


contact

ERICSSON  PUBLICATION FOR EMPLOYEES WORLDWIDE

No.5 • 17 APRIL 1997



The hunt for perfection

The mythical griffin ("Gripen" in Swedish) symbolizes speed, watchfulness, strength, defense and vengeance. The name is appropriate for an aircraft that combines intercept, attack and reconnaissance roles. Ericsson has been involved in the JAS 39 Gripen project since 1979, when the Swedish Government submitted a planning assignment. Currently, about 500 persons at Ericsson Microwave Systems work with the radar equipment for the aircraft and the display systems in cooperation with Saab Avionics, in which Ericsson holds a 50% interest.

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GSM successes in Portugal

Ericsson in Portugal is performing well. During the past few years, all figures have pointed upward and the company is recruiting GSM technicians at full speed. GSM is the key to success in this country. Currently, Ericsson holds a third of the mobile telephone market. The EU's investments in the infrastructure in Portugal has given the market an extra push.

Pages 12-13

Logotype loaded with value

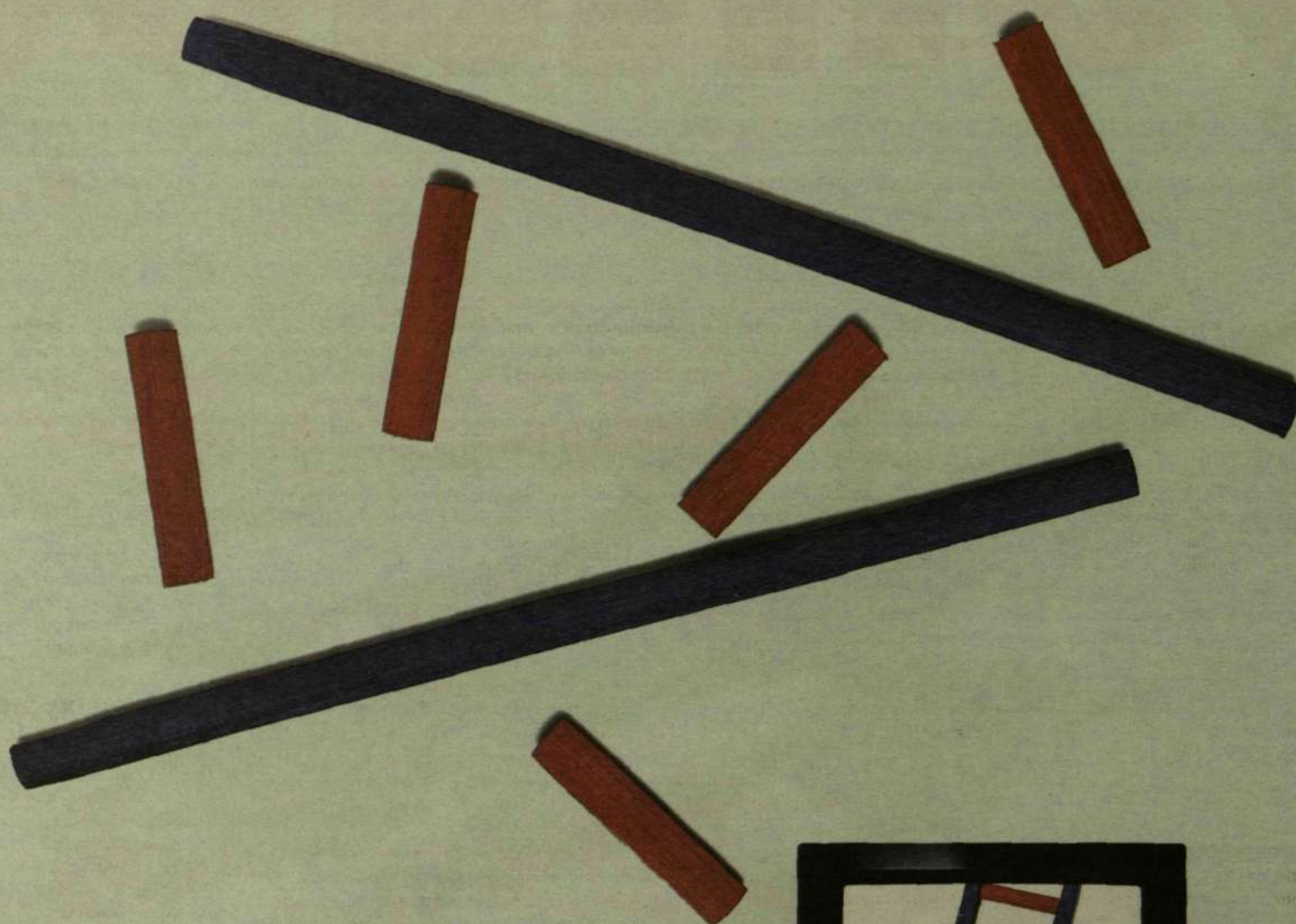
The current Ericsson logotype was first used in 1982. This issue of Contact includes the first in a series of articles about the history of the logotype. Ericsson has had many logotypes during the years. At times, several versions at the same time. Outside Sweden, many companies eliminated the "LM" long before Ericsson eliminated the initials at the corporate level.

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Toward greater heights

The theme supplement 'Contact in depth' describes how Ericsson's strategy is applied in theory and practice. What are the practical aspects of the Ericsson's efforts to realize the goals in the 2005 - Entering the 21st Century?





Integrating your computer with the phone—your next step!



Have you ever invited your computer to participate in a phone call?

Here's how it works: When the phone rings, the name of the caller flashes on your screen. You respond with a click of your mouse—activating the speaker phone. At the same time, your notes from previous conversations with that person appear on the screen.

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ERICSSON DATA - IN NETWORKING SINCE 1985

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outlook

The International Telecommunications Union (ITU) recently issued its third report on trading in the telecommunications field. The report appeared, appropriately, a few days before the World Trade Organization (WTO) reached agreement on comprehensive measures to eliminate tariffs and other barriers to trading in telecommunications.

ITU sings the praises of deregulation

The ITU report comes to the same conclusion that guided the WTO negotiations:

The world has much to gain from a trend to freer trading in this field, too.

ITU's report describes the trend from the old way of regulating international telecommunications to the new, in which global competition is the main characteristic. It also shows the volume of cross-border trading in telecommunications, which is estimated to have amounted to more than USD 100 billion in 1996.

Annual growth of 15 percent

It is only in recent years that services have taken shares of the market from equipment in the international trading in telecommunications. International calls have increased from four billion minutes in 1975 to more than 60 billion in 1995, equal to an annual growth of 15 percent.

The second-largest segment of international trade involves foreign investments in which companies establish commercial operations outside their home markets. Forty-four telecommunications operators have been privatized since 1984 in a total amount of USD 159 billion. One third of this amount has come from investors outside the countries where the investments were made.

A small but increasing percentage of the trade in telecommunications services occurs when customers or a company's operations move to another country. It is difficult to estimate the size of this segment of the business, but it appears to be expanding.

Calculated in terms of total value, telecommunications is the world's third-largest market and telecommunications and office equipment was the fastest-growing industry in 1995. Moreover, telecommunications is a factor of very great importance for other sectors of industrial and social life.

Growing steadily

The telecommunications industry accounted for total sales of USD 788 billion in 1995. Services accounted for three fourths of this amount and one fourth was attributable to equipment for the 43 million lines by which the industry grew in that year, compared with 38 million lines in 1994. Mobile telephony continued its rapid growth, with 33 million new subscribers in 1995, as against 19 million a year earlier. If the industry continues to grow at the same rate, sales in 1998 will amount to USD 1,000 billion.

The merging of telecommunications, the computer industry and radio and television is creating new synergies. This is reflected most clearly in the growth of the Internet. More than 16 million host computers and more than 50 million users were connected to the Internet at the beginning of 1997, with the number of users doubling annually. The Internet can be viewed as the prototype for a global information structure that is establishing the foundation for the electronic trading of the 21st century.

Freer trade offers three major economic benefits: new, improved products and services; lower prices; and, finally, increased investments. The trend in inter-

national telecommunications traffic – the segment of the market in which the greatest progress has been made – demonstrates that deregulation really produces these benefits. The markets that have allowed open competition have achieved stronger economic growth than those that have maintained monopolies.

There are a number of explanations. The unsatisfied demand for telecommunications services in many developing economies is one. Forty-three million persons are on waiting lists for telecommunications subscriptions in these countries.

Toward free trade

The international telecommunications business is facing a shift in pattern.

The old system can be described as "international," based on bilateral agreements between countries. The monopoly operators in these countries worked together in order to be able to offer international services.

A new pattern, based on global competition, is becoming increasingly visible. It is based on the fact that trading in telecommunications equipment and services now takes place in a multilateral environment. We are leaving a world of "one-for-one" agreements and entering a world of "many-for-many" contracts.

This is where the WTO agreement on telecommunications trade comes into the picture. How will it affect developments within the industry? ITU answers as follows:

The agreement is significant for two reasons. First, because the countries that have pledged to follow it account for such a large part of the total market: 94 percent of the market for telecommunications services and 84 percent of the world's exports of telecommunications equipment.

The second reason is that the agreement is part of a large multilateral trade agreement. The commitments made are binding and cannot be withdrawn.

For many telecommunications users, the changeover to a multilateral system of trading means benefits in the form of greater freedom of choice and lower prices.

SUMMARY BY: LARS-GÖRAN HEDIN

The complete ITU report, "World Telecommunications Report, 1994-1997," consists of 150 pages of text and 80 pages of statistics. It is available in English, French and Spanish and can be ordered most simply via the Internet: <http://www.itu.int/ti/publications>

news briefs

Ericsson to build network for Dutch Telfort

Ericsson will build a telecommunications network for Telfort, the Dutch telcom operator. The contract is valued initially at SEK 250 million. The first phase of the project will be completed on July 1 when the telecommunications market in Holland is deregulated. Telfort will then offer telecommunications services via its fixed-wire network.

The order comprises AXE equipment, Intelligent Network (IN) systems, network monitoring systems, service solutions and training programs. Telfort is a joint venture of BT and NS, the Dutch railway company. Telfort is one of the leading companies in the field of international data communications services in Holland.

"The manner in which we cooperate with Telfort, and how we handle the project, can serve as an example for BT's worldwide activities," says Piet Grootenboer, who is responsible for new operators at Ericsson Telecommunicatie B.V.

"This order is therefore important not only for Ericsson in Holland but is of strategic importance for the entire company."

Ericsson expanding in Croatia

Ericsson has received a contract valued at SEK 168 million to expand the NMT network of the Croatian Post & Telecommunications Administration. The order covers delivery and installation of exchanges and radio base station equipment during 1997. The NMT system has been in operation since 1990 and is growing rapidly. The current expansion is designed to provide capacity to handle further growth in the number of subscribers.

New head of the Dect company

Effective April 1, Ge Klein Wolterink, has been appointed manager of Ericsson Business Mobile Networks in the Netherlands. He succeeds Peter Olsson who is becoming manager of Radio Access operations in the business unit Public Network of the Business Area Infocom Systems.

Ericsson Data starts company in Austria

Ericsson Data is establishing a new company, with its head office in Vienna, to provide information technology (IT) services to Ericsson's Austrian companies. The company will initially have 25 employees. Brian Rowan is the manager.



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industry news

National CDMA network to Japan

Two of Japan's leading operators, DDI and ISO, have chosen Motorola as the supplier for their nationwide mobile networks for the CDMA standard. DDI will cover the Kansai area, including the cities of Osaka, Kobe and Kyoto, while ISO's network will serve the Tokyo area, including Nagoya and Nagano. The networks will be placed in operation during the latter part of 1997.

Nokia's digital system to USA

Nokia's first total solution for standard systems used in commercially based GSM digital networks was placed on-line recently in Columbus, Ohio. The digital network includes terminals, infrastructure and exchange equipment. Ariel Communications of Ohio, owner and operator of the network, plans to establish additional Nokia networks during the next few months in five other metropolitan areas: Houston, Kansas City, Minneapolis/St. Paul, Pittsburgh and tri-city area comprising Tampa/St. Petersburg/Orlando.

Payment cards for mobile telephony

Comviq, a major Swedish mobile telephone operator, is introducing a subscription-free payment card for mobile telephony. The card will be inserted like a regular SIM card, providing calling privileges up to SEK 250 or SEK 500. Prepaid telephone calling cards are common in the U.S., but Comviq is the first operator to introduce the concept in Scandinavia.

Lucent and Sun enter cooperation

Lucent Technologies and Sun Microsystems are working together on the construction of new bridges between the worlds of data and telecommunications. Lucent has a license agreement to adapt the Java technique to Inferno Network's operating systems. Sun's Java platform can now be used in all communications systems compatible with Lucent Inferno's network in real time systems.

Qualcomm wins award

Qualcomm has won an award for its Eudora Pro 3.0 e-mail software program for the Internet. The distinction was presented to Qualcomm at the fourth annual awards ceremony held by the Internet World Industry in Los Angeles recently.

Demonstration in

More than 2,000 people staged a demonstration in Norrköping recently to protest Ericsson's decision to reduce production operations in the city. The demonstrators demanded that Ericsson assume its social responsibility and find new employment for the 1,400 people whose jobs are now threatened.

The public protest was organized by trade unions of Ericsson's factory in Norrköping, with the active participation of a large number of people. At least 2,000 residents of Norrköping marched in the demonstration to express their support for Ericsson employees who may lose their jobs.

"Not long ago, Ericsson declared that we employees were one of the company's most valuable assets. It's time to back up those words," said Stefan Strand, Vice Chairman of the local chapter of Metal Workers. He continued to say that Ericsson has a responsibility to find replacement jobs, for example by transferring some of the 3,000 vacancies Ericsson has in other Swedish cities, referring primarily to job opportunities in Kumla and Linköping.

Difficult to understand

Stefan Strand was not surprised by the turnout at the protest march, citing general discontent at the Norrköping plant since Anders Igel's announcement of planned cutbacks on March 25. He says

it's difficult to understand the company's policy and is naturally concerned about the future. For the time being, Mr. Strand is awaiting the results of industrial co-determination negotiations with trade union representatives.

Reasonable solutions

Ericsson's executive management, led by CEO Lars Ramqvist, is now concentrating considerable attention and resources in efforts to find reasonable solutions for employees affected by the company's recent decision.

"It's extremely important that we proceed with negotiations that have been started with employees, local officials and other concerned interests, including current talks focused on co-determination.

"As we stated earlier, we shall do everything in our power to alleviate the transition in Norrköping," Lars Ramqvist declared.

One of the measures already implemented was to establish an internal employment office at Ericsson's factory in Norrköping.

Help to find new jobs

"Personnel will be available at both plants, equipped with resources to find new job opportunities and examine alternatives for educational pursuits and career planning," explains Tove Hansson, who is responsible for Ericsson's internal employment office in Norrköping. The office is intended to help employees find new jobs or suitable training courses.



More than 2,000 people demonstrated

"We have an opportunity to provide personal services on a broad front," Tove Hansson continues. "With 3,000 job vacancies in Sweden, we should be able to

Norrköping

help people find new employment. Two members of my staff will work exclusively in assisting Ericsson employees find jobs with other companies and organizations."

Tove Hansson expects Ericsson's internal employment center in Norrköping to begin assisting employees by the end of April.

Photo: MIKAEL STRAND
LENA WIDEGREN

Ownership shift in Karlskrona

Confidence and optimism characterized the mood in Karlskrona on April 1, when Ericsson officially transferred ownership of the Verkö and Vedeby production plants to Flextronics International.

"I see it as a positive sign of good things to come," said Mats Jonsson, head of Ericsson's Supply & Distribution in Karlskrona.

As Ericsson's representative at "the changing of the guard" ceremony, Mats Jonsson presented an elegant copper key to Ronny Nilsson, President of Flextronics International Sweden AB, new owner of Ericsson's former production facilities in Karlskrona.

"This key is a symbol of our budding partnership with Flextronics," Mr. Jonsson declared. "Today, we are taking the first step along a new course. Naturally, I feel a sense of melancholy - Ericsson has conducted production operations in Karlskrona for 50 years - but I feel even greater optimism over expectations of good things to come in the future."

Supply & Distribution, the business unit under Mats Jonsson's management, produces good valued at SEK 2-3 million every hour for more than 80 markets in all parts of the world. Ericsson is one of the largest export companies in southern Sweden, with considerable resources for continued growth.

"For those of us now working for Flextronics, I promise to protect and nurture the confidence Ericsson has placed in our company," Ronny Nilsson said.

As the former production manager of Ericsson Business Networks takes the helm to guide the Swedish operations of Flextronics, he is accompanied by 930 former Ericsson employees. In 1996, Ericsson decided to focus more sharply on core operations, thereby reducing its total number of production units.

"Here in Karlskrona, we recognized and seized the opportunity immediately," explains Ronny Nilsson. "We started looking for a new owner that specializes in production. We were offering a completely modern production plant and a highly skilled workforce featuring world-class experience and professional expertise."

news briefs

Third generation mobile telephony

NTT DoCoMo, Japan's largest mobile telephone operator, has selected Ericsson as its cooperation partner for development of the first test system for third generation mobile telephony. It will be designed to provide a full range of sophisticated mobile multimedia services, including full moving video, video conferencing capabilities and Internet access. The system will use the 5 MHz W-

CDMA technique, a highly advanced digital mobile telephone technique that is fundamentally different from the small-band IS95 CDMA technique used today.

AMPS order from Brazil

Ericsson has signed a contract valued at USD 150 million with Telpel and Telesp, two Brazilian telecom operators owned by Telebras, a large Brazilian holding company. The contract covers expansion of the AMPS analog mobile telephone system in the states of Pernambuco and São Paulo.

Ericsson wins Lucent award

Lucent Technologies recently presented its "Supplier Excellence Award 1996" to Ericsson Components for the business unit's optoelectronic products in the field of microelectronics. Ericsson also won the award in 1995.

Every year, Lucent Technologies awards suppliers for products and services that surpass the American company's expectations, thereby including them among Lucent's strong cooperation partners. Lucent Technologies is the world's largest manufacturer of fiber-optic transmission systems. The company has more than 1,000 suppliers, and the Excellence Award is a prestigious prize for Ericsson.

The award will be presented to Ericsson and other winners during a prize ceremony to be held at Lucent Technologies in the U.S. on April 17.



