf, head of Ericsson's IPR & Licensing corporate function. IPR stands for Intellectual Property Rights. This approach was supported by the work of this year's three award winners. The winners are Ali Khayrallah of Research Triangle Park, in the US, Jan Lindskog from Ericsson Mobile Data Design in Gothenburg, Sweden, and Krister Svanbro of Erisoft AB, in Luleå, in northern Sweden. In addition, Hans Hannu and Lars-Erik Jonsson, who cooperated with Krister Svanbro, received commendations.



Ali Khayrallah, Jan Lindskog and Krister Svanbro, the Inventors of the Year, were awarded diplomas, Ericsson shares and crystal plates symbolizing communication and radiowaves.

Photo: Kjell Appelgren

All of the award winners fulfilled the requirements of contributing significant inventions and also supporting their colleagues' work on patents.

Ali Khayrallah was recognized for broad research work focusing on radio receiver design. In the jury's statement, Ali was praised for an excellent ability to discern opportunities to

create important inventions and for suggesting improvements to the inventions of others.

Jan Lindskog concentrated on packet-switched data technology and the end-user features of WLAN, the Wireless Local Area Network. Jan is said to have an excellent feel for what patents have potential commercial value.

Krister Svanbro, Hans Hannu and Lars-Erik

Jonsson, are the men behind Ericsson's efforts to create an European standard to compress the IP header for 3G networks. It is believed that this work will be of major commercial value.

IPR and licensing are regarded as increasingly important for Ericsson. The patents aspect is complemented by licensing, which involves charging for the use of Ericsson patents by other parties.

"It means that the primary factor is to apply not just for patents that we ourselves will use, but also for those that we believe others want to have," says Måns Ekelöf. "In general, it is important that we invest in areas that generate added value for Ericsson, particularly in technically advanced fields. A trend that is also increasing in importance is the patenting of services."

Lars Cederquist

inside.ericsson.se/corporate_ipr_licensing/index.htm

inside.ericsson.se/5minutes
→ November 6



Olle Hergren and Jörgen Tränk show the new SS7 Stack-on-a-Card. The green card is the network card that was developed in-house. A hard disk is mounted at the center of the board, while an Intel Pentium III central processor is located to the left. Note also the large circuit in the middle of the communication card, which is an FPGA (Field Programmable Gate Array) circuit that allows software and upgrades to be downloaded dynamically without replacing the card.

Photo: Ecke Küller

Everything riding on a single card

It's called Stack-on-a-Card. This is the new solution from Ericsson Infotech in which all SS7 signaling has been integrated on a single card, thus providing Ericsson with a significant edge on the competition.

► "Just over a year ago, we came up with the idea of creating a single board with both hardware and software for SS7 signaling," says Jörgen Tränk at Infotech in Karlstad, Sweden, adding that requests from external customers for a simpler solution than previously contributed to this decision.

SS7 is a signaling system for communication between nodes and processors in a telephone system that controls traffic in a telecom network. Traditionally, Ericsson and other manufacturers have supplied SS7 software for each customer's specific hardware, but this approach has its disadvantages.

"What we are now doing by putting everything on a single board is to create a shielded signaling environment in which we know other processes are not interfering with signaling.

"We can thus guarantee a given level of capacity and availability. In addition, we have significantly reduced the size, and we

are far ahead of the competition with respect to packaging density, since as many as eight boards are normally required to provide the same functions as we do on a single card," says Jörgen Tränk.

Future-proof

Ericsson's Stack-on-a-Card currently handles 32 signaling links and is dimensioned for 64.

"We have created a future-proof design," says Olle Hergren, product manager for the SS7 communication hardware. "The board includes a network card with four 2 Mbps interfaces to the telecom network and two 100 Mbps Ethernet interfaces for communicating with the application computer plus an SS7 stack in a central processor. The system employs a modular design so that it is easy to replace the network card with an ATM card or Gigabit Ethernet, for example, if needed."