Pictured above are (l-r) Jim Oursler, Marketing Manager for fiber optics in the U.S., Bills de Voir, Jan Söderström, Head of Optoelectronics; Anna Lekander, a process engineer; Mats Jonsson Head of R&D and Bert Jeppsson, President of Ericsson Components.



Ronny Nilsson accepts the symbolic key to Verkö from Mats Jonsson.

Photo: THORD ANDERSSON

In addition to Supply & Distribution, other Ericsson units still operating at in Karlskrona include 530 persons employed primarily in software development at Ericsson Software Technology AB. The technology company now occupies Ericsson's old factory at Trossö, which has been converted into an ultra-modern center for research and development. More than 70 employees work exclusively on systems development for Ericsson's MD 110 business exchange, which is now manufactured for Ericsson by Flextronics

THORD ANDERSSON

PCN order in Malaysia

Ericsson in Malaysia has booked a supplementary order from Mutiara Telecommunications Sdn Bhd to expand its national Personal Communication Network (PCN) in Malaysia.

The order is valued at USD 130 million and includes deliveries of exchanges, radio base stations and transmission equipment.

Mutiara Telecom has previously purchased Ericsson equipment valued at USD 355 million for its DiGi 1800 network, which now serves 130,000 subscribers.

hello there!

Staying in touch with universities



Photo: PATRIK LINDÉN

Anne Råberg is responsible for Ericsson's contacts with colleges and universities, effective February 1. She was employed previously in the personnel department of Telenordia. Anne now works in Human Resources - Processes and Support Systems at Telefonplan.

• What are the main schools with which Ericsson maintains close contacts?

I stay in touch with the student unions of most colleges and universities, many institutions and even individual students. The most important target groups today are engineering students. Priorities are controlled by Ericsson's recruitment needs.

• What is the primary objective of your job?

We want groups of students who might come to work for Ericsson in five years to have an accurate picture of Ericsson as a prospective employer. We want to project a favorable image of what it's like to work for Ericsson and what our company works with, our products and services.

• What projects are you conducting this year?

I'm planning to start several projects in cooperation with Ericsson's university group. Present plans call for a profile project in which we will review external marketing efforts aimed at students and an analysis of the message we shall try to convey in the future. We will also follow-up on activities such as labor market days and corporate presentations, primarily through interviews and questionnaires conducted in conjunction with various functions.

• What part of Ericsson's cooperation with colleges and universities is most important today?

I believe we have to take an holistic approach. It's important to establish contacts with research institutions and cooperate on development projects now in progress.

• How can we convince more technicians and graduate engineers to choose Ericsson as their employer?

We have to formulate professional presentations and inform them of the advantages and benefits available through jobs in Ericsson. It's important to present the entire organization as well as individual companies.

Summer jobs, graduate study positions and apprenticeships should be given high priority as an important gateway into Ericsson.

BRITT-MARIE WIDHÉN

**Signal quality
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NEFAB

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As late as 1984, the new Ericsson sign was put up on Sveavägen 159 in Stockholm. During a transitional period, both types of signs were displayed on different building facades. This happens to be the same sign that now presides over the main entrance at Ericsson Telecom in Telefonplan outside Stockholm.

Photo: THORD ANDERSSON

Ericsson logotype loaded with value

In this and the next issue of Contact, you can follow the journey of Ericsson's logotype from the drawing board to today's marketing. We will zoom in for a close-up here and there in the rule book and examine the various aspects of building a trademark. Thanks to common, conscientious work throughout Ericsson, the logotype has bit by bit become something connected with a message and finally became a message in itself.

The year was 1981, and Ericsson was moving full steam ahead on a broad front pushing into the private consumer market. The Company wanted to reach tens of thousands of new customers. The idea of "information technology" was but a gleam in a technologist's eye, so the industry Ericsson was diving into was then called "office automation." This and the mass of customers were the final nudge needed to create a unified sign of identification. That was how the current Ericsson logotype was born.

"We must use advertising more than we have before to make ourselves known, and for that we need an effective and uniform symbol for the entire Ericsson organization," said Gustaf Otto Douglas, then head of advertising, in Contact No. 6, 1981.

Today, 16 years later, the new mobile telephone GF 788 is being introduced to a mass market audience. Customers number in the millions. In ads in daily papers, the Ericsson name seems to speak for itself. The plan worked. The corporate logo has become a clear signal to cus-

tomers, charged with an array of positive values.

Rules show the way

But that did not happen by chance. Since the logotype was created, it has been painstakingly tended as Ericsson's corporate visual identity (CVI). And that is done with the help of simple but uncompromising rules for how the logotype can be used in marketing, product labeling, signing, advertising gifts, and so forth.

The CVI council, composed of representatives from the business areas and various corporate functions, has the task of ensuring, through word and deed, that the rules, summarized in a CVI manual, are followed and understood throughout Ericsson.

"The rules are not an end in themselves. What is important is for us to successfully explain why they are so important," say Lars A. Ståhlberg, Senior Vice President, Corporate Relations and chairman of the council.

To explain why the rules are important, we must start from the beginning. Building a trademark is a long-term process. The concept behind a uniform profile was not at all new in 1981.

As far back as when the company was founded, Lars Magnus Ericsson himself saw a strong trademark as an important competitive tool. Rules were devised early on for how the products should be labeled. In general, just about all successful companies have in common their attention to a clear graphic profile.

Merchant houses in the Middle Ages used their owner's seal as a trademark, for example.

During the golden age of industrialism, several strong brand names were created which are still with us today, having endured little change. Coca Cola, Ford, and Shell are a few examples. The predecessor to the current Ericsson logotype, the one with the initials "LM" in the background and a curly Ericsson at a slant, was standardized in 1942.

Wasn't this symbol, near and dear to so many, good enough? No, not in the long run. As Ericsson expanded, numerous variations emerged, and in many markets the "LM" was removed, which did not mean anything special in the local language, and Ericsson was written using a variety of typestyles according to individual taste. Even the color was chosen arbitrarily. This diversity was perceived as a problem by a growing number of people in Ericsson. To create clarity in dealings with customers, a change was needed.

Unanimous choice

In the autumn of 1980, G.O. Douglas and a few of his associates were assigned by management the task of producing a proposal for a standardized Ericsson logotype, to be uniform throughout Ericsson worldwide. The English consultants Allied International Designers in London were engaged. That bureau's consultant, Peter Cree, quickly understood Ericsson's requirements.

Werner Strauli, a Swiss, worked as an artist and graphic illustrator at Allied and started working with a team of his colleagues to produce a slew of possible logotypes. The Ericsson associates on the profile team as a group fell for one of the proposals, which Ericsson's president at the time, Björn Svedberg, also liked. And that became The Logotype. It was put into "service" in January 1982.

KARI MALMSTÖM

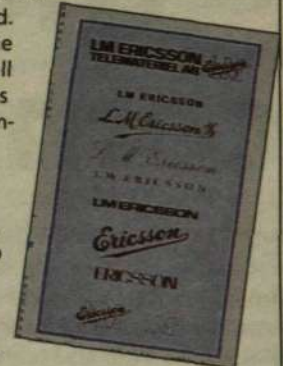
Ericsson Information Systems formed

At year-end 1981-1982, during the logotype transition, Ericsson Information Systems was formed.

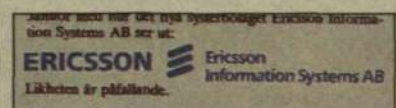
This became the catch-all for business such as computer networks and business telephony.

It was no accident that this happened simultaneously. On the contrary, Ericsson went from selling almost exclusively to major public telephone utilities to offering end-customer direct PBXs, modems, and other products. And that required a more distinct profile. Earlier, they had sold business communication equipment via dealers.

So the new Ericsson Information Systems AB was formed, whose company name from the very start looked like this:



Through the year and in all markets, Ericsson's logotype has varied considerably. The classic stylishness fades over time.



This illustrates one immediate and tangible effect of the logotype change: a family feeling. All Ericsson companies were given similar graphic emphasis.

The rest of the world soon learned to recognize Ericsson everywhere. For example, Ericsson associates' business cards are very similar worldwide.

However, it was soon evident that in some corners a few companies were creating distinct profiles different from the common one.

Just a few years after the change of logotype, stricter rules were produced with the aim of profiling Ericsson as a unit. Since then, Ericsson and the stylized "E" are the only "regulation" logotypes allowed.

During the past few years, with CEO Lars Ramqvist leading, Ericsson has emphasized unity more than ever before. For that, work on visual identity is one of the keys to success.

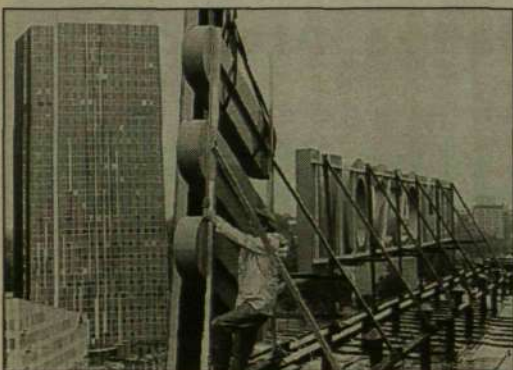
The goal is to send a uniform message to the world: Ericsson is ONE industrial unit.

Logotype, trademark, brand name - what's what?

The CVI manual contains the following explanation: "The function of the corporate logotype (the Ericsson name followed by a stylized "E") is twofold. It is the corporate identity and it is a logotype for Ericsson's products."

The logotype relates to graphic design. It is a way of displaying the company's name. The same symbol also has legal status as a registered trademark everywhere Ericsson does business.

The brand name, on the other hand, is the trademark plus all the positive values and favorable associations linked to it.



Voice and data – they CAN be combined!

An MD110 business exchange can be used for many different purposes. The same is true of a data exchange from the Eripax family. Put them together and you get a multifunction exchange – an MPX (Multi-Purpose Exchange) – that allows data and telephony to share the same leased lines in a common network. The primary prospects for this Ericsson innovation are customers with widely dispersed organizations.

Companies, public agencies and other multi-unit organizations often have their own Wide Area Networks (WANs) to handle data traffic between their offices. A large part of their leased lines are used for this purpose. At the same time, these organizations generally have heavy telephone traffic. They require additional connections, leased or public. Ericsson's multifunction exchange offers a cost-effective, flexible way to get maximum value from the lines an organization leases.

"They are like oil and water." That's how telephony and data have long been viewed. The two are totally different in character. A telephone call requires transmission capacity as long as the connection lasts, even if no one is using the line. Data is transmitted in "bursts." When the "send" key is pressed, the data packet is activated. The more room the better. The space between the bursts is empty. With the MPX solution, the conditions for transmitting both voice and data are optimal. The customer does not have to tie up one line for data and another for

telephony. The same node can handle both circuit connection and packet transmission through dynamic common utilization of the bandwidth. All the intelligence is built into the hardware.

"We started with an MD110 and built in an Eripax PFA (Packet Frame Access) node," says a pleased Per Blomquist, product marketing manager for the new system. "With a few tricks here and there, we have produced a very smart article that can do so much more than the individual parts by themselves."

Per works in the Business Networks unit of the business area Infocom Systems. He and his colleague Johnny Nyman are the brains behind the patent that constituted an important part of the puzzle in the multifunction exchange: the method for dynamic common utilization of available bandwidth. Per maintains, however, that the real innovation lies in the new way of combining established technologies.

The key to integration

Per, who describes himself as a "data person" rather than an expert on telephony, says that increased integration within Ericsson is the key to integration of voice and data. It is a matter of utilizing common resources and blending areas of expertise.

Ericsson's multifunction exchange is a typical example of a product that meets the needs of the times. The principle is to use the infrastructure that is already available. Traffic between the nodes in an MPX network is carried by one or more ISDN lines at 64 kbit/s. But this speed is a sheer waste of capacity in the case of voice traffic, while it is

generally much too slow for data, Per points out.

"For data, many customers require speeds higher than 64 kbit/s, but for joint voice-and-data traffic with dynamic bandwidth allocation, the only alternative has been ATM technology, which requires the leasing of links with speeds of at least 64 Mbit/s. Such speeds, and the costs involved, are much too high for the customers we are dealing with.

Typical customers may be banks, insurance companies, public agencies, all of which have widely dispersed operations.

Attractive to many

The new MPX is especially attractive for customers who already have some form of Wide Area Network for their data traffic. They can now add telephony at the same time that their data network is being upgraded.

The commercial potential for the new system is deemed to be good. Ericsson's business customers have become aware of multimedia communications and have begun to use video conferencing and other broadband-consuming technologies to improve the efficiency of their operations. It is estimated that at least 3,000 nodes per year can be sold to private customers. In addition, there is a comparable market in the public sector.

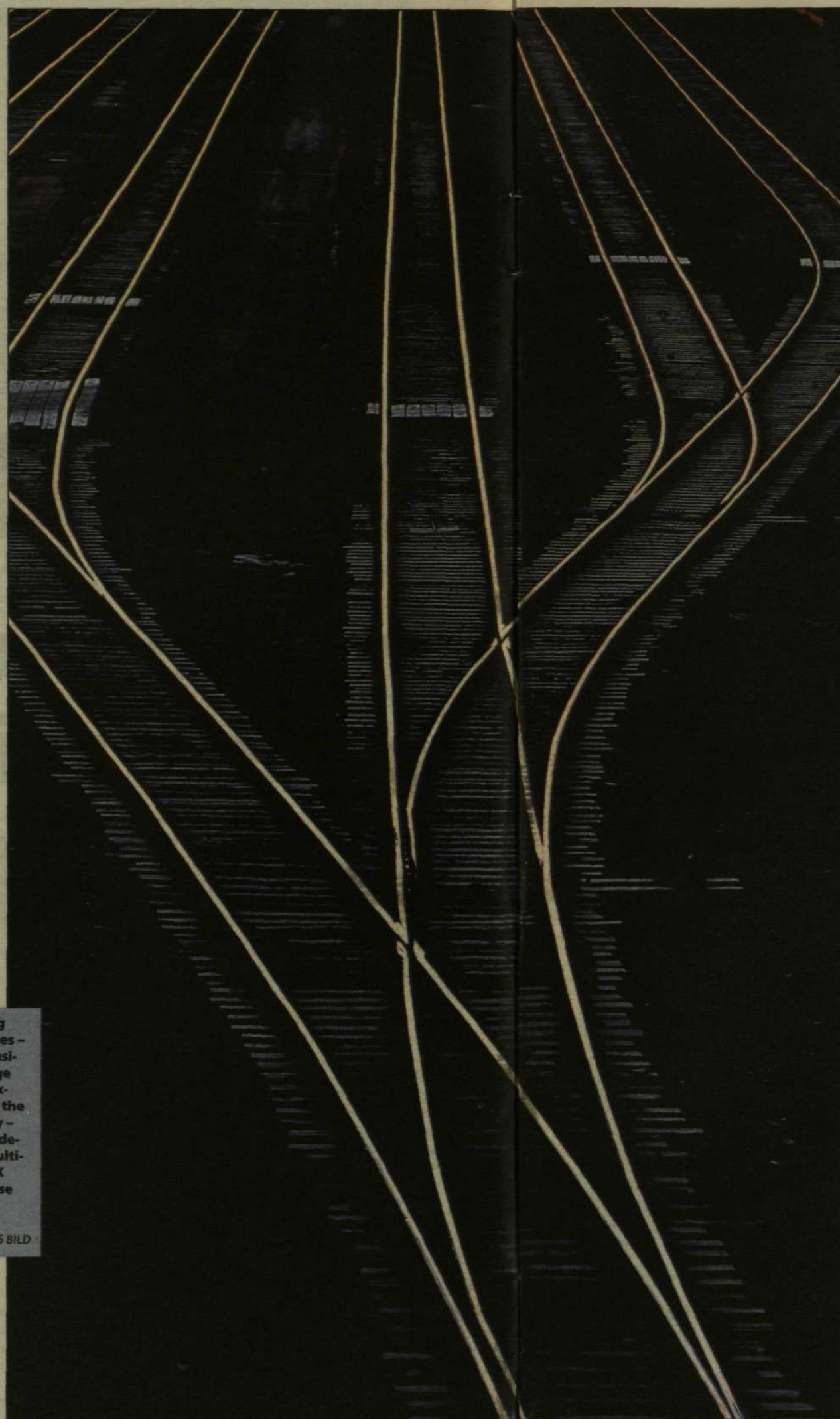
"This is a network product in the private market, and an access system in the public segment," Per Blomquist explains.

"The MD110 is good at converting protocols! Our multifunction exchange can channel virtually any type of traffic – to an AXE exchange, for example. This makes it attractive to new operators and other suppliers of services."

KARI MALMSTRÖM

By combining two exchanges – an MD110 business exchange and a data exchange from the Eripax family – Ericsson has developed a multifunction MPX (Multi-Purpose Exchange).

Photo: PRESSENS BILD



Per Blomquist, product marketing manager for the new MPX multifunction exchange.
Photo THORD ANDERSSON

Voice, data share bandwidth in dynamic exchange interaction

Compressed voice and aggregated bandwidth are two of the principal ingredients in the new multifunction exchange. The MD110 can compress speech to 16 Mbit/s, thereby providing space for four simultaneous telephone calls at speeds of 64 kbit/s.

The aggregated bandwidth enables a number of "64s" (up to a total bandwidth of 2 Mbit/s) to behave as one and

the same. The transmission speed of data traffic can thereby be increased.

The joint utilization of available bandwidth is what creates the integration. Speech (and other real-time communication such as video) share the space that is available in a dynamic exchange interaction.

"The finesse lies in the fact that the bandwidth is adjusted according to

need. When you pick up an instrument and place a call, you have bandwidth to talk on. When you hang up, capacity is released and can be used immediately for data transmission," Per Blomquist explains.

The multifunction exchange can be operated in two modes: 64 kbit/s or 16 kbit/s. In the latter case, each 64 kbit/s wire is split into four 16 kbit/s channels.

Data traffic is then repacketed for transport in 16 kbit/s channels.

In the BC9 version of the MD110 exchange that is being field-tested during the spring, all the intelligence and interfaces needed to operate it as a multifunction exchange are built in. But certain older Consono MD110s and Eripax systems can also be upgraded for use in an MPX system.

KM



Ericsson Intracom in Leicester played an important role in the development of the MPX exchange. Andy Capstic tests the mechanical integration of an MD110 exchange and an Eripax PFA.