The primary users of Stack-on-a-Card

will be companies that design applications for various types of telecom networks, such as GSM networks. Applications may include Voice-over-IP gateways, positioning nodes and voice mail nodes, for example. Customers will have a complete signaling system for their application platforms.

Soon available on external market

The project was conducted in close collaboration with an external customer that provided continuous feedback on the product during the development process.

The customer-specific solution with which Ericsson started has now become the foundation for a generic product that is offered both internally to Ericsson customers and on the external market.

"We are now in a phase in which we are testing the total system," notes Olle Hergren, adding that he expects that the product will be available on the external market in early 2002.

Market introduction will begin during November.

Future plans include support for additional links (64), IP-based signaling, load sharing across multiple cards and support for other protocols.

Lars Cederquist

FACTS/STACK-ON-A-CARD

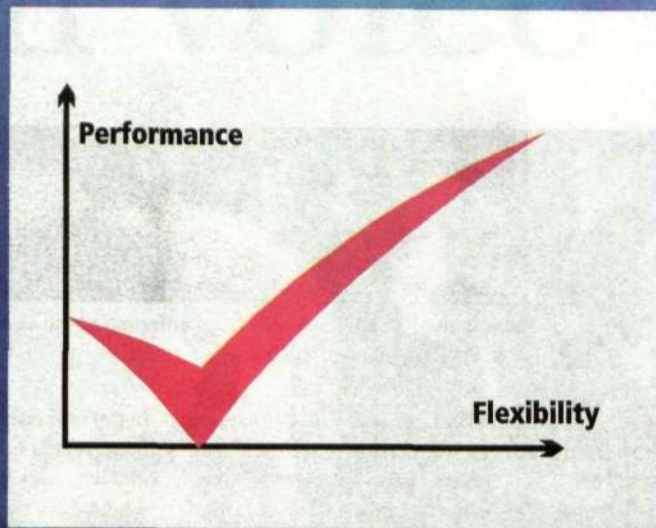
- Compact PCI-based card
- All signaling contained on one card
- Hot swap support
- Support for high availability (two cards)
- > 3,000 TCAP transactions/second
- > 5,000,000 ISUP BHCA
- Support for ANSI and ITU SS7: MTP, SCCP, TCAP, ISUP, MAP and INAP
- 32 links per card plus four E1/T1/J1 PCM interfaces
- Double 100 Mbps Ethernet interfaces
- H.110 via a cPCI backplane
- APIs provide application with access to signaling over Ethernet

FACTS/ERICSSON INFOTECH

In the new organization, Ericsson Infotech is part of Ericsson's CCND (Core unit Core Network Development). Ericsson Infotech is responsible for developing signaling systems for the open platforms CPP, TSP and WPP.

Ericsson Infotech, which was previously jointly owned by Ericsson and Programator, became a wholly owned Ericsson company in the mid-1990s. For historical reasons, however, the company has continued to sell directly to external customers.

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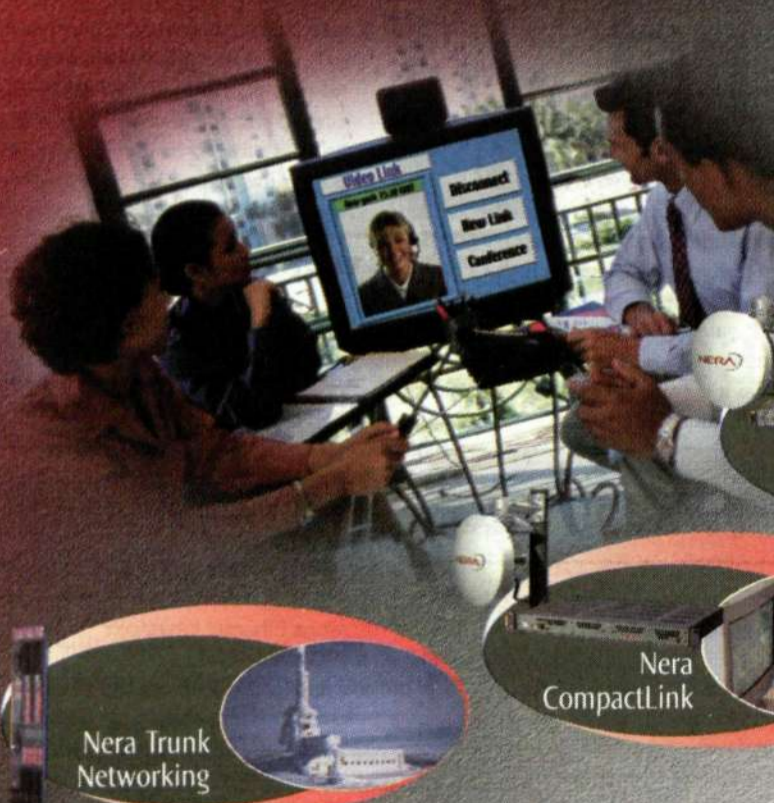
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enabling a wireless future



A different kind of kickoff



During the kickoff, Zoran Bliznacs entertained the audiences in Sweden and Spain by playing the guitar. Photo: Bengt Jakobsson

► How do you arrange a kickoff when half the project group works in Sweden, the other half works in Spain, and no budget provisions are available for recreational travel?

Project manager Bengt Jakobsson used modern technology to solve the problem and arranged a virtual kickoff.

Bengt Jakobsson is the manager of a project focused on maintenance of components for signaling systems. The project group includes employees from both Karlstad and Madrid.

"Since we conduct our project

meetings as video conferences, I thought that would also provide an appropriate setting for a kickoff," says Bengt Jakobsson.

Food parcels were sent between Sweden and Spain, the conference rooms were booked and the festival could begin.

The Swedes were delighted with their Spanish dinner and wine, chorizo and Spanish ham, and the Spaniards enjoyed the delicacies their Swedish colleagues had sent. Not all of them, however, liked the pickled herring.

"It wasn't very good. We're not used to this kind of food," said

Isabel Grijalba, who participated in the kickoff party in Spain.

She was more impressed, however, by the musical contribution provided by her Swedish counterparts. Zoran Bliznacs played both Swedish and Bosnian songs, and finished his performance with a Spanish flamenco.

Unfortunately, it was difficult to get a sing-along started, since time displacements cause delays in sound transmissions during video conferences.

"A more conventional kickoff where everybody get to meet each other face to face would have been

better, of course, but this arrangement was fine. We had a good time and we now know the other people working on the project a little better," says Isabel Grijalba.

Plans are being made for another project party, when the group will vote for the project's St. Lucia and conduct a joint Lucia procession, a Swedish Christmas tradition. All the details have not yet been finalized, but the party will definitely be held as another video conference.

Tonya Lilburn

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Ghostbuster.

Mobile phones obstruct haunting

► Ghosts are finding it increasingly difficult to make themselves heard. According to Tony Cornell of the Society for Psychical Research in Great Britain, reports of ghost sightings have been declining since the mobile phone was introduced 15 years ago. The reason for this is said to be that unusual electrical activity, regarded by some scientists to be the cause of paranormal events, are being drowned out by the electronic noise that phone calls and text messages produce.

Multi-vendor tests for 3G core

► The world's first tests to determine how various suppliers' 3G equipment functions in combination have just been completed in Japan. J-Phone, NEC and Ericsson have passed the first test in a series of Multi-vendor Laboratory Tests.

"The employees involved in the project have worked intensively to ensure that the task is successful," says Akira Kawada, senior project manager for the assignment that is called GO.

GO in Japanese kanji character stands for "Unite, Combine, Mix."

Wireless seminar in Stockholm

► Do you want to be up-to-date on everything that has happened in the mobile world in the past year? Then you should go to Strategy Analytics annual summary that will be held in Stockholm on November 15-16.

bic.ericsson.se → Events

For more information contact:

karin.gartzell@lme.ericsson.se

NEW ASSIGNMENTS

Britt Sörensen will be appointed Head of Communications within MU Middle East from December 1, 2001.