Flexible and efficient

A network based on MPX is basically the same type of Wide Area Network for data traffic that can be constructed using the Eripax products that constitute one half of the new system. MPX nodes will be offered in a number of versions. Depending on the total amount of data traffic over a given node, the node will be based on either the Eripax PFA (Packet Frame Access) or the larger FS700.

The allocation of bandwidth, network monitoring and the telephony itself will be handled by the MD110, the second half of the node. One pleasing side effect of this solution is that the customer obtains a related business network for telephony "in the bargain" and can, for example, use a common numbering plan for all offices. While the multifunction exchange provides full support for both telephony and data, all of its functions can be used with other business exchanges.

The system is highly flexible and offers many choices. The number of leased lines between locations varies, depending on the estimated amount of traffic. A single line may be adequate for an office with ten to fifteen employees. In an office with 30 employees, two lines would be

leased, and so on. The number of lines naturally depends on the type of business being conducted. If a lot of data is being transmitted, more lines are needed.

The system ensures maximum use of the leased lines for which the customer is paying a fixed price. During peak traffic periods, "outside" connections are used – primarily for telephony over the public network. Data traffic is given preference over the leased lines at the company's disposal. If data handling capacity has to be increased, this is done by using an outside ISDN that the MD110 temporarily integrates with the leased bandwidth.

A node in a central location in the network provides links to the public data network ("Internet"), to the telecommunications network and – via the integrated bandwidth – to any Contrex services the company uses.

KM

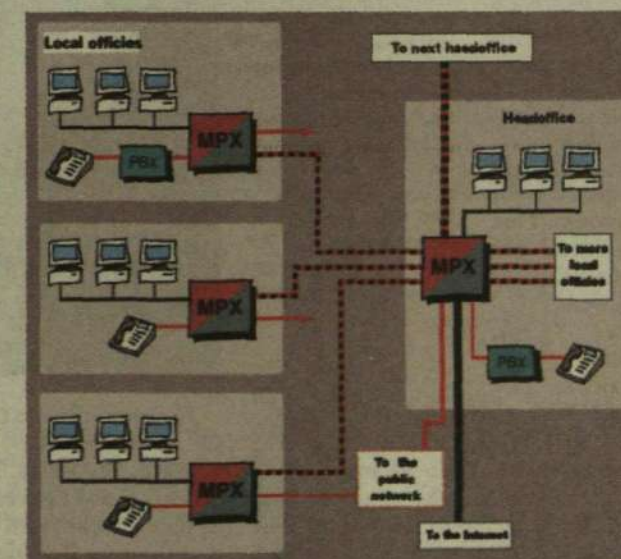


Illustration: ÅSA HARVARD

Multifunction exchange ready in record time

What was to become the MPX exchange originated in an inquiry from an earlier Eripax customer. The transaction center serving a number of German banks had to strengthen its infrastructure in order to increase service to its customers. The concept of an integrated network, in which lower telephone charges would defray investment costs, was proposed. Could Ericsson help?

MD110 and Eripax experts in what was then the Business Area Business Networks began intensive development work. The new MPX exchange was completed in the record time of a year and a half.

"Because the development work was conducted as a customer project, we worked under pressure of time continuously," says Åsa Jacobsson, the project manager.

A total of 40 persons from Nacka Strand, Karlskrona and Ericsson Intracom in England were involved in the project. The local German company also played an important role as a sounding board and liaison with the customer. The development work was completed recently, test installations are in place and the customer is pleased.

KM



Ericsson hones image in Asia

Ericsson is relatively well known as a mobile telephone manufacturer in Asia but, apart from telcom operators, few persons know that the company does more than that. To correct this situation, a basic institutional campaign has been launched in more than ten countries in Southeast Asia.

It comprises basic material that can be adapted to the local markets in each country.

The campaign is based largely on one that was conducted in India last year.

Ericsson presents facts that enable target groups to judge for themselves what the company is and does: How many telecommunications lines Ericsson installs daily, how long it has been active in various countries, etc.

Information is presented on three levels: global, regional and national. Depending on the size of Ericsson's operations in a particular country, pertinent data can be used.

The advertisements will appear mainly in the business press. A promotional film will also be produced.



'788' launched in Asia

Parallel with its institutional advertising campaign in Asia, Ericsson is also introducing its new small GSM "788" mobile telephone in 12 countries throughout the Asia Pacific region. The introductions in Singapore and the Philippines get under way late in March. The introductory campaign has been under way in Australia and New Zealand for some time. Other countries will be included shortly.

The campaign in Asia differs somewhat from the one that has been seen in Europe. But in the case of Asia, as well, Ericsson has produced basic materials that are later adapted for each market. These materials are part of a major promotional program comprising everything from television commercials and newspaper advertising to point-of-sale items.

When this issue of Contact comes out, it's likely that Stefan Andersson, 33, traveling installation engineer for Ericsson Business Networks AB, is busy on DRA 1900. But you can't be sure. Life is fast-changing in successful companies.

Fast change at the top

Stefan is a "Hagfors boy." Hagfors is "home" for this traveling man wherever he is in the world. And it's easy to understand why he feels that way. The beauty of Hagfors is enchanting. He wasn't easy to contact. Day after day, I got no further than Stefan's answering machine. I will explain why later, so please bear with me.

Stefan, who has two younger siblings, a sister and a brother, was educated at Älvkulle upper secondary school in Karlstad. He graduated from the two-year telecom technical course there. That got him a job with the Swedish Telecommunications Administration in Hagfors.

Employed by Ericsson

I heard about a new job from some Ericsson installers when they were traveling around Värmland [a region in midwest Sweden]. I went to an interview in Karlstad in January 1990 and started working at Ericsson the following month as a 'traveling installer.' We spliced cable. I usually worked with Pär Boåsen. Like him, I've worked for Ericsson from Kiruna in the far north to the southern tip in Malmö."

Just to seal the pact, Pär and Stefan have the same hobby: fishing. And they fish the same fine waters, the Klarälv River.

Do they look like twins? No, not really. Of course, they are both blonde Vikings, but Stefan weighs "only" 70 kilos and measures 175 centimeters in his stocking feet. They're in good shape, these Ericsson men.

Two children

Stefan is married to Anna, a 28-year-old assistant nurse, who brought two children to the union. Later they had another child together. Stefan is dressed in marine blue trousers and a blue and white checkered shirt. Anna bought it for him. He beams proudly as he tells me that. I ask him where they met.

"At a dance in Värnäs, 50 kilometers north of here."

You'll go a long way, you Värmland boys, to find a beautiful woman.

Also, today is an altogether special day in the red three-bedroom house with the white corners in Emtbjörk, 11 kilometers north of Hagfors.

And now you'll find out why Contact had such a hard time getting in touch with him.

Stefan relates, "I'm renovating an old house for the family about five kilometers away. So I get up early and leave before the sun comes up. I get home late in the evening."

The family is happy to wait for him. The house, which he is so industriously working on with the help of a few paid carpenters, has an area of 200 square meters and a beautiful, yellow wood facade. Next year they'll move in, they hope.

• What has he been doing since he joined Ericsson Business Networks AB?

"Well, after a while as a traveling installer here in Sweden, I got my first foreign assignment, to go to Düsseldorf, Germany, in November and December 1992." He was supervisor on the construction of minilinks.

"It was fantastic and exciting, because it was the first time I had been outside Sweden. I had a lot of responsibility and good people to work with."

"And at that time I didn't know I was going to go back to Düsseldorf right after I came home, in January 1993. That was also as supervisor in the same operation, but then I didn't have an adviser to help me get used to the project. That time I had full responsibility. It went well."

For five months, from August to December 1993, Stefan worked in Japan, mainly in Tokyo but also in Osaka. He was supervisor for CMS 30, which is Ericsson's mobile telephone system for Japan. He summarizes his impressions from the trip: "The Japanese are nice and polite."

After his tour in Japan, it was back to Sweden.

Headed to Budapest

"I traveled from January to September 1994, working with fiber-optic networks, cable splicing and radio links."

In September of that year, he headed to Budapest, Hungary. Stefan was supervisor for the installation of RAS 1000.

"Hungary was fine. It was exciting to visit what had once been a socialist country. We were a 'sterling' bunch, a great mix of Swedes and Hungarians."

Stefan Andersson on a quick visit to Ericsson in Sundbyberg, near Stockholm. In the background, a Swesite mast. A typical assignment for Stefan is to quickly climb up the mast, install a microwave link, for example, and then climb down again.

Photo: PETER GUNNARS



The next offer was to go back to Japan. On February 20, 1995, he took his entire family to Yokohama. The children were eight, five, and two years old. Stefan ended up at an office with the title of installation engineer. This time, too, he worked with the CMS 30 system.

• What was it like having the family along in Japan?

Stefan answers enthusiastically, "The kids loved it. They met playmates and made friends right away. The family got along great. Of course, Japan is a lot of people in a small area, but it's still easy to take your kids along. You can go anywhere, even though it takes time."

"We were supposed to stay a year, but it turned out to be 17 months. The contract was extended to July 20, but we came home on July 9 because I had saved up vacation time."

Could he imagine taking his family out in the world again?

"Sure. Why not? But first the kids need to be at home a while and go to school in Sweden. We'd love to go out again after a while. If we get an offer."

How would he describe Ericsson as an employer?

"I have to say Ericsson is good. I have been able to make trips that other people can only dream about. It's been beneficial for me and beneficial for the family to visit foreign countries."

Do you make good money, too?

"There's a little left when we get home!"

Where do you see yourself in 10 years?

"I'll be sitting by the Klarälv fishing, the house is finished, and I'm still working for Ericsson."

SIGVARD LINDSTRÖM

A gift with the instruction "do whatever you like with this money": that's how industrial sponsoring in cooperation with colleges of higher education usually works. Now Ericsson is going one step further. With researchers from Chalmers University of Technology in Gothenburg, staff from Microwave Systems and Radio Systems have constructed a real-time laboratory for signal processing. Ericsson not only pays the bills but, even more, has contributed vital information to the development of the laboratory.

Ericsson collaborates with Chalmers on lab

digital signal processing is one of the fastest growing branches of the electronics industry. The technology is constantly giving rise to new applications, but the lack of skilled technicians is slowing development. One problem is that when students at the technical colleges perform lab experiments, they often must make do with simulations using mathematical programs, something that does not exactly help make signal processing any more understandable or concrete.

At the institution for applied electronics at Chalmers, the students no longer have to use complicated and abstract simulations, thanks to a lab provided by sponsors.

In addition to Ericsson, the software company Nyvalla DSP has helped create the lab. Texas Instruments contributed equipment, but Ericsson has born the greatest expense.

This form of cooperation between universities and industry is unique. Instead of just sending the school money, Ericsson and Nyvalla DSP have been involved throughout the entire process. They have shared their technical know-how and ensured that the lab experiments focused on problems close to the operations of the electronics industry.

"In this project, we have fused our competencies in a fruitful joint effort," says Arne Filipsson, head of microwave technology at Ericsson Microwave Systems in Mölndal. "I see this form of work, where creativity is joined with technical knowledge, as the future for collaboration between industry and academe."

Staff from Ericsson have helped design the experiments on suppressing echo in long-distance telephony and determining the position of ultrasonic transmitters using a sensor array.

The laboratory's greatest merit is that everything the students do is in real time. As soon as someone moves an ultrasonic transmitter, the effect appears on the computer screen, giving the students a feel for how signal processing works without time-consuming mathematical processing of measured values.

Understanding the theory

The man behind this initiative, a doctoral candidate named Jakob Ångeby with a past at Ericsson Infocom in Karlstad, explains that this is the basic idea: to discover and understand the theory behind signal processing with the help of concrete examples.



"The laboratory and experiments are designed so that you can directly get to the heart of it all without getting stuck in a lot of abstract theory. We hope the result will be that students have a 'wow! experience' and feel, 'Check this out! The theory really works!'"

In the real-time laboratory, technology quite close to Ericsson's own activities becomes real. One of the driving forces behind Ericsson investing more than half a million Swedish kronor in the project is that the students also get a look at what the Company is working on. In other words, on top of the basic idea of raising the level of engineering studies at the school, Ericsson is marketing itself to the students.

"Actually, the knowledge that the lab experiments provide is not the most important thing," Jakob Ångeby believes. "The best that could happen would be if the students became so inspired by the experiments that they continued their studies in this field."

Developments in signal processing are advancing at breakneck speed. For Chalmers to continue to supply Swedish industry with skilled engineers, the

training must be updated at pace with technology.

In this context, the new real-time laboratory is quite interesting. It is built around a number of PCs, all equipped with digital signal processors controlled by user-friendly software. Together, the components constitute a platform which is very easy to expand.

"This is a living laboratory," Mats Viberg, professor at the institution for applied electronics, explains. "We have built a platform that can easily be augmented with new applications. If other companies are interested in demonstrating their technology, at Chalmers or some other technical college, it would be easy to design new experiments using the same basic equipment."

Tailor a laboratory course

The simple technology of the platform and the well-documented process of constructing it make it easy for others to repeat this feat. The College in Karlstad and Ericsson Infocom are already working on a similar project, and in Lund, Ericsson Radio Systems is interested in

One of the real-time laboratory's two experiments is about echo suppression in long-distance telephony using an adaptive filter. Degree students Hugo Landgren and Lester Ngia illustrate the phenomenon together with Jakob Ångeby, a doctoral candidate, and Arne Filipsson from Ericsson Microwave Systems.

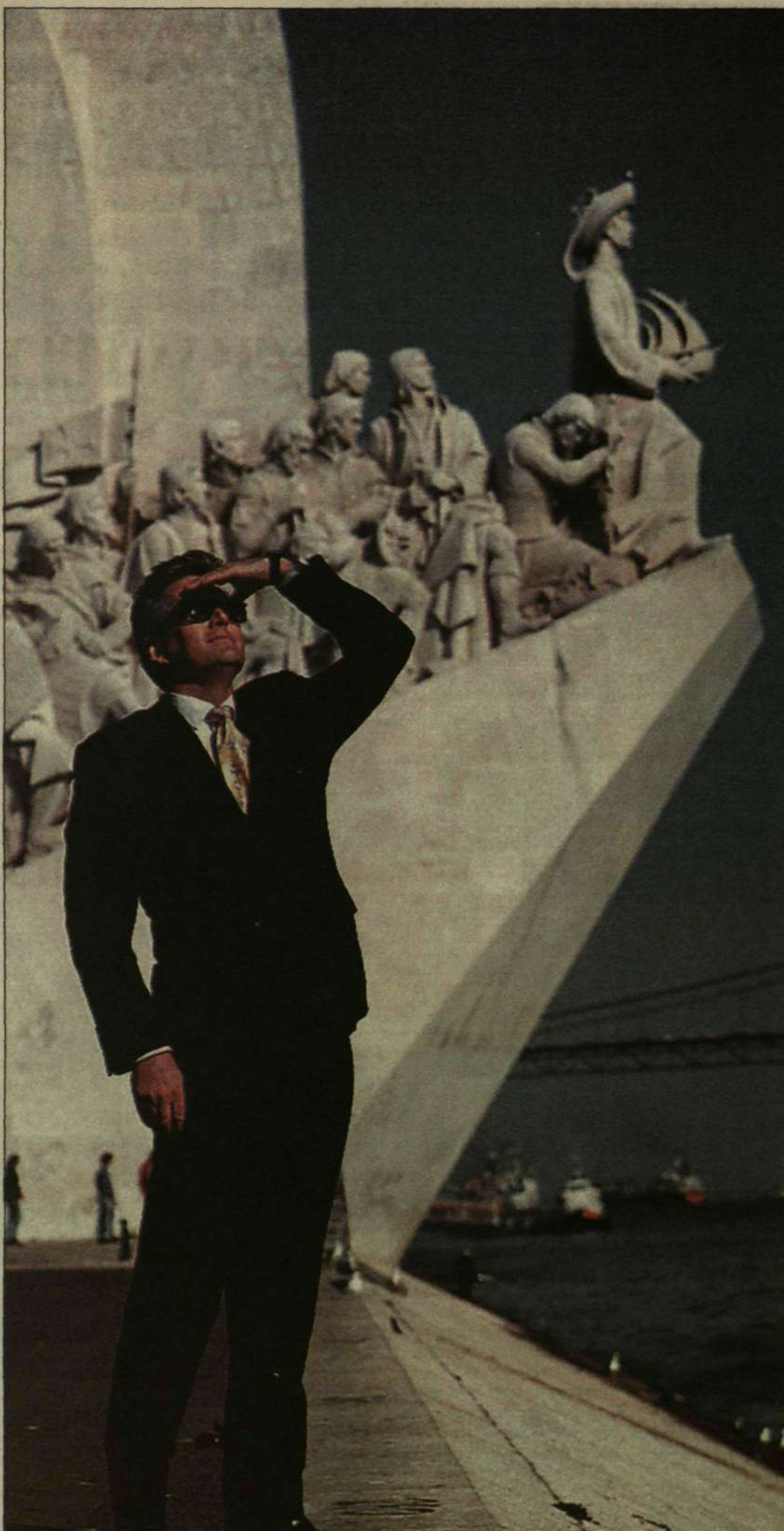
Photo: ANNA REHNBERG

starting a collaboration with the city's technical college along the same lines. The simplicity allows small colleges to equip themselves with technology that they would hardly have the means to develop themselves.

With the growing number of applications, Jakob Ångeby sees greater opportunities for students at the technical colleges to tailor their own laboratory courses.

"It would be exciting if each student had the opportunity to choose the experiments out of a portfolio. Then they would be able to try out things until they found what was most interesting for them, and they would also be able to put their own stamp on their education."

NICLAS HENNINGSSON



Peter Källberg and his staff at Ericsson in Portugal are constantly looking for new markets, in the same way Vasco de Gama and other Portuguese explorers searched for new horizons during the 16th century. Photo: KAMERAREPORTAGE

Portugal in a nutshell

Population: 10.5 million
Surface area: 92,000 km² (incl. the Azores and Madeira)
Coastline: 1,793 km
Religion: Roman Catholic 97%, Protestant 1%, others 2%
Labor force: Service sector 55%, industry 33%, agriculture 11%
Inflation: 3.3%

Unemployment: Appr. 7% (1995)
Illiteracy: Appr. 15%

Government: Successive democracy mostly under (PS) social democratic rule since April 25, 1974, when a group of military officers (MFA) staged a coup. Fascist dictatorship 1933-1974. The center liberal party (PSD) ruled the country during the period 1987-1995.

President: Jorge Sampaio
Prime Minister: Antonio Guterres

Ericsson's breakthrough in Portugal was spearheaded by the introduction of GSM in 1992. At the time, annual revenues totaled about SEK 50 million. Today, Ericsson commands one-third of the Portuguese mobile telephone market, and sales in 1996 amounted to approximately SEK 700 million.

Constant search for new GSM markets

Ericsson's head office in Portugal is situated in Carnaxide, fifteen minutes by car from the heart of Lisbon. The company has 150 employees, having tripled its workforce during the past few years. New employees are still being recruited to handle the Portuguese subsidiary's expanded business commitments. During 1997, about 50 more people will be hired, with particular emphasis on Portuguese technicians.

"It takes time to find skilled, local technicians who are able to work with GSM technologies, but we have been fairly successful so far," says Peter Källberg, President of Ericsson in Portugal.

Peter Källberg and his staff have been instrumental in Ericsson's success on the Portuguese telephone market, capturing substantial market shares within a period of just a few years.

"Our contract with Telecel, one of Portugal's two large operators, provided a major boost, and now comprises a solid platform for continued growth. Recently, we completed deliveries for a complete network included in a project for nationwide personal pagers," Peter Källberg continues.

EU funds for infrastructure

Portugal's economy has improved dramatically since the country joined EU in 1986, and deregulation of credit and currency markets was initiated. Political stability in parallel with projected economic growth of about 2.6 percent during the years immediately ahead has encouraged a growing number of foreign companies to establish business operations in the country.

Values equivalent to SEK 90 million are pumped into the Portuguese economy every year from EU structural funds, money intended primarily to expand and improve the country's infrastructure.

Construction wave

The number of ongoing construction projects in Lisbon is greater than ever before in the capital city's history. Highways are being built, historical buildings and monuments restored, new subway stations are under construction and the old harbor area is being converted into an oasis of restaurants and nightclubs.

The major housecleaning project in Lisbon is part of preparations for next year's mega-event, Expo 98, a World's Fair expected to attract more than eight million visitors from all parts of the world to the Portuguese capital. Ericsson will be represented in the Swedish pavilion, of course, which will also include such companies as ABB, Atlas Copco and SKF, who will also display their products and establish contacts for future business ventures.

"The rate of economic and industrial development in Portugal during the past decade has been tremendous. The market seems to absorb anything that relates to new technologies. In telecommunications, for example, as well as several other industrial sectors, all indications point toward continued growth in the Portuguese market," Peter Källberg explains.

More than a million subscribers

There were virtually no mobile telephones in Portugal when Peter Källberg arrived four years ago to head Ericsson's subsidiary. An analog network served less than 12,000 subscribers. Today, the country has two

GSM networks serving more than 700,000 subscribers.

"We believe the number of subscribers will increase to about 1.1 million by the end of 1997. More and more people are discovering the advantages of mobile telephony here in Portugal," Mr. Källberg says.

Portugal and Germany were the first European countries to invest in commercial GSM systems in 1992. The two Portuguese operators have since been pioneers in the market, introducing creative new services such as prepaid subscriptions (SIM cards) and telebanking.

Since 1911

Ericsson has conducted business operations in Portugal since 1911, operating through agents until Ericsson in Portugal was established in 1953.

Peter Källberg came to Portugal for the first time in the early 1980s, even then on assignment for Ericsson.

"I worked very hard trying to sell the NMT mobile telephone system to Portuguese customers, without much success I'm afraid," he says.

He returned to Portugal 10 years later to market and sell the GSM concept. This time, sales have surpassed all expectations. Today, Peter Källberg successfully directs and manages Ericsson's operations in the Portuguese market, always prepared to seek out new market areas.

"In the last two years, sales have increased 50 percent annually, and our growth is well-founded with good future potential."

There are two Portuguese operators today, and a third is waiting in the wings.

One more license to capture

Ericsson has supplied the entire network used by Telecel, while Motorola/Siemens delivered equipment for the network operated by TMN, a company in the government-owned Portugal Telecom Group. Who will take the third license remains an open question.

"When the second license was granted, nine companies battled for the contract. Interest in Portugal's third license will almost certainly be the same or even greater among companies competing for license No. 3," Peter Källberg says.

For Ericsson, it's important that we are equipped and positioned when the third operator eventually chooses its system supplier. There are also plans to expand Portugal's wired network by adding another operator, and we will also compete for that contract," he continues.

Telephone density in the country today corresponds to about 38 units per 100 inhabitants. The corresponding figure in the rest of Europe is about 50 telephones per 100 inhabitants, a figure that Peter Källberg believes Portugal will reach before the year 2000.



Carla Almeida (r), an engineer in the Telecommunications Division, formulates a bid with Maria Lemos of the IT Department.

"The expansion of telephony, however, will depend on the rate of development in mobile telephony. There is a growing trend whereby more people prefer GSM telephones over fixed telephony service.

"With the new services offered by GSM in the future, and in view of future competition and price cuts, the GSM train could build some serious speed during the next few years," he explains.

Job rotation

"We intend to ride that train, based on the strength of Ericsson's present ability to offer complete solutions for all of the market's mobile telephone operators," Peter Källberg continues.

There is only one weak link in Ericsson's operations in Portugal, a drawback that prevents Peter Källberg and his staff from making the next quantum leap forward.

"We are limited today by the pace at which we can increase the development rate of our own skills and expertise. Comprehensive efforts are now concentrated on eliminating this shortcoming through skills development programs for all employees. We have introduced a job rotation program conducted in parallel with educational courses in Sweden and other countries in Europe.

"It's extremely important that our employees establish a strong network of contacts with other parts of Ericsson's worldwide organization, and we need continued strong support from all the business areas.

"Ericsson is the Portuguese market's leader in GSM today, and we intend to defend and strengthen our position," Peter Källberg states with a sense of determination.

CATHRINE ANDERSSON



A thousand years difference, but many similarities. Both objects, a Viking brooch and a silicon wafer, were designed in Sweden and undoubtedly represent the cutting edge technologies of their respective ages. Photo: ANDERS ANJOU

High-tech then and now

More than a thousand years separate the two shiny gold plates pictured above. Despite the age difference, they have a lot in common. The wafer and the Viking pin both originated in Sweden and both offer accurate reflections of cutting edge technologies in two distinctly different ages.

Thomas Swahn works at Ericsson Microwave's research unit for high-speed electronics in Mölndal. He designs integrated circuits to handle transmissions of information at extremely high speeds. The circuits are mounted on so-called wafers that resemble round discs comprising several layers of semi-conductors.

Thomas Swahn and his colleagues recently presented a wafer that can transmit serial information at speeds up to 40 gigabits per second. The speed is one of the highest measurements ever recorded on integrated circuits. To get some idea of the speed concept, try this: one wafer could easily transmit every printed word in every volume of the Encyclopedia Britannica in less than one second!

Identical

It was during tests of the high-speed wafer that Thomas Swahn and a few of his fellow researchers visited an exhibition of Viking History in Gothenburg. In the test procedure, laboratory personnel sit with microscopes and transmit electrical signals through the wafer using extremely thin electrodes. The work is hectic and the chance to visit an exhibition on Viking History was a welcome diversion.

"In a glass case in one corner of the exhibition, I spotted a small object, some piece of Viking jewelry, that was almost identical with the wafers we were testing at work," explains Thomas Swahn. "It was the

same size and shined like gold. Naturally, I immediately began to draw several parallels between the piece of jewelry and my wafer."

After further studies, Thomas Swahn found several other similarities between the two objects. Even the production methods had a great deal in common.

Cutting edge technology

The Viking piece was produced using a filigree technique, whereby fine threads of gold were woven to form a pattern that was soldered onto the small disc. The pattern is so finely ornamented that historians are not sure how it was produced.

If the wafers developed by Thomas Swahn and other researchers at the high-speed electronics unit are considered to be cutting edge technology in 1997, the finely designed Viking jewelry on display in Gothenburg was certainly representative of cutting edge technologies of 1,000 years ago.

The first wafer

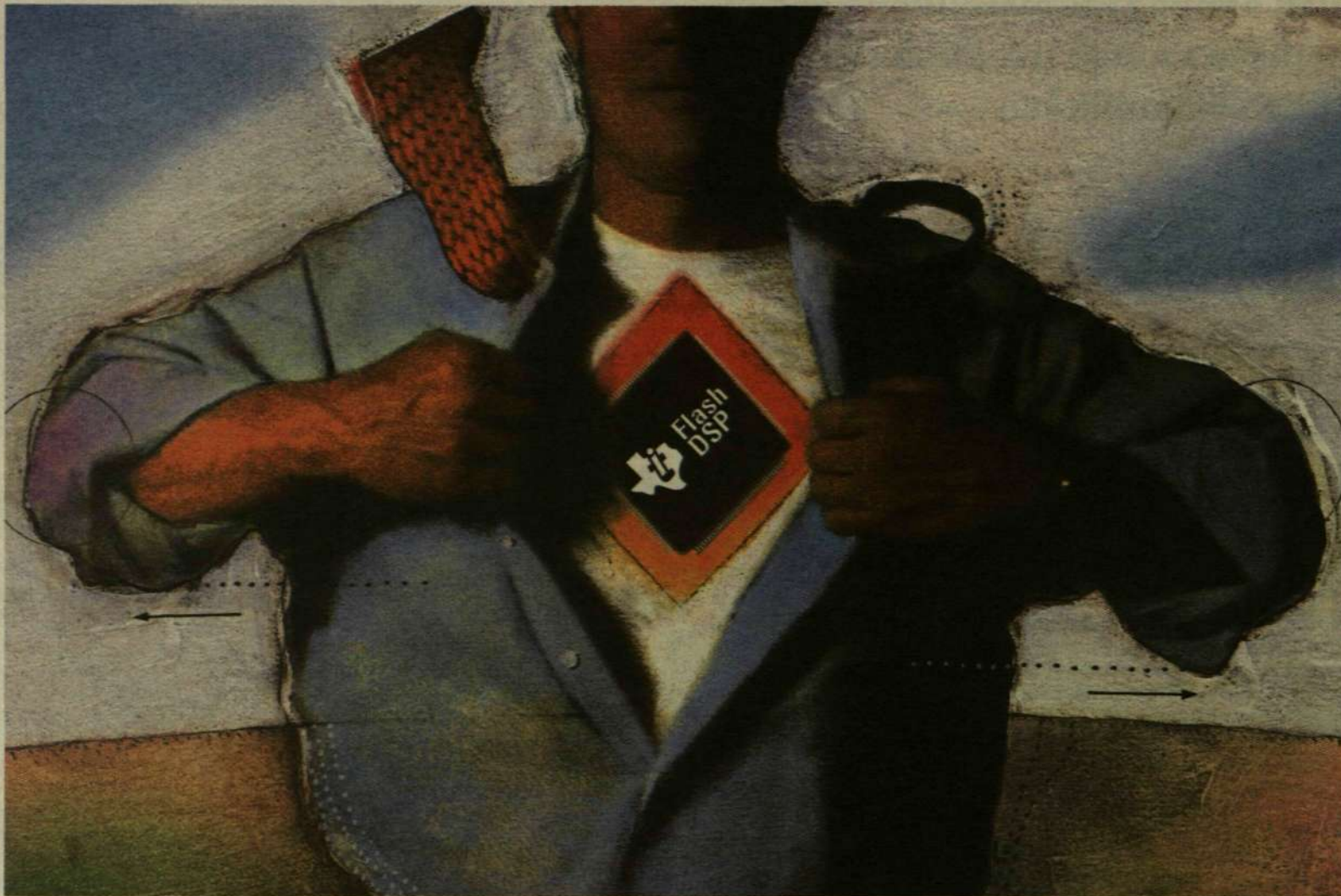
After visiting the exhibition, Thomas Swahn contacted the Nordic Museum, which owns the piece, to ask permission to photograph the brooch next to a high-speed electronic wafer. He used the picture during his presentation at a prestigious international symposium on integrated circuits.

"An executive from Hewlett-Packard, an older gentleman, started his presentation by telling the audience how he remembered when the first wafers were developed as square discs nearly 30 years ago. When it was my turn, I showed the picture of the wafer and brooch, mentioning that it was much earlier, like a thousand years ago, that wafers were still round. It was a popular beginning to my presentation."

NICLAS HENNINGSSON.



Alexandra Faustino works in the laboratory at Ericsson's head office in Carnaxide, just outside Lisbon. He is seen here with (l-r) Eduardo Marto and Vasco Alpalhao testing new functions to be implemented in Telecel's GSM network.



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EXTENDING YOUR REACH™





Using video conference techniques, the teacher in Lund can now teach students in other parts of the world. Radio School staff members are (l-r) Ragnar Lodén, Mats Johansson and Agneta Avasjö.

Photo: KURT JOHANSSON

Radio school – remotely

The teacher is in Lund, and the students are in Nürnberg and Karlstad. **Sweden** Ericsson's Radio School, which offers courses for radio technicians, is conducted like a remote broadcast, with some course elements provided by video conferences.

The project is part of a comprehensive multimedia program conducted by the Technical Competence Development department of Mobile Systems in Kista. Teaching with new techniques improves the effectiveness of educational programs and saves considerable amounts of money by eliminating travel expenses to and from classroom venues.

"We are now able to reach a much larger audience, compared with our old courses in Kista and Gothenburg," explains Ragnar Lodén, head of the Radio School for the past four years. "I now see an oppor-

tunity to reach Ericsson employees in all parts of the world, as well as customers and university students who also need to develop their skills in radio communications," he continues.

Course literature for the Radio School's remote classes is now available on the web. The courses are held for one hour every week for three months via video conferencing, with students able to take part by using the First Class system. Students can see the instructor on a large screen at an image transmission speed of 384 kbits/second.

In the autumn, 10 different introductory courses will be available on CD-ROM, another means of making students independent of conventional classroom curriculums.

Courses will also be available on the Internet this spring, provided by a project called the Ericsson Learning Agency, which also includes gathering all information about Ericsson's internal training programs in a collective Internet catalogue.

Recruitment fair at Microwave

Ericsson Microwave recently tested a different recruitment method to attract experienced technicians. New Opportunities, a recruitment fair, enabled technicians seeking new employment to speak with manage-

gothenburg ment personnel from various Ericsson units, establish personal contacts and discuss future job opportunities.

"I'm thoroughly convinced this won't be the last time we organize one of these meetings," says MajBritt Arfert, personnel manager of Microwave Communications. "The major advantage, compared with alternative methods like classified ads, is speed; the concept of a recruitment fair eliminates a lot of wasted time and allows prospective employers and employees to meet and get to know each other."

"New Opportunities" was

based on Ericsson Microwave's need for more qualified technicians, particularly after the recent order booking in Brazil for Erieye airborne radar surveillance systems. In the first phase, interested candidates were asked to reply to classified ads in daily newspapers and various trade publications. About 40 persons were then invited to a meeting in Gothenburg in mid-March. During the actual recruitment fair, prospective employees looked at various Ericsson exhibitions and listened to brief presentations on the business activities of Ericsson Microwave.

"It was a wonderful opportunity to show prospective employees the very wide range of Ericsson Microwave's operations," MajBritt Arfert continues.

About 20 of the people who attended the fair were considered interesting enough to call to further interviews at Ericsson Microwave's offices.

"The results were very good," concludes a satisfied MajBritt Arfert.

Sponsorship in Borlänge provides effects in Asia

The best badminton players in the world gathered in Borlänge early in March to play in the Swedish

Sweden Open. Ericsson has been a major sponsor of Sweden's Badminton Association and the Swedish Open since 1994.

In addition to 1,000 spectators who attended the matches every day in Borlänge, millions of others followed the tournament on television, particularly in Asia where badminton is the biggest sport in many countries. Star-TV, an Asian cable TV company with approximately 60 million viewers, telecast 16 hours from Borlänge during the competition.

The Ericsson name, accordingly, was displayed prominently in Borlänge and throughout all of Asia during the Swedish



Open. A large 8 x 16-meter banner around the courts shouted out the Ericsson name and, for the first time, the officials' chairs were designed as tele-

net transmissions that showed the matches at a rate of 100 pictures per minute, the entire competition provided excellent exposure for Ericsson around the world.

Top programmers



Winners of the Java Contest at SunExpo 97 were (l-r) Joakim Dahlstedt, Fredrik Sandberg and Mattias Joëlson, all computer technology students at the Royal Institute of Technology in Stockholm.

Three computer engineering students from the Royal Institute of Technology in Stockholm were named **stockholm** unofficial Swedish champions of a Java programming competition at SunExpo 97. The competition was held on March 19-20, site of the final round of a nationwide programming contest.

Teams from colleges and universities in all parts of Sweden

took part in the contest, which involved building Java components submitted to the jury via the Internet. Three teams were selected to participate in the final round. They were each assigned parameters for the development of a program based on contributions they had submitted to the jury.

Time was a premium, and the winning team worked for 26 hours without a rest to meet their deadline. Their prize is a study trip to the U.S., where they will visit JavaOne and the research facilities of Ericsson

and Sun Microsystems, an American computer company.

The Java competition was held in parallel with Software Reuse Café in Ronneby, a conference that featured seminars and exhibitions of Java and systems development with components. Software Reuse Café was organized by Ericsson Software Technology, Sun Microsystems and the College of Karlskrona/Ronneby.

Java Contest was sponsored by Europlan, Soft Center and TelecomCity.

SUSANNA ENGSTRÖM



Workshop 2000 - world class production

On Tuesday, March 20, all 720 employees of Ericsson's production plant in Nynäshamn gathered together at a rally to mark the beginning of the plant's vision to become a world-class production unit by the year 2000. The plant's goal for 1997 is to increase its materials turnover rate from 2.2 to 10 times per year.

The hockey arena in Nynäshamn was decorated in festive colors and arrangements for the large gathering.

Camilla Eriksson of factory supplies and Robert Ekström of process support were the Masters of Ceremony. At exactly 2:30 pm, as scheduled, the afternoon's festivities began to the tunes of some heavy music.

In preparing for the day's agenda, Camilla and Robert had filmed interviews with Kurt Hellström and Björn Boström, executive Vice President and Vice President, Production, respectively, of the Mobile Systems business area. The interviews were played at the rally, clear-

ly defining the tough objectives established for the Nynäshamn plant, highlighted by increasing material turnover from a multiple of 2.2 to 10.