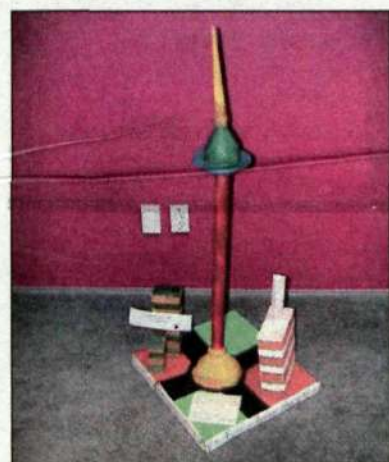
Starting next year, **Luis Lopez**, presently Vice President Business Planning & Control in Chile, will take on the additional role as President of Ericsson in Chile. He will replace Hugo Löjdqvist who takes up a new position within Ericsson in Sweden.

Lars Björkenor, presently President of Ericsson in Greece, has been appointed President of Ericsson in Thailand and will also head the market unit Thailand. He will take up his new position on January 1, 2002.



Lars Björkenor

High life for Recycle City



► "Reduce, Reuse, Recycle" is the motto of the Ericsson Kids Art Competition in New Zealand.

The sculpture "Recycle City" won first prize in the Ericsson Kids Art competition, announced by Ericsson in New Zealand.

Photo: Krister Robinson

The young entrants were required to produce a piece of art work using only recyclable trash and natural materials.

First prize was awarded to a joint effort by Kerry-Ann and Vernon James, aged 6 and 5 respectively, for their creation entitled "Recycle City".

"The intent of the Art competition was to get families and

friends of Ericsson involved in Environmental care, outside of the work environment. I was effectively targeting the grass roots of Ericsson - the kids!" says Rachel Wells at Ericsson in New Zealand, who organized the competition.

Tonya Lilburn

Ice-breaking WCDMA films

► No fewer than two new WCDMA films are now available from the Marketing and Communications Department's intranet portal.

Camilla Murray produced the films, which are about Ericsson's WCDMA solutions for the Mobile Systems WCDM and GSM business units.

"They follow the same concept as the earlier Edge films - interviews

with customers, Ericsson's experts and analysts," she says.

The customers interviewed are Vodafone, TIM, Singtel, SmarTone, and others. The target audience for the films is Ericsson's key account managers, and Camilla Murray believes that they function well as ice-breakers in meetings with potential customers. The films are sometimes

used for internal presentations and conferences, and at other times the customers use the films for their own purposes.

Dodi Axelson

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Camilla Murray is the producer of the WCDMA films.



ERIC & SON





Only 20 minutes after ordering, Charlotta Nygren can collect her food at the gas-station counter.

Photo: Ecke Küller

E-food service brings home the bacon

"What'll we have for dinner tonight?" This is no doubt one of the most common thoughts among people on their way home from work.

No need to ponder the question anymore, thanks to the new mobile service, Matlust.nu ("Appetite"). Just press a few buttons on your mobile phone, and dinner is literally in the bag.

► Inside the entrance to this Stockholm gas station, the afternoon rush has just begun. The glass doors buzz continually as they open and shut to admit early after-work customers rushing in to pay for gas, buy an evening paper or grab something from the dairy section. Lars Holmström, one of the founders of Matlust.nu, makes the rounds in his red sweater, eager to talk about the new service.

"Matlust.nu puts dinner on the table. Without all the effort of deciding what to have and going shopping for it. It couldn't be simpler!" he says, using his T20 to show people how to enter the Matlust site and select one of the four dinner menus suggested on the phone display.

The telephone Lars Holmström uses to demonstrate Matlust has been borrowed

from Ericsson, as were the telephones used during the test period preceding the launch of the service. A number of households were invited to use a wap telephone of their choice during the eleven weeks of testing of the service. Lars Holmström explains that the T20 was extremely popular, particularly with women, and reveals that women seem to have the strongest appetite for Matlust.