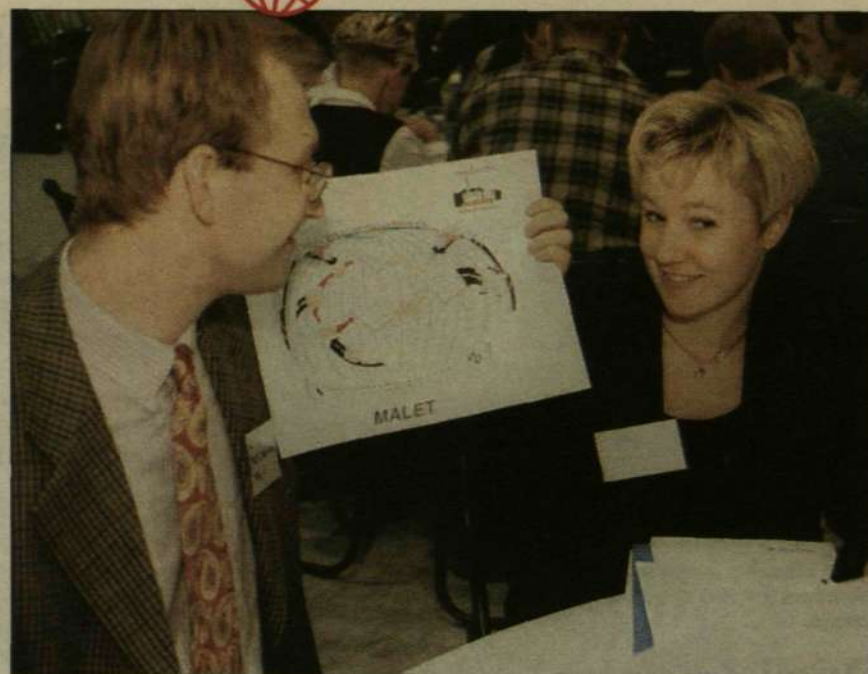
"We're off to a good start, already having reached 4.5. In 1998, we want to double this year's target level, shooting for a multiple of 20.

New in the family

Håkan Sundqvist, Factory Manager, presented some historical information in his address to the employees. The Nynäshamn factory was incorporated in the Ericsson family as recently as 1994, when Ericsson acquired the plant from Telia, which had used it to produce AXE exchanges.

On July 1, 1995, the Mobile Systems business area assumed responsibility for the plant, and comprehensive efforts were started to adapt operations to a model factory concept that all production units in the business area are aspiring to emulate. The new operating system was started on September 29, 1996.

Production is now concentrated on antenna-related products for mobile tele-



Erik Hartikainen and Jenny Wredenberg try to explain the day's objective to other guests at their table.

Photo: BERT BJÖRKLING

phony. CDUs (Combining Distribution Units) are the plant's major product, used to enable several transmitters in a radio base station to share one antenna. The CDU is part of the GSM system's 2,000 range of radio base stations.

"Now it's time to make the next leap forward," says Håkan Sundqvist.

"The reason we invited you all here today is to establish a common view of the future, enabling us all to work together in making our vision a reality. The project is called Workshop 2000 - Nynäshamn, the Obvious Choice," Mr. Sundqvist continues.

Solveig Hasselqvist-Ax, personnel manager, later described results of the Compass survey conducted about a year ago. Some unequivocal statements spoke for themselves. Communications, for example, must be improved. Goals and objectives must be defined more clearly. For 1997, accordingly, a decision was made to inform all employees simultaneously of current objectives.

After the information session, the employees were treated to dinner and entertainment, another important element in efforts to achieve the right vision.

BARBRO ALBREKTSSON



Complete solutions in the U.S

Telia of Sweden plans to establish a company in the U.S. to secure the accessibility of its Atlantic network, with particular emphasis on Internet traffic.

The company is not interested in building up a large organization for its American company, preferring instead to work with Ericsson in the U.S. to establish complete solutions. Plans for complete solutions in the U.S. go far beyond what the Swedish company is accustomed to working with in Sweden.

"Ericsson will not only install an AXE transit exchange and exchanges for the Internet, so-called routes, and SDH equipment. We have also been contracted to arrange office space/premises. The bureaucracy involved in establishing business operations on Manhattan is fairly complicated," says Tonny Jönsö, the man in charge of Ericsson's customer relations with Telia International.

Photo: TIOFOTO



Gunnar Forsgren of Ericsson Telecom is seen testing the new AXE exchange.

AXE in Russia

The first non-government controlled AXE exchange in Russia for international traffic was officially inaugurated in a ceremony marked by pomp and circumstance in February.

Baltic Communications Ltd. (BCL), an international telecom operator, is the owner of a operator's license in Russia. Cable & Wireless and Russian interests own BCL. Plans are also being made for deliveries of local exchanges. With its new AXE exchange, BCL is now able to offer customers sophisticated telephone services and international traffic.

Ericsson Airlines

Ericsson air freight traffic is a small industry unto itself. Every day, 400 fully loaded jumbo jets from Ericsson Radio and 150 jumbo jets from Ericsson Telecom take to the air with 630,000 consignments of export equipment weighing 60 million kilos, bound for destinations in virtually all parts of the world.

Miscalculation...

100 million. That was the figure Ericsson projected in 1993, when asked how many mobile telephones would be in use by the year 2000. Today, there are about 150 million mobile telephones in operation in all parts of the world.

Largest AXE contract in Africa

Ericsson and the Ethiopia Telecommunications Corporation have signed an agreement covering the 371,000 AXE lines in Ethiopia, the largest AXE contract in Africa. The contract includes an international exchange and 23 local exchanges. ISDN will be introduced in three large exchanges around the capital of Addis Abeba.



Hewlett-Packard News

Ericsson Hewlett-Packard Telecommunications AB has launched its TMOS IntraWeb Gateway, a new product introduced at the CeBIT Fair in Hannover in March. TMOS IntraWeb Gateway employs web techniques to gain access to user-specific information and reports directly from a TMOS operation support system. During CeBIT, the company also demonstrated another new product called Fault Management eXpert, which supplements the Fault Manager included as a separate module in TMOS eXchange Manager (XM), the company's flagship product. FMX was designed for compatibility with multi-vendors and open networks.

For more information about Ericsson Hewlett-Packard and its products, visit the homepage on the Internet at: <http://www.ehpt.com> or ECN's home page at: <http://ehs.aom.ericsson.se/>. The press release on TMOS IntraWeb Gateway and Fault Management eXpert (FMX) is under Press (<http://www.ehpt.com>).

Telephone Fantasy

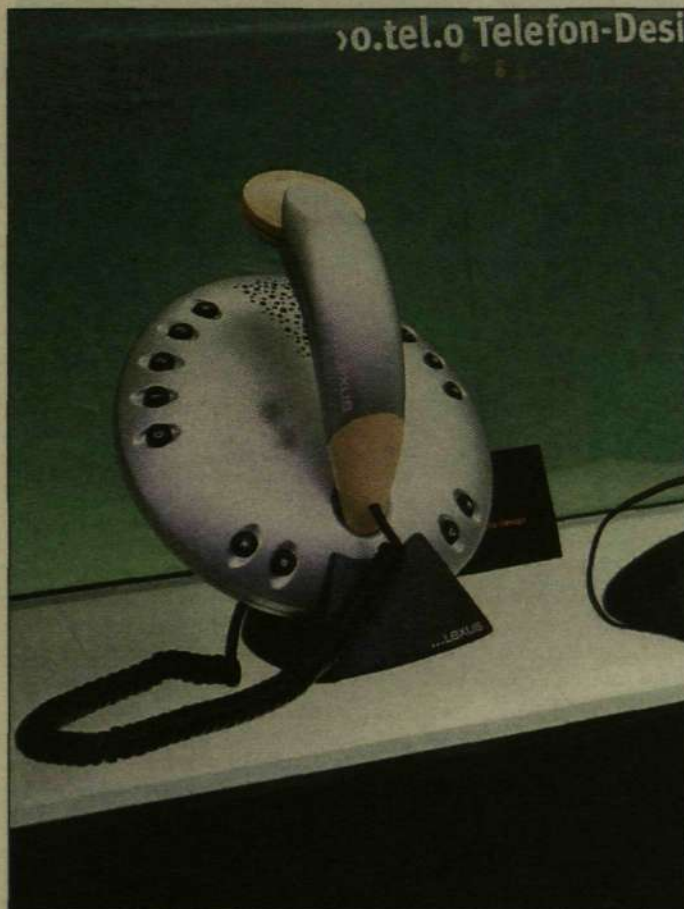


Is there a standard design for telephones? Not by the look of things. As long as it works, the field is open to all types of suggestions and designs. Some very

hannover creative examples were seen at this year's CeBIT in Hannover. Otelo, a German operator, displayed a variety of telephone models entered in a recent telephone design competition.

RWE and Veba, two major German power companies, are the primary owners of Otelo, whose business concept includes a full frontal competitive battle with Deutsche Telecom to offer telecom services to end customers.

THORD ANDERSSON



Highly creative designs were shown at a special contest focused on telephone design fantasy. Photo: THORD ANDERSSON



Large-scale campaign for small telephone

Two large banners, or streamers, have adorned Ericsson's office building near the E4 Highway at Hägersten, south of Stockholm, for the past several weeks. Clearly visible to north and southbound traffic, the huge ads are part of a campaign to launch Ericsson's new 788 mobile telephone in Sweden.

The new advertising medium, whereby ads are hung on the sides of buildings, has become increasingly common. Åhléns and NK, the two

largest department store in Stockholm, have also been converted into modern-day billboards.

240 m²

The largest ad displayed during March measured 240 m². It also caught the attention of more people than presumptive mobile telephone buyers. The City of Stockholm's building authorities, for example, are now considering the introduction of building permits for facade advertising, particularly for ads with dimensions that match the size of large buildings.

New name for Ericsson Infocom AB

The management staff of Ericsson Infocom AB Sweden has decided to change the company's name.

"The reason we're changing, of course, is that one of Ericsson's business areas is now called Infocom," explains Lars Boman.

The old name had already caused some confusion, particularly in view of the fact that Ericsson Infocom AB is part of the Mobile Systems Business Area. A campaign to rename the company has been started. The only requirements are that it should start with "Ericsson" and end with "AB." In the middle, the company wants a suitable name or title with the same futuristic tone as Infocom.

"Perhaps the 2005 Project will provide us with a few suggestions," Lars Boman continues.

When Ericsson Programatic AB became a wholly owned subsidiary of Ericsson in 1993, a new name was needed to show the company's new affiliation.

Popular concept

"Since we worked with telecom and data communications, the Information Communications concept emerged naturally and became popular," explains Mats Skoting, marketing manager.

Furthermore, since the company was a consulting firm, the name became Ericsson Infocom Consultants AB, abbreviated to Ericsson Infocom AB in 1995 when it was converted into a product and development company.

"We were one of the first units to recognize the connections between telecom and data communications, and now we see how Ericsson is concentrating heavily on launching the Infocom concept in all parts of the world," continues Mats Skoting.

Ericsson Infocom was not the first company to coin the term Infocom, however. The first company to register Infocom as a company name and trademark with the Swedish Patent Registry Office was a small company in Stockholm.

"We got approval for the name Ericsson Infocom Consultants AB," says Mats Skoting. "However, we were never allowed to use the Infocom name by itself, despite several attempts to reach an agreement with the original company."



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JAS – the ultimate aircraft

"It's impressive to see that Sweden can produce a system like this one," Ken Lindberg says. "The JAS is easy to fly and 'precise.'"

Ken is one of the small, exclusive band of eight pilots in the Swedish Air Force who have flown the Gripen aircraft to date. Seven of them are still flying. His conclusion: "The JAS is a very 'pilot-friendly' aircraft."

Ken Lindberg was raised in Abisko, in the far northern part of Sweden. He has flown since he was 19 and he is now 32 and a major in the Air Force.

In his job, Ken is regularly exposed to nine times the normal force of gravity. Modern aviation and space technologies cause gravitational forces ranging from close to zero G in space flights to 9 G in high-performance modern aircraft. The working conditions for human beings are severe.

"Six G was the maximum in the Viggen (the aircraft that preceded the JAS Gripen), so there is naturally greater physical stress in flying the Gripen, with up to 9 G," Ken says.

He has been flying the Viggen since 1987, and the Gripen since 1990.

Ken is currently stationed at the JAS technical testing facility in Linköping, where his duties include testing the Gripen from the point of view of a "user."

Able to tolerate stress

"It didn't take long to learn to like the new display system in the cockpit," he says. "The first time I laid eyes on displays instead of conventional instruments, I thought: this is the way it should be – dynamic, flexible and easy to operate."

"A pilot naturally wants to control the things he is working with, but the system should take care of the functions that can be performed automatically."

Ken flies the Gripen as many as 150 hours a year. He and the other Gripen pilots will gradually train other pilots to operate the aircraft.

The characteristics expected

of a Gripen pilot are no different than those required of other combat pilots. He has to be calm and able to tolerate stress, must trust his aircraft, be able to sort out problems in the order of their importance, and be able to act rationally in difficult situations.

"Cover boy"

Ken Lindberg is the Air Force's leading "cover boy" and demonstration pilot.

"Damned fine show, demonstrating this aircraft; it performs beautifully," he says with a pleased smile.

On the negative side, he notes the many trips he has to make. His children miss their father. Young Filip will soon be a year old. Daughter Isabella will be four on her next birthday. She already knows that her father flies the Gripen.

"The most exciting thing about the Gripen project is that it is a work in progress. The aircraft is being developed continuously. The industry people listen to our views and opinions. It's simply a pity that the development work is being carried out during a time of crisis and cutbacks in funding," Ken says.

In his view, Sweden cannot afford to be without the Gripen.

"There are many beneficial side effects," he notes. "Other products have been developed as a result of work on the Gripen and there is already a major customer for the aircraft. I think that it will be sold outside Sweden as well, and that it will mean a great deal to the Swedish export industry. The accidents were of course a heavy blow, but we have to keep in mind that such things happen when aircraft are being developed. They happened with the Viggen and they are happening with foreign aircraft. That's the way things are when you are in the front line of development."

Man and machine

No matter how advanced an aircraft is, or how skilled the pilot, if they can't "work together," they won't get their jobs done.

Adapting man to technology, as was done earlier, is no longer



Ken Lindberg has been flying since he was 19. Today he is 32 and a major in the Swedish Air Force.

Photo: PETER LIANDER



"This is the way it should be," Ken Lindberg thought when he saw the displays in the JAS cockpit for the first time.

either desirable or possible. Accordingly, Man-Machine-Integration (MMI) has been the guiding principle in the design of the Gripen's overall and sub-systems.

G forces, variations in air pressure, noise, stress, threats and mortal danger affect a pilot's senses. The environment in the aircraft, as well as the pilot's tools and aids, have to be designed taking physical and psychological conditions into account.

A pilot has to be able to acquire information without difficulty and grasp and use it so that the mission can be accomplished in the most effective way. When man and machine work together – with the machine handling the jobs that it can perform on its own and providing the pilot with pertinent information – the pilot can concentrate on the tasks that the

machine cannot handle: situational analysis and tactical concepts, for example. MMI has then been achieved.

Tactical analysis

"The Gripen program, and the philosophy underlying it, are based on technical and tactical analysis," says Gunnar "PG" Persson. "Various technical solutions and tactical projections are analyzed and evaluated for given tasks in the scenarios."

PG Persson is a legendary figure in the Swedish Air Force. Since the 1980s he has flown virtually all types of aircraft, ranging from the "Flying Barrel" and Hawker Hunter to the Draken and Viggen. He has also held staff and training positions in the northernmost parts of Sweden and the southernmost.

He has been with Ericsson in Mölndal since 1995, as a marketer of the company's systems

used in the Gripen, and a tactical advisor and coordinator in relations with manufacturers, the Swedish Air Force and the Defense Materiel Administration.

Pure desk work

"Part of the job is pure desk work; another part consists of interviews with users and others who are involved. Simulations are an important part, and flights are always essential," he says.

"The Gripen's strength lies in its brain. It is built for a 'knowledge war' and it is smarter and 'craftier' than other combat aircraft. Tactics and the aircraft have been developed hand-in-hand. The Gripen will not be completely developed before it is taken out of service. That's what so exciting about this project."

AGNETA LINDBLOM HULTHÉN



Ericsson's advanced technology

The mythical griffin ("Gripen" in Swedish) symbolizes speed, watchfulness, strength, defense and vengeance. The name is appropriate for an aircraft that combines intercept, attack and reconnaissance functions.

To handle three sophisticated tasks successfully, the pilot must have precise, pertinent and easy-to-grasp information about his surroundings during every moment of his mission.

The target-input system, which contains radar, a system computer and an electronic display system fills this function.

The radar consists of an antenna in the nose of the aircraft, a number of units containing microwave technology, and an advanced system for signal processing. The antenna is movable and can be aimed in any direction.

Information captured by the radar is stored in the system computer, where it is

coordinated with other information such as orders from command headquarters. When the pilot, by pressing a button, elects to intercept, attack or track, the system computer receives the command. It senses what the pilot wants to do.

The microwaves are transmitted via the direction finder to the high-frequency unit which relays them to the signal-data processor, which in turn sorts out the information and delivers it to the system computer where it is turned over to the electronic display system.

Ericsson Microwave Systems has been developing radar and display systems for military aircraft for nearly half a century. The systems have become increasingly sophisticated.

Lars Lundborg and Magnus Carlsson, who are radar designers, have been working for 13 and 10 years, respectively on the interior components of the Gripen that are supplied by Ericsson in Mölndal. Lars Lundborg, who has been involved from the start, began as a soft-

ware designer for the PS 05, which the Swedish Air Force's designation for the Gripen's radar.

He has been responsible for software programs in number of areas and has been assistant project manager for system testing target inputs among other responsibilities. The system testing and system design functions were merged in 1995 and Lars is currently the unit manager.

Magnus Carlsson has been a software designer since 1988. He has worked on signal processing and verification operations related to signal processing, and has been in charge of activities in this area for the past two and a half years.

"The work on the more intelligent parts of the Gripen is a never-ending process," Lars and Magnus point out. "The entire signal processing architecture is being changed and a new generation of radar is on the way already this spring."

AGNETA LINDBLOM HULTHÉN

Since 1979...

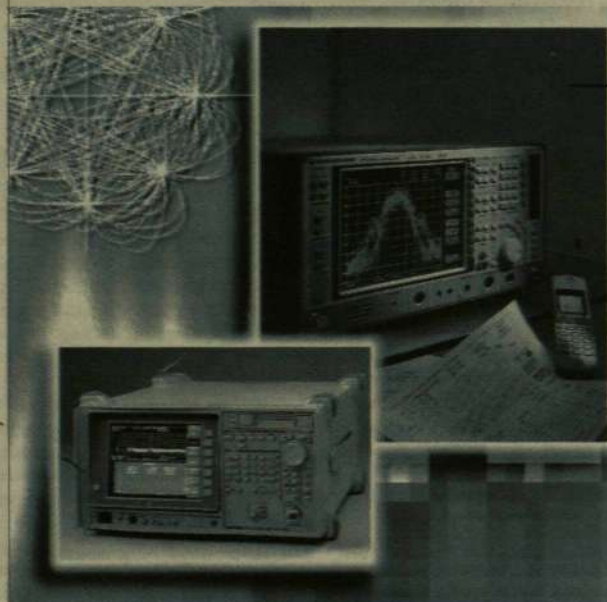
Ericsson has been involved in the JAS 39 Gripen project since 1979, when the Swedish Government submitted a planning assignment in preparation for the Parliament's decision in 1982 to invest in a new military aircraft.

The contract for the project was signed by the Defense Materiel Administration and the JAS Industrial Group which consists of Saab Scania, Saab Military Aircraft, Volvo Aero, Ericsson and FFV Aerotech AB.

Five hundred persons at Ericsson Microwave Systems in Mölndal are engaged in the development of radar for the Swedish Air Force. Including Ericsson Saab Avionics, which is 50% owned, and which develops presentation and display systems, the number of Ericsson-related persons involved in these operations is approximately 2,000. Counting all companies and subcontractors, the figure is 20,000.

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vacancies

AT ERICSSON

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

For further information about advertising here, send a memo to LME.LMEJOB.

Contact no. 5 1997

Updated April 1

international

Ericsson Telecommunications Pte Ltd, Singapore

PRODUCT MANAGER - GSM SYSTEM

Located in Ericsson Singapore, our product management and mobile network design department of the Cellular Systems Division is looking for an experienced Product Manager for the GSM system.

● As a suitable candidate you will focus on the Base Station System (BSS) product management. You will be on expatriate contract for one year and be responsible for the transfer of knowledge and expertise on product management to the local staff within the contract period.

You will be responsible for all local product management and mobile network design activities. These activities include presentation on new product/release, handling of technical questions and requirements, providing tender support, creating radio network solutions, planning and dimensioning, handling of type approval, etc.

As a suitable candidate you should have strong technical competence in GSM, especially in the area of BSS. You should have a university degree in Electrical/Electronic Engineering, Telecommunications or related discipline. At least 5 years' technical experience in cellular network system is required.

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● Career opportunities exist at all levels but key areas of importance lie in the development of our GSM system, primarily in Mobile Intelligent Networks and Base Station Controller and in the continued development of our TACS system. Knowledge of GSM, Intelligent Networks, ISUP, C-7 signalling or OOA? would be distinct advantage. You will need at least two years' experience of software development in a real time environment. A competitive salary and benefits package, together with the chance to work as a member of Ericsson's global product development team, means that these are important opportunities for people skilled in these fields. Ericsson Guildford is very accessible, being on the main Waterloo to Portsmouth line and linked to the M25 by the A3. Guildford itself, the historic county town of Surrey, provides an excellent mix of old and new attractions.

If you believe you possess the calibre of skills we seek, please send a full CV quoting ref: MOS, with salary details, to Ms Jo Howat,

Human Resources Officer, Ericsson Limited, Cellular Systems and Terminals Division, Middleton Gate, Guildford Business Park, Guildford, Surrey GU2 5SG.

Contact: Jo Howat, phone +44 1483 305163.

Ericsson (China) Company Ltd. Region Central & East, Shanghai

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Region Central & East operates in 6 of the fastest developing provinces in China; Shandong, Jiangsu, Anhui, Hubei, Zhejiang and Shanghai. The region has 150 staff responsible for marketing, sales, project management, logistics and technical support. The region has the responsibility for the complete Ericsson product portfolio with the largest business volume in mobile telephone systems, followed by switching and transport products from the BN business area. The regional head-office is located in the centre of Shanghai. Work and living conditions for expatriates and accompanying families are of international standards.

● The main responsibility of the offered position is to maintain and develop an organisation of 25 people divided into a resource pool of customer project managers and a logistics unit responsible for HW supply, shipments and invoicing. The department is involved in the business process from the tendering phase to final acceptance of the delivered systems. We perform our business in projects where the allocated project managers have financial, technical and quality responsibilities when executing the contracts.

As a department manager, your mission is to enable the projects in reaching the goals committed to customers as well as internal business goals. Implementation services for the projects are purchased from other Ericsson units or external suppliers.

An important part of the job is therefore to secure the supply of high quality resources to the projects.

Required background is a minimum 5 years experience from project management of network implementation projects or similar, with a good knowledge of Ericsson's supply organisation and work-methods.

You should have a broad technical knowledge of Ericsson's system products and be an efficient business negotiator. As a department manager, demonstrated leadership skills are required and your personal characteristics are: result orientation, flexibility, a good communicator and ability to motivate staff in new and demanding situations.

Contact: Peter Holmertz Mgr. Project Management & Logistics (ETCETCPETZ), Nael Salah Regional Manager Region Central & East (ETC.ETCNAEL) Tel: +86 21 6375 3399 Fax: +86 21 6350 9140. Application: ERA/LD/H Hans Falk (ERA.ERAHFA) Tel: +46 8 757 1402, Fax: +46 8 404 5311

Ericsson Radio Systems AB

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1 FSC MANAGER,

EXPATRIATE, 2 YEARS

● Job Profile: Responsible for the organisation of FSC department with advice and assistance from ESO and give qualified support to the customers operation of the GSM network. The candidate in question will also play an active role in transfer of competence to the local engineers.

Requirements: Very good knowledge of the GSM system. 3-4 years of experience of working at an FSC or ESO, preferably in a management position. Personnel skills as co-operation, team building, initiative are extremely important.

1 BSS EXPERT,

EXPATRIATE, 1 YEAR

● Job Profile: Receive celldesign data (CDD) from MobIFon and in cooperation with FSC Manager create data transcript from new BTS. Assist testers in trouble-shooting.

Requirements: 2-3 years of experience in trouble shooting at an FSC will be an asset. You are a team worker.

For all positions, English both written and spoken is essential. Knowledge of Romanian is appreciated.

Contact: Walid Alsheikh + 40 1 3303100 or Håkan Sabel + 46 8 4047688 (Field Support Centre). Application: Ericsson Radio Systems AB, LP/H Liljana Sundberg, 164 80 STOCKHOLM.

Ericsson Brazil, Sao Paulo

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Take the opportunity to apply for the open positions in the following areas:

EDB/RM - TECHNICAL SALES SUPPORT & PRODUCT MANAGEMENT

PRODUCT MANAGERS FOR OSS (CMOS) AND WIN

● As Product Manager you are expected to perform activities related to the products i.e. execute actions required to make the product available to the rest of the organization, prepare product market plans, hold presentations both internally and for customers, handle market requirements, answer SOCs and develop strategic partnership with our customers.

You should have a B.Sc. or M.Sc. in Electrical Engineering with a major in Telecommunications and have at least 3 years experience in a similar position. You must be willing to work in a team, be creative and be able to take initiative and risks. You must withstand pressure and have the ability to work under demanding conditions.

EDB/ROM - CUSTOMER SUPPORT

SYSTEM SUPPORT ENGINEER

● As a system support engineer you will provide emergency support (on call), operational

support, trouble shooting and software implementation.

You should be Electrical or Telecommunication engineer with 5 years experience in AXE. Strong knowledge in CMS88, PLEX, ASA, RBS, IOG11. You should be able to transfer knowledge to local organization (FSC), deal with customers, work and solve complex software problems. It's important that you are proactive and take initiative without supervision.

SYSTEM ENGINEER (MSC) FOR NETWORK OPERATION & MAINTENANCE

● As a systems support engineer you operate and maintain MSC's, keep track and execute schedule routines. Other tasks are customer care support, network surveillance, dispatch and co-ordination.

You should have a technical education in telecommunication, information technology, electronics or equivalent, 2 to 3 years experience with IT or telecommunication, documented experience in radio communication, experience within maintenance of telecommunication or computer system, good knowledge of general telecommunication and mobile telephone systems especially within installation and NO&M. Experience within Network Operation & Maintenance may replace the formal education requirement.

SYSTEM ENGINEER (RBS) FOR NETWORK OPERATION & MAINTENANCE

● You will work with Operation and Maintenance (preventive and corrective) of RBS, keep track and execute scheduled routines.

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SYSTEM SUPPORT ENGINEER FOR CUSTOMER SUPPORT & IMPLEMENTATION (CMOS/OSS/SMAS)

● As a system support engineer you will develop procedures in field support, investigate and solve complex problems both hardware and software. Provide expert technical support to Ericsson's customers and transfer knowledge within the OSS Field Support Center.

You should have a degree in Electrical Engineering/ Telecommunication or equivalent.

A minimum of 5 years working in telecommunications/computer industry. Minimum 3 years experience working with Ericsson. Customer Support for CMOS/ TMOSS/SMAS. Good knowledge of CMS88, data communication protocols and some knowledge in cell planning statistics.

EDB/ROP - RF ENGINEERING & RF OPTIMIZING

RF ENGINEERS RADIO NETWORK PLANNING

● You will work with radio network planning of Ericsson's CMS88 system, both 800 and 1900 MHz bands. This will include traffic and coverage dimensioning, frequency planning, coverage and interference predicting with Ericsson Engineering Tools. The radio network planning will be addressing new systems and expansions in existing, as well as digital migration planning.

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You will work with radio network optimization of Ericsson's CMS88 system, both 800 and 1900 MHz bands. This will include analysis of the system's performance through switch statistical data, analysis of the cell plan, drive testing, data post-processing and analysis, search of non-optimized parts, suggestions of improvements and implementation.

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You are therefore specialized in one of the fields mentioned, but see the opportunity to broaden your knowledge and experience.

For both of the positions mentioned above we require at least 3 years experience, in either

Cellplanning or Tuning/Optimizing of Cellular systems (preferably D-AMPS/AMPS). You have a B.Sc. or M.Sc. in Electrical Engineering, Telecommunications or equivalent. A broad international experience is an asset.

EDB/RI - IMPLEMENTATION SYSTEM

SWITCH TEST ENGINEERS

● A switch test engineer provides high-quality testing of AXE switch equipment to include integrating mobile cell sites to the switch background performing data transcription implementation. You should have two years experi-

ence of testing AXE hardware/software, ability to travel extensively and have knowledge of D-AMPS/IS 136 technology.

SWITCH/RBS INSTALLATION ENGINEER

● As a switch/RBS installation engineer you make plans, implement and supervise the installation of the switch (AXE) and RBS equipment in customer facilities. You must be able to work with quality standards and provide quality control check and progress reports. You must be able to read and understand Ericsson AXE documentation.

You should have two years of experience in telecommunication and installation of the AXE and have the ability to travel extensively. A valid Driver's license required.

RBS TEST ENGINEER

● You shall be able to test and commission radio base stations.

This includes performing system/acceptance testing of digital interfaces, microwave and auxiliary Systems.

You shall also be able to use TEMS for coverage and hand off verification.

You should have one year of experience in RBS 884 testing, ability to travel, valid driver's

license and knowledge of D-AMPS/IS 136 Technology.

TRANSMISSION ENGINEER

● As a transmission engineer you plan, implement and supervise the installation and test of all types of transmission equipment, e.g. Minilink, HDSL, cross-connection SDH and etc. You shall also be able to test the Access Network.

You should have 3 years experience in transmission equipment and an ability to travel.

DT ENGINEER

● Provide engineering with support of the switch integration and create I-Modules.

"Be part of the access revolution."

Ericsson Telecom AB are looking for You.

Internet and New Media services puts the access network in focus when entering the next century. New technologies, new customers and de-regulations will create a vast amount of opportunities in this area. Multi-Service Access solutions are the key which allows our customers to be competitive both today and tomorrow. The ANx systems designed for an environment characterized by speed, flexibility and innovations. The first products will be put on the market this year.

Competence, enthusiasm and creativity enables us to take advantage of state-of-the-art technologies developed in-house and by partners. Together with you, we will be the first to discover what is beyond Internet Access.

ANx is a product company within Multi-Service Access in Business Unit Public Networks.

Product Development

ANx Product Development is developing access products to meet this demand. The products use different types of access technologies, for example HFC networks, FTTx and copper/DSL. We are using modern technology in our system platform and modern development tools and languages. The services that our products support are for example telephony, fast Internet and different types of video and TV services.

Our products are now entering their second generation and this, combined with the market demands, requires that we strengthen our competence in a number of areas, such as;

- Systems management
- IP and Datacom
- Erlang design
- Embedded design
- RF design
- HW design
- Micro Processor programming
- System verification
- Product handling

Does this sound interesting to You? Do You have knowledge, interest or experience in any of these areas? Give us a call!

Anders Samuelsson, ETX.ETXASAM, +46 8 719 77 52, Manager ANx Product Development

Jörgen Moberg, ETX.ETXJMO, +46 8 719 76 98, Systems Management, IP/Datacom, Product handling

Bengt Holmström, ETX.ETXBLH, +46 8 719 10 19, Erlang design

Johan Blom, ETX.ETXJBL, +46 8 719 40 56, RF design, Embedded design

Michael Andersson, ETX.ETXMIAD, +46 8 719 52 40, System Verification

Mattias Gustafsson, ETX.ETXMATG, +46 8 719 05 52, Access lab

Marketing & Sales Support

The broadband access market is in an intense and competitive build-up phase. We work not only with our traditional customers, but also with CATV and new operators as well as Internet Service Providers.

You have experience from market support, access networks, ATM or datacom. You enjoy making business happen, frequent customer contacts and partly very intense team work.

Our team need more people. Is this something for You?

Contact Patrik Claesson, ETX.ETXPCLA, +46 8 719 94 80, Manager Marketing & Sales Support

Product Management

The broadband access business is in an intense entrepreneurial phase. Our success relies on team spirit, initiative within your area of responsibility, and an open approach to new market challenges. We have frequent contacts with leading customers and partners. We need more Product Managers.

You probably have experience from product management, access networks, ATM or datacom. You also have a good grasp of commercial and strategic matters in combination with Your technical background.

For more information please call Henrik Scharp, Manager, ETX.ETXSCHA, +46 8 719 90 32 or Peter Linder, Manager, ETX.ETXPRLR +46 8 719 29 74.

Operations

ANx Operations is involved in both Marketing Supply Flow (MSF) and Customer Supply Flow (CSF) within the ANx product company. Our main activities are Network Integration, FOA Implementation and of course Customer Support. We need to strengthen our organisation with

Market Project Leader

As Market Project Leader You will be responsible for planning and co-ordination of all activities at the office here in KK as well as installation and running of the system at the customer premises with close co-operation of the MLC and the customer.

Your main responsibility is to plan, control and follow-up all the activities needed to secure a timely successful customer project. You will also be responsible for the building of support team at our MLC/LCs.

Field Implementation Engineer

You will work as Supervisor for installation and acceptance-test of ANx products at our MLCs and customer sites over the whole world!


To build competence for the independent responsibility as a Supervisor we will offer You to build Your competence during the Net Integration phase at our Lab here in KK.

Interested? Please contact Massoud Saleknejad, Manager, ETX.ETXSAMA, +46 8 719 42 30.

Applications may be submitted by memo or mail to Catarina Larson Åstrand, Human Resources, ETX.ETXLCAT, etx.etxlc@memo.ericsson.se, +46 8 719 08 36.

Ericsson Telecom AB
126 25 Stockholm

Ericsson's 90,000 employees are active in more than 130 countries. Their combined expertise in fixed and mobile networks, mobile phones and infocom systems makes Ericsson the world-leading supplier in telecommunications. You can get more information about us on our homepage www.ericsson.se/SE/

ERICSSON 

You should have 3 years experience in DT environment for D-AMPS/AMPS system. Knowledge of DT tool such as PC-Comreg, C3fast, Compose and DTSS. A valid drivers license required.

RBS SITE ENGINEER

● As RBS site engineer you shall be able to perform site investigation, quantify and allocate the indoor and outdoor equipment, interconnection and produce RBS installation manual (C-Module).

You should have 3 years experience in D-AMPS/AMPS RBS and/or transmission equipment such as SDH, HDSL, DXC, Mini-Link, etc. Knowledge of Word, Excel and ability to travel. Drivers license mandatory.

SWITCH ENGINEERS (MSC)

● As a switch engineer you do the planning and implementation of switch installation projects, mechanical installation of switching, transmission, power, necessary cable ways, cable manufacturing and produce MSC installation manual (C-Module).

You should have 3 years experience in MSC site engineering concerning D-AMPS/AMPS systems. Knowledge of Word, Excel and Please. Driver's license required.

Contact: Brazil: +55 11 681-2000, Operations: Eduardo Baptista, - Engineering: Gerson Freitas, - Customer Support: Alexandre Setterval, Implementation System: Luis Bernardo, Technical Sales Support: Renato Fantoni, Human Resources EDB: Jacira Rita F. Gomes. Contact, Stockholm: +46 8 7570000, Human Resources ERA/A: Marianne Molin or Göte Hedblom. Application: Ericsson Radio Systems AB, KI/ERA/AHS Kerstin Malmgren, 164 80 STOCKHOLM or to the mailbox at EDB, Brazil: BRA.EDBEXPA

Ericsson Ltd, Guildford

PROGRAMME MANAGER

● The manager, ESO Project management is responsible for the overall forecast, planning and co-ordination of all ESO activities related to market adaptations of a new product being released. Representing the Support department, the manager formulates ESO project goals and plans the work in consultation with project managers, customers, and relevant line organisations, to deliver all customer requirements to meet specification, time scales, budget and quality objectives.

QUALIFICATIONS AND EXPERIENCE - Minimum HND or equivalent in Electrical Engineering, knowledge of the SW process flow, project process and organisation gained through work experience. Experience of working on at least one telecoms project as a designer, tester, quality engineer, assistant project manager or project administrator.

Contact: Michael Chance (etlmce) or Martin Sadle.