Makes life easier

The glass doors glide open to admit a young woman in jeans. She walks straight to the counter, where she picks up a brown paper bag. Charlotta Nygren is a customer who has already become something of a regular. A secretary at a hotel in a nearby suburb of Stockholm, Charlotta Nygren also has small children at home.

"This has really made my life easier. It's such a relief not to have to worry about dinner," she says, opening the bag to display its contents. The bag contains a piece of salmon, vacuum-packaged potatoes, a pot of salad, and a few other goodies.

Ready in 20 minutes

The Matlust concept is based on recipes that are tasty, simple, easy to prepare, and use as few ingredients as possible. The bag never contains more than six ingredients, and the dishes generally take no more than 15–20 minutes to prepare. Charlotta Nygren says she fell for the gourmet pasta with chicken fillets, sun-dried tomatoes and fresh spinach.

One of the key advantages of the Matlust service is that it makes it easy to find food that children like, she feels.

"As you see, there's a lot of pasta, and pasta is always a hit with the kids. But still, I think the meatballs I ordered last week were the favorite," says Charlotta Nygren, before she hurries back to her car with her package.

Tonya Lillburn
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CHRONICLE



Lars-Göran Hedin
corporate editor

A cultural tour of Ericsson

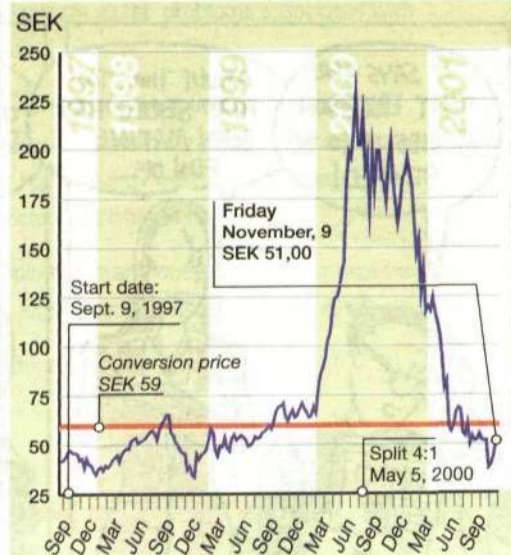
► As autumn turns to winter, and the exuberant colors along the road through the woods on the way home from work give way to bare branches and the black of ploughed fields, it is time for this year's annual Ericsson update. This is when I have the privilege of being involved in the preparation of the company's Annual Report. After several years as lone writer, I am now in charge of a team of two English-speaking writers for the second consecutive year.

This year, we not only visited and interviewed many members of the corporate management team, but we also investigated the reality beyond the offices in Stockholm and London. Doubtless an interesting experience for my English colleagues.

The other day, I listened to a presentation of the new brand platform developed by the Marketing Corporate Function. A large amount of effort was put into defining what Ericsson actually is and what the company actually stands for – exactly what unique features we have to offer the community and our customers. As someone who has been with Ericsson for nearly twelve years, I found myself nodding my head in recognition throughout the presentation. Not only did the new platform seem new and fresh but it was also highly representative of the cornerstones of our long-established corporate culture – cornerstones such as our shared values of "professionalism, solidarity and respect." The reason why the match was so strong is that these cornerstones really have functioned as the fundamental building blocks of Ericsson's corporate culture, and were therefore also apparent to the people who prepared the new brand-name platform.

The day after this presentation, we went to Gävle to look at 3G production. After a few meetings with representatives for these operations and a few plant tours, we boarded the train back to Stockholm. On the way, we compared notes about our impressions. "Were you struck by anything in particular?" I asked Tim and Leo. "Oh yes," they replied without hesitating. "These people we talked to really did seem to fit the brand platform message about what Ericsson stands for." Innovative ability and intelligence, combined with a strong desire to share capabilities and experience – these are the three qualities that define the Ericsson corporate culture. In addition to the old values.

THE ERICSSON B SHARE



For additional information, access the website:
<http://inside.ericsson.se/convertibles>