SUPPLY ENGINEER X 2

● The Supply Engineer works in a team of engineers working on application system planning, configuring, verification and implementation.

The Engineers develop testing procedures for new products through investigation and research of available material and discussion with designers. The testing procedures must be written towards agreed specifications and documented.

The Supply Engineers work together to improve product quality and reduce the number of faults. Work with the activity leader to identify the objectives and targets for the team. Write test specifications/instructions for new functions, with some level of guidance.

QUALIFICATIONS AND EXPERIENCE - Completed the equivalent of AXE Testing 1 and 11 training programs. Minimum 6 months experience as Trainee. Working knowledge of Ericsson procedures. Educated to degree or equivalent level in relevant subject.

Contact: Michael Chance (etlmce) or G Oscarsson / H Norling

SALES & MARKETING MANAGER

● Responsible for the achievement of orders, sales and profit targets and positioning Ericsson as supplier of choice by AT&T

Contact: Emma Hall (etleahl) or Nigel Thorne (etnlte)

AT&T VERIFICATION CO-ORD x 2

● To accept software in a 'Penalty Free' test environment. The postholder is responsible for co-ordinating all AT&T testing activities and providing technical assistance to the customer as required. Products include AXE Translocal, BIP & SMAS

Contact: Emma Hall (etleahl) or Nigel Thorne (etnlte)

PACKAGE LEADER

● Technically responsible for external GSM operators for planning, agreeing the technical contents of a supply package within the ESOBe responsible for the execution internally towards the Activity Leader and supply engineers, approx 5 - 10 engineers within the project. The Package leader is the "technical Project Manager" within the ESO projects.

The Package leader is responsible for the following documents / package: Assis during pre-feasibility study, test Plan, Test Object List, TCM Plan, Network Plan, Acceptance Plan, FAO Plan, PC Plan. Detailed time plan in conjunction with Project Leader. Keep within the cost/time frames given by the project.

The applicant needs to be flexible to change and work outside core hours to be open to problems and willing to improve the work environment.

Contact: Michael Chance (etlmce) or G Oscarsson

JOB TRANSCRIPT ENGINEER

● Build Handling is part of Test Configuration Management and is responsible for providing test beds for the development and evaluation of new products. The Data Transcript Engineer produces exchange specific data for projects and, occasionally, directly to the customer.

The Data Transcript Engineer is the overall data Transcript responsible, towards both internal and external customers. This includes the responsibility for the test plants configuration and maintenance from Data Transcript point of view and providing support when required to external customers at a working party level.

The Data Transcript Engineer is responsible for the creation and adaptation of loadable exchange dependent packages for AXE systems. He/she is aware of and provides technical advice on issues concerning data transcript activities.

The Engineer takes responsibility for managing his/her own piece of work through to effective completion, to meet specification, time-quality and cost objectives, and ensuring the work is completed successfully. He/she achieves this seeking advice from specialists in order to resolve technical issues and develop his/her own competence.

The Data Transcript Engineer contributes to the development of new and improvement of existing, processes. The Engineer will actively seek to improve the quality of in-service data for the test plants ensuring they meet current ETL standards incorporating all changes required.

QUALIFICATIONS & EXPERIENCE: 2-3 years experience in a related telecoms environment. Understanding of AXE system principles and characteristics. Knowledge of telecoms networks principles. Computer Literate. HND/C or equivalent.

Contact: Michael Chance (etlmce) or Steve Whitten

Ericsson Academy, Malaysia

PROJECT MANAGER

● In today's market Ericsson is approaching the customers with total network solutions which means that we need to be able to show the customers a working total solutions for the business needs as well as to be able to train them on the total network configuration. In order to meet this future requirements EAM is preparing the set up of 3 laboratories i.e. total access network solutions, fixed network services solutions and mobile networks business support solutions.

The responsibilities of the Project Manager includes: Planning, procurement and implementing the three labs with the relevant interworking using existing and new equipment. A proven track record in project management is essential.

Recruitment and training of local support personnel for the said labs.

The ideal candidate shall have a technical degree and considerable experience in Cellular systems, Access Networks and Fixed Networks. Specifically, we seek a creative and visionary person, self-starter and enthusiastic with a view for fulfilling customer needs.

Good internal contact within Ericsson in order to facilitate the implementation and procurement of equipment. Ability to impart on-the-job training would be an added advantage.

Contact: Puan Azizah Ismail, Tel:03-5592912, Memoid - PEM.PEMAZI.

Ericsson Cellular Phones EUS/CP, Raleigh, NC

STAFF ENGINEER: TEST

● This position will be responsible for applying the appropriate data collection and processing techniques to support R&D with factory feedback from the factory data systems. Providing appropriate and timely inputs for approving capabilities of the production process and providing technical assistance and guidance to other team members.

Candidates must have a BSEE (BSEE and BSCS or BSCE preferred) with 2 or more years test experience with emphasis in RF testing and FM communication systems, knowledge of SW design and proficient in either /both C++ or Pascal.

This position will be reporting to the Advanced Manufacturing group of Cellular Phones. Both jobs will be located in RTP, NC and will require that the first 3-6 months will be spent in Lynchburg, VA factory, after that the primary location is in RTP, with 80 - 90% of the time at RTP and the rest in Lynchburg, Va. These positions also require international travel to Sweden, Spain, Japan, and England.

STAFF ENGINEER: BASEBAND/ACOUSTICS

● This position will work with R&D to improve the acoustic performance, robustness and reduction of the need for acoustic testing in the product line. Will be responsible for bench marking both within the phone market and other high volume products. Candidates must have a BSEE with experience at least 2 years of acoustics experience. Prefer but don't require experience with RF testing, FM communication systems, DSP, and logic HW.

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Ericsson Cellular Phones EUS/CP, Lynchburg, VA

BASEBAND HARDWARE / LOGIC ELECTRICAL ENGINEER:

● This position will work with R&D to insure producibility of new products at concept or producibility phases, insuring the highest quality and productivity consistent with the Lynchburg Cellular Phone manufacturing processes. BSEE (MSEE preferred) with 5 or more years of radio design experience in areas of baseband hardware / logic / DSP based circuits (cellular phone and acoustics knowledge a plus). Involves domestic and some international travel.

TEST ENGINEER - CELLULAR PHONES MANUFACTURING

● Will be responsible for developing advanced hardware and software test systems for state of the art manual and automated cellular phone manufacturing assembly lines. Serve as a technical interface with design engineering, product management to provide for new product testability.

Requires 5 or more years test engineering experience with emphasis in RF testing and FM communications systems. Recent experience in automated manufacturing systems a plus. Good background in C and HP Basic programming.

RF VERIFICATION ENGINEER - CELLULAR PHONES MANUFACTURING

● Responsible for the verification of new product processes and changes to insure highest quality and producibility with the Cellular Phones manufacturing products. Be a technical liaison between design and manufacturing

functions identify, evaluate and approve short term and long term solutions for radio/process problems.

BSEE with 3 years RF design experience preferably with cellular and /or other portable phones. General radio knowledge in audio and software a plus. Experience with Spectrum/network analyzers, signal generators, Rf component fixtures, communication test sets, modulation analyzers, etc.

Contact: Natalie Martin, phone: 804-592-6618, Fax: 804-592-6543, email: Natalie_Martin@ena-east.ericsson.se, memoid: EU-SNKM. Application: Natalie Martin, Staffing Department.

Ericsson Australia, Melbourne, Australia

MOBILE NETWORK SUPPORT ENGINEER

● The position to be filled is that of Senior Support Engineer, Trouble Shooter for the Telstra GSM network. It is intended that the person filling this position will be skilled in all facets of GSM technology, with particular emphasis on MSC ability. The position is offered for a 12 month period.

The job requirements are as follows: Strong MSC ability, proven Trouble Shooting record, experienced in Trouble Report Handling. The applicant should also possess good communication skills, with a desire to work in a close-knit team environment.

Contact: Adrian Heley, Ericsson Australia FSC, Ph:+61 3 9301 2072, Memo: EPA.EPAANH. Application: Peter Moore, Ericsson Australia Human Resources, 202 Bell St. Preston, 3072, Australia, Ph:+61 3 9243 5205, Memo: EPA.EPAPGM.

Telefonaktiebolaget LM Ericsson Technical Office UAE, United Arab Emirates

RADIO NETWORK PLANNERS GSM

● The Technical Office in UAE, (TKU) is seeking an enthusiastic person to join the existing team of cellplanners for a local contract in the UAE. TKU is responsible for all marketing, sales, implementation and system support for GSM and TACS systems within the UAE and Qatar. The technology of the mobile telephone environment is rapidly developing. To enhance our growth and maintain our success in this market, technologically aware and commercially team players are sought to strengthen our local organisation.

The position: Working in a "close to the market" environment within the local Mobile division. Dimensioning the mobile telephone network with coverage and capacity. Making RF-measurements and parameter settings on prediction models. Optimise the radio network performance. Working with common market support and participate at customer meetings.

The qualifications: A confident and effective communicator with interpersonal skills capable of maintaining close customer liaison. Willingness to attend training and development courses and travel on business trips. Knowledge of several advanced computer systems in the UNIX and PC environment. A university or high school graduate or equivalent with a background within radio and telecommunications. Fluency in English is essential.

Contact: tel +971 2 724 222: Mr Jan Jansson, Radio Network Design Manager, memoid XCOM.TKUJAJA, Mr Jerry Carsson, Marketing Manager, memoid ERAC.ERAJERC or Mr Bo Nilsson, General Manager, memoid: XCOM.TKUBN. Application: Telefonaktiebolaget LM Ericsson Technical Office UAE, TKU, Box 3704, Abu Dhabi, United Arab Emirates.

Ericsson Ltd, UK

SUPPORT/SENIOR SUPPORT ENGINEERS - TMOS

● The Technical Support Department, which is part of the new BX Support and Services Sector, provides a high level of customer technical support throughout the UK. This support includes the Ericsson TMOS family of network management systems.

Ideally, we are looking for experienced and competent TMOS Engineers. However, if you are experienced in the IS/IT field and have an ambition to work on state-of-the-art network management systems, then we would be interested to hear from you too.

Contact: ETL/XV/T Michael McNulty, +44 1444 234123.

"Exciting new opportunities in the fastest growing Latin American market. Brazil."

Ericsson do Brazil, EDB, is rapidly expanding its Cellular operations as a result of its leading position in the explosive Brazilian telecommunications market. With more than 22 customers in the D-AMPS/AMPS A-band alone, and new opportunities evolving from the upcoming B-band license process, EDB requires the support of motivated telecommunications professionals. EDB's head-quarter is based in Sao Paulo and there are regional sales and support offices across the country.

The general requirement for all positions is fluency in English. Fluency in Portuguese and Spanish is preferred. Both short- and long term contracts will be offered.

Take the opportunity to increase your professional skills while working under demanding, exciting and challenging conditions by applying for the open positions in the following areas:

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Product Managers for OSS (CMOS) and WIN

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As a switch engineer you do the planning and implementation of switch installation projects, mechanical installation of switching, transmission, power, necessary cable ways, cable manufacturing and produce MSC installation manual (C-Module).

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Please send your application to:

Ericsson Radio Systems AB
KI/ERA/AHS Kerstin Malmgren
164 80 Stockholm

or to the mailbox at EDB, Brazil:

BRA.EDBEXPA

Contact persons EDB, Brazil:

+55 11 681-2000

Operations

- Engineering

- Customer Support

Implementation System

Technical Sales Support

Human Resources EDB

Eduardo Baptista

Gerson Freitas

Alexandre Setterval

Luiz Carlos Bernardo

Renato Fantoni

Jacira Rita F. Gomes

Contact persons ERA/A, Stockholm:

+46 8 757 00 00

Human Resources ERA/A

Marianne Molin

Göte Hedblom

Ericsson's 90,000 employees are active in more than 130 countries. Their combined expertise in fixed and mobile networks, mobile phones and infocom systems makes Ericsson the world-leading supplier in telecommunications. You can get more information about us on our homepage www.ericsson.se/SE/

ERICSSON 

contact

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

As the number of mobile telephone subscribers increases, radio masts are sprouting up like mushrooms in swampland – no! like trees in a forest – in the UK, at least. Today, there are more than 7,000 radio masts throughout the country and this number is expected to double during the next five years. To avoid spoiling the natural landscape, masts that are deceptively like pine trees are now being introduced.

t

he Sunday Times not long ago carried a story describing these disguised masts.

Three operators – Orange, Cellnet and Vodafone – need more and more masts in order to provide good coverage for subscribers as their mobile networks expand.

The masts began to become more numerous in the infancy of mobile telephony – in the early 1980s. No construction permits is required for masts up to 15 meters in height in the UK. Two thirds of the applications to erect taller masts have been granted. But Mercury was recently denied a permit to construct a mast about 21 meters tall, due to protests by local residents. In the Sunday Times article, Cellnet is quoted as saying that it will erect masts camouflaged as trees in connection with the major expansion of its mobile network in The Highlands and on the Scottish Islands.

Operators' interest in camouflaged masts is not confined to England. According to reports, there are "palm tree masts" in South Africa and "cactus masts" in America.

Doesn't sway in the wind

The inhabitants of Cocker mouth in the Lake District in the northern part of England probably blinked recently

Camouflage for our times



when they caught sight of a stately new "tree" that had not existed earlier on a special hill.

"It looks a bit 'cold' and it's much taller than all the surrounding trees, but otherwise it's O.K.," a female resident of the area commented. Her son pointed out that the "tree" doesn't sway in the wind, not even in storms. Others wonder what kind of tree it is supposed to be. It resembles an American fir, a species not found in Great Britain. Those who look closely can see the antennas hidden among the green boughs.

What do the birds think of these "new" trees, and what will happen if

Rising majestically to the sky, the new "trees" are popping up in the English and Scottish countryside. Two local residents check reception close to the tree.

Photo: BARRY GREENWOOD

one of them should build a nest in the crown of the tree, among the artificial branches and the modern antennas? The Sunday Times does not offer answers to these questions, but the subject is likely to become topical again as more and more "mast trees" spring up.

GUNILLA TAMM

end line

We must know the way

The supplement to this edition of Contact covers a very important subject: Ericsson's path toward the year 2005, that magic number we have talked about so much during recent months. In this edition, we analyze some of the subjects discussed at the recent management conference in Seville, and describe the strategy formulated in the wake of the comprehensive study of future trends, "Ericsson entering the 21st Century."

It's very interesting reading for people who want to know where Ericsson is headed or who wish to know how Ericsson plans to achieve its goals for the future. We have already established that "2005" is the most far-reaching analysis ever conducted by the company. By the same token, never have so many people been involved in a similar process. It's all very impressive, but the "2005" study was not conducted to impress people in Ericsson's world.

The analysis of future trends was intended to put all of Ericsson on the right track, to establish a direction and steer the ship into the next century. To secure the success of our voyage, every member of the crew must be made aware of our destination and do his/her part on the journey. To meet our objectives, we need new insights about why we must proceed, what sort of conditions will prevail in our pursuits, who is competing against us in aspiring to achieve the same objectives and all the implications of crossing the finish line in first place. In other words, we need communications from bow to stern, at all levels of the good ship Ericsson.

This is where Contact enters the picture. During the seven years I have worked for Ericsson, certainly not a long time, of course, I have never experienced such a candor in terms of strategy as the attitude that characterizes Ericsson today. Ericsson's Strategic Planning (ESP), was always a concept shrouded by secrecy through the years. Of course it's only natural that much of the information in any strategic plan is not suited for general consumption, but the results – they have to be made known to all and sundry if the plan is to have any chance of success. Otherwise, it fails as a control system. Particularly in a company where oral communications from top to bottom seldom comprises a chain that functions perfectly.

We know from reader surveys in the past that articles about the company's objectives and pursuits are considered extremely interesting by our audience. I consider this to be proof positive that direct communications through channels like Contact are a basic requirement for spreading news and management plans throughout the organization. It is particularly gratifying, therefore, to have management's blessing and support for the supplement in this edition of Contact. With the previous supplement devoted to "2005," the first in our new series, this new approach represents a paradigm shift in Ericsson's internal communications. We wish our new internal communications manager, Johan Ljungqvist, all the very best.



LARS-GÖRAN HEDIN



contact
in depth

THEME SUPPLEMENT
TO CONTACT No 5, 1997

Toward greater heights

Report from Ericsson
Management Forum in Seville:
How Ericsson is to become
the undisputed leader
in telecommunications.

ERICSSON 

90,000 rowers can speed up pace of a boat

In CONTACT's first theme supplement that was distributed with the first number this year we described the work on "2005 - Ericsson entering the 21st century." We described the three scenarios around which this "futuristic" study - the most comprehensive in the Company's history - largely centered. We also described the ten critical issues facing Ericsson in the future that were identified in the "2005" study. And we described where the Company wants to be - what came to be called "Wanted Positions" - in the year 2000, halfway to 2005.

When Lars Ramqvist brought 370 of the Company's top executives together for a major meeting in Seville on March 18-21, it was for the purpose of inaugurating the great task that now lies ahead of Ericsson: to realize the objectives and visions by the year 2005. During two information-packed days, discussions and speeches painted a picture showing the purely practical steps to be taken to achieve the objective set forth in "2005": an Ericsson that is the leading supplier in the telecommunications field.

These steps will be based on the strategy document - "2005 - Ericsson entering the 21st century" - noted above. This "theme supplement" is an attempt to bring this document to life for a broad spectrum of Ericsson employees. We hope that the reports on the presentations in Seville will make it easier for every Ericsson employee to understand where we are headed and how we can be most certain of getting there. It is important for all of us to understand these things. For the participation of all employees is required if Ericsson is to be sure of achieving its objectives. No chain is stronger than its weakest link.

None of the 370 top executives who participated in the Seville meeting could possibly "row the Ericsson boat" home by themselves. But if 90,000 rowers apply their collective strength and skills, we should move forward quite rapidly. "Speed" and "urgency," incidentally, were two concepts that recurred most often during the discussions of what is required of us in order to tackle the challenges of the future more effectively.

LARS-GÖRAN HEDIN

contact
in depth A Supplement of Contact,
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PHOTO: LARS ÅSTRÖM, VÄRLDSBILDEN

370 top managers take aim on 2005

WHEN THE FUTURISTIC STUDY "2005 - Ericsson entering the 21st century" was presented last October, a comprehensive program to disseminate the message contained in the report throughout the Company was begun. The "2005" and "Wanted Positions, Year 2000" programs apply to all employees. Following months of information activities throughout the world, Management believes that the information phase of these programs has largely been

completed. The most important phase - making a reality of the concepts and objectives underlying "2005" - is now being undertaken. It involves tackling the ten critical issues that have been identified and seeking practical ways to achieve Ericsson's "Wanted Position" for the year 2000 - half way to 2005.

To kick off the important implementation phase, CEO Lars Ramqvist brought together 370 of the Company's top executives in a global

seminar, the Ericsson Management Forum, in Seville, Spain. The meeting was the third of its type since Lars Ramqvist became President and Chief Executive Officer in 1990. At the Sonthofen Forum in 1990, he presented his new organization structure for Ericsson and his ideas on how the Company should perform in the 1990s. At the Forum in Hasseludden, outside Stockholm, in 1993 the challenges of the 1990s were discussed in greater detail. At Seville, on

March 19 and 20 this year, the focus was on the 21st century. Using the "2005" study as a basis, participants discussed how Ericsson should achieve its objective: to be the world's undisputed leading supplier of telecommunications equipment.

The 370 "delegates" included the managers of most of Ericsson's companies throughout the world, staff members of Major Local Companies and senior executives from business areas, busi-

ness units and corporate functions. It was an international gathering, but still dominated by Swedes and males.

While the percentage of women in senior positions is increasing slowly but surely, the male dominance is still substantial. The average age of the participants in Seville was also still relatively high, but a change - compared with the earlier meetings - was noticeable in this area as well.

Lars Ramqvist and CW Ros have been key members of Ericsson's management since 1990. They are accustomed to making joint Company presentations, always

Ericsson from

"Here in Seville I can greet you with a broader smile than on earlier occasions when I appeared in my capacity as Ericsson's chief financial officer. The most recent years have been highly successful. In fact, we have already met our 2005 target for return on shareholders' equity. In addition, we have had a fantastic growth in the market value of our stock, a growth that is unique in the industry. All of our large competitors have been forced to take substantial amounts of depreciation, which has reduced the growth in value of their shares."

CARL WILHELM ROS WAS IN good humor when he addressed the gathering in Seville. Seated in the auditorium were the "team members" he could thank for the confidence in Ericsson's future expressed by financial analysts and investors.

"The market has a great deal of confidence in the way this company is managed," CW declared.

The concept for the day – the one that CW wanted to imprint in the consciousness of all 370 listeners – was "shareholder value:" not only what the company is worth to its shareholders but to all who have a stake in the company: employees, customers, suppliers, joint-venture partners and the societies in countries where Ericsson is active.

This means that we should focus as never before on our strategies and their value. We should always keep in mind what Ericsson is worth to all those who have a stake in us. Where our shareholders are concerned, we have to measure up to high expectations with respect to what we can deliver in the form of dividends and cash flows.

The large structural and organizational concepts are not the only ones that affect Ericsson's worth. CW Ros warned of the small "mole hills" that undermine the Company's finances.

"We have succeeded in eliminating a number of them but many of them, large and small, remain. To ensure future growth, we must eliminate all of them!"

CW ACKNOWLEDGED THAT MANAGEMENT HAD been pleasantly surprised by the positive cash flow reported for the Company in 1996.

"Our ability to keep the cash flow under control was impressive," CW said.

For this, we can thank our successes with mobile systems, AXE and telephones. Now we have to continue on the same course and handle our capital even more efficiently in the future.

Demands for Ericsson to participate in solving customers' financing needs are increasing. CW urged the companies to continue to be cautious in this area.

CARL WILHELM ROS: "I love profitability growth and cashflow"

"We must be sensible in connection with project and export financing. This is an area in which we have to strengthen our skills. We should act cautiously and not be too aggressive in the market. The fact that Ericsson today is in a much better position to handle exposure to risk than it was earlier does not mean a green light to become less careful in dealing with financing matters."

"We must continue to follow the rules for financing established by the Company. First and foremost, external sources of financing should be used. In cases where Ericsson participates directly in financing, borrowers should be encouraged to make repayments ahead of schedule."

CW could not avoid touching on the impact of a possible European Monetary Union (EMU) on Ericsson's operations, a matter of considerable current interest. There is no clear answer to the question whether the EMU would be "good" or "bad" for Ericsson.

"Normally, our large European competitors, Siemens and Alcatel, should receive less support from their home countries if the EMU becomes a reality. That, of course, would be good for Ericsson. A more important factor is the need to finally settle the EMU matter. The uncertainty that surrounds EMU today is creating turbulence in the currency markets."

A number of projects have been initiated to determine precisely what the introduction of a common European currency would mean for Ericsson. Persons appointed within each company in the European Union are analyzing the local consequences of the introduction of such a currency.

"We have designated our Dutch company as the 'pilot company' in this area," CW said. "There, we are developing the procedures that will be required if and when the EMU is implemented in order to see how this would affect Ericsson."

CW Ros also described the continuing development of the Company's systems for financial control and administrative supervision.

"We are determined to be better than our competitors and our customers in this area," he noted. "We should be perceived as a leading information technology company in the future. That is one reason, among others, why we are continuing to speed up our financial reporting. We are going to match Motorola!"

"This requires discipline, quality and planning," CW said, directing a clear message to his listeners. ■

from different perspectives. They followed this custom in Seville, where they combined to provide an overall picture of Ericsson for the 370 delegates.

two viewpoints

"Seville reminds us of history. It was from here that Columbus sailed off into the unknown. Ericsson is embarking on a similar voyage today. The crews of Columbus' vessels became concerned because they did not know where they were. When our meeting here in Seville is over, we will at least know where we are, and where we are headed." With these words, Lars Ramqvist opened the Ericsson Management Forum in Seville in March. He then offered his view of where Ericsson stands today.

"Ericsson has been given good marks by its public," Lars Ramqvist declared. "The company is now valued by the market at SEK 244 billion." He then quickly offered his view of the Company's position today as it faces the task of implementing the strategy defined in the "2005" study.

"We are now the largest supplier of telecommunications equipment, measured by any standard. This means, of course, simply that the competition will increase. Ericsson will never again have as calm a voyage as it has had up to now!"

"As we continue the voyage, Ericsson can rely on two true strengths: its marketing machine and its focused investment in technology."

"Ericsson is present today in more than 130 countries, and we have been there a long time. As world boundaries become increasingly blurred, it pays well to have such a great geographical spread of Company operations. When new countries grow strong,

LARS RAMQVIST: "We are the largest, but our competitors are increasing"

Ericsson is already in place, already an established part of local societies."

"Brazil is a good example. The Brazilian company has promised that Brazil will be Ericsson's third-largest market this year! And business in Asia, which now accounts for nearly 30 percent of Ericsson's sales, is growing rapidly. We have been there a long time, too – in all countries of interest to us."

"In the area of research and development – our second strength factor – we have 18,500 engineers who are working on new products. We are forced to make this investment because of the speed with which the market changes and new products replace old ones. At the same time, we have promised our shareholders that technical development costs will not rise sky-high. We have reduced them from 23 percent of sales to 18 percent. But because Ericsson is expanding rapidly, they amount to a full SEK 23 billion in absolute figures."

"Our investment in quality is another strength factor. Nearly all Ericsson companies today are certified in accordance with ISO 9001 standards. We are now following up this program by also working toward ISO 14001 environmental certification. Two companies have already been certified. Keep working on this, all you others!"

"Ericsson is the undisputed leader in the field of mobile telephony. Here, we have the world's largest customer base, nearly 40 percent of all the globe's mobile telephone networks. We have AXE installations in 120 countries. This is another segment in which we can earn money from a large customer base. We can grow with the market. And we can grow with our customers!"

"Our greatest challenge today is to continue to improve our profitability. We have to earn still more money in order to continue our expansion and continue our investments."

The trend in the telecommunications market is characterized by the continuing growth of mobile systems. Based on Ericsson's projections, there will be 590 million subscribers in the year 2001.

"We have been a leader in the mobile industry for 17 years, so this trend is a very favorable one for us."

"Mobile Systems is not the only business area that is moving forward. The Infocom Systems Business Area can also be pleased with the trend of its market."

"The business area's operations are expanding, in both the conventional telephony and Internet segments. Now that the Internet appears to be the most expansive sector of telecommunications, Ericsson is determined to participate."

"We are preparing for developments in multimedia and for the merging of telecommunications and data that is forecast in the "2005" study."

"We will be able to supply equipment for all forms of communication. Infocom is a complex field, and we are accordingly studying it carefully."

"What we need are strategies. We now have them. Here in Seville we will discuss these strategies and ways of applying them in practice. We know – from the "2005" study – the critical issues that will arise in the future. We know, for example, that we need more expertise in data communications, and that we must find new solutions for parts of our production. We know, from the experience gained in recent years, that Ericsson is capable of major changes. Each month during 1996, for example, we moved 1,500 persons to new positions!"

"A great deal is being done in Ericsson's new organization to strengthen our marketing dimension. We are adopting new concepts to optimize Ericsson's organization so that we can measure up even more effectively to the performance that the market and customers expect from us." ■

We mustn't become too

BY: LARS-GÖRAN HEDIN

KURT HELLSTRÖM IS THE MANAGER OF ERICSSON'S LARGEST AND most successful business area, Mobile Systems. He is well aware of the risks that accompany success.

"Somewhere in our genes there is the risk of becoming too big, too arrogant," he points out. "The greatest danger is that we may become too pleased with ourselves. That must never become our style," he warns.

The challenge to his business area right now is to consolidate Ericsson's leadership in the mobile telecommunications market.

"We have to move fast if we are to do this. New players are appearing on the market all the time, creating greater pressure on prices. The new companies are buying market shares by selling their systems much too cheaply."

Ericsson's response to such a market is to constantly be at the cutting edge of new technologies, new solutions. There is plenty of room for development of mobile systems in the future. The gap between mobile and wired networks is decreasing all the time as mobile-system subscribers demand the same services available in wired systems.

"Regardless of the form that the convergence of wired and mobile telephony takes, one thing is certain: Only wireless systems can offer true mobility," Kurt Hellström declares emphatically.

The Mobile Systems Business Area is focusing increasingly on cellular systems at the same time that it is working hard to change the trend of land mobile radio and messaging systems. When Ericsson's new structure was established, the business area also assumed responsibility for further development of the MiniLink family.

"We should not forget that we are also the world leader in microwave links," Kurt Hellström notes.

The Mobile Systems Business Area has a total of 35,000 employees today. It has grown at an average rate of 35 percent per year and now accounts for 45 percent of Ericsson's total sales. It is also a very profitable part of the Company.

"We have earned SEK 21 billion for Ericsson since 1986," Kurt reports.

GSM systems, with about 50 percent of sales, account for the largest percentage of business. D-AMPS systems rank second, with 25 percent. And Kurt emphasizes that sales of analog mobile systems continue to be quite profitable.

The market for cellular systems is continuing to grow very rapidly. When mobile-telephone density in a country passes the ten-percent mark, individual (rather than corporate) customers dominate the new subscribers. In countries that have passed that point, there does not appear to be any limit to continuing growth. Some countries may in the future have subscriber-densities of 100 percent, or higher!

"The great thing about our market is that it offers many different segments in which companies can be active. In the future there will be markets for a wide variety of products: security telephones, entertainment terminals, mobile offices...The possibilities are endless."

Ericsson has developed a new family of radio base stations to support this growth. It includes products for all types of cells - macrocells, microcells and picocells. Potential mass markets for small radio base stations for use in homes and Internet systems are also being studied.

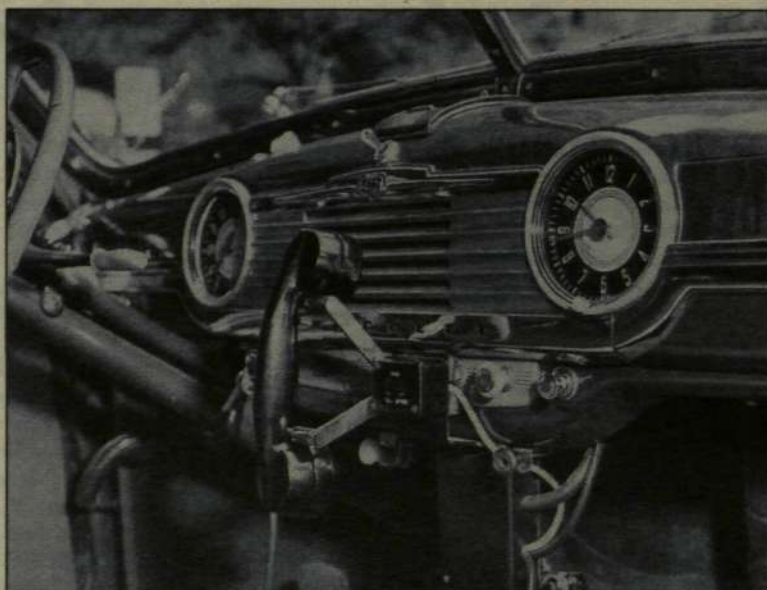
Where capacity is concerned, radio technology is moving toward new heights. Today's systems can handle limited bandwidths but the systems of tomorrow promise to do more.

"The objective in developing the first generation of broadband radio is focused on transmission speeds of around 2 Mbit/s in local area networks."

BY: LARS-GÖRAN HEDIN

AS THE HEAD OF ERICSSON UTVECKLINGS AB, Gunnar M Eriksson felt a strong need to explain what this technical-development resource unit has accomplished recently. At the Seville meeting he demonstrated that the company had not been occupied completely with the major reorganization that took place early in 1996.

"We have developed a new processor - the APZ 212 25 - for the AXE system. It is distinguished by the fact that it is only a fraction the size of its predecessor although it has twice the capacity. We have also developed a new IOG - the unit that handles the traffic entering and exiting the AXE. Its size has been reduced to one eighth that of its predecessor. At the same



The editors of CONTACT's Theme Supplement have not been able to find any illustrations depicting the future. But one can learn about the future by studying the past. Accordingly, historical pictures - most of them from Ericsson's archives - are being used to illustrate the Supplement.

We hope to have a European standard for this during the latter part of 1997," Kurt says.

Ericsson is determined to continue to be among the leaders in the future. Kurt Hellström describes the principal strategies for realizing this objective in the following terms:

- We will invest in continuing improvements.
- We will invest in expertise.
- We will invest in market development.
- We will be a world leader in terms of customer satisfaction, employee motivation, cash flow and profitability.

"Our business has grown fantastically in recent years. We can continue to grow at the same rate, but not in all respects. The potentials in the market indicate that our sales can continue to increase at the rate we have experienced up to now. But we will handle this increase to a greater degree by focusing on internal productivity rather than by increasing the number of employees."

"The United States, Japan and China continue to be our largest markets. But there are others - India and Brazil, for example - that have the potential to become very large."

Kurt Hellström foresees a bright future. In a few years everyone will have a mobile telephone. There is really no reason why it will have to be more expensive than a conventional fixed-wire telephone subscription.

What happens, then, when the market is fully covered?

"I am quite optimistic about the future, viewed in this perspective as well. There will be a continuing need for new services and functions. All operators will be battling to offer customers new facilities via subscriptions to mobile telecom systems. These operators will need Ericsson's help to handle this."

"We are the largest today. Now we have to increase the gap between us and our closest competitors!"

Ericsson Utvecklings AB - a 'shrinking' operation

time, the amount of energy required in the new IOG has been reduced to one twentieth, despite the fact that its capacity is unchanged. The same success in radically reducing the sizes of units has been repeated in the case of a number of other important AXE products. The new BSC, which controls the base stations in a mobile network, now requires three cabinets instead of fourteen!"

"Smaller sizes benefit not only our customers," Gunnar pointed out. "For Ericsson, they mean reducing production costs by an average of 40 percent."

Development times as well as product sizes are shrinking. The development company has worked extremely hard to speed up its programs.

The focus has been on the "industrialization" phase of development projects, on how rapidly new products can be placed in production. Production systems in the plant in Östersund are already prepared to handle the next-generation processor that will follow the APZ 212 25. By working in such more efficient ways - and because the number of individual components in products is being reduced continuously - lead times can be shortened.

"This is only one part of an internal 'cultural revolution' that we have implemented and which has shocked quite a few employees. The introduction of demands for financial results, in particular, has shaken up many of the development company's employees."

big and arrogant!



Ericsson's mission

"Ericsson's mission is to understand its customers' opportunities and needs to provide communications solutions better than any competitor. In doing so, Ericsson shall generate a competitive economic return to its shareholders on their investment." This is Ericsson's mission, its utmost task, the main reason for its existence. The strategy document entitled "Ericsson - entering the 21st century," which in future we refer to as "2005," provides a more detailed explanation of the meaning of this introductory text.

Ericsson believes in a world which will develop into a place where communication of voice, data, images and video is readily available to a majority of the population throughout the globe via a variety of different networks and solutions; with mobile and wireless access becoming increasingly demanded as full-fledged alternatives or extensions to wired solutions.

People will use a multitude of devices for communications - mobile or stationary - in their offices, homes, cars or anywhere. Multiple operators and service providers will compete with low-priced offerings. Ericsson believes that the liberalization of national telecom regulations will continue, and foster this development. The satisfaction of the enormous demand for basic communication infrastructure build-out in developing countries might however be determined locally to require continued governmental subsidies and monopoly regulations.

In Ericsson's future world a new industry logic - "info-communications" - is emerging, driven by the business community seeing new opportunities for performance enhancement, and by people's desire for interactive services, communication, knowledge, education and entertainment.

ERICSSON'S ROLE

Ericsson sees itself in a role as one of the major progressive forces, active around the globe, enabling and pushing for such mass communication to happen, for telecommunications to be available to a majority of the world's population. There is a well-documented correlation between the development of telecommunications in a given country and that country's economic, industrial and social development. Ericsson's employees can feel pride in knowing that Ericsson actively participates in this process.

'We will become the world's best-known brand!'

BY: LARS-GÖRAN HEDIN

THE GREATEST CHALLENGE TO ERICSSON'S new Mobile Telephones and Terminals Business Area is to create a unified picture of Ericsson and its offerings, based on the Business Area's products. Johan Siberg, manager of the Business Area, is convinced that this can be done. In Seville he promised: "We will become the world's best-known brand." And he detailed his vision of Ericsson's opportunities in the consumer market.

"We are facing a great challenge. We are determined to be a world-leading supplier and to have the most-satisfied customers. Today, we have between 15 and 25 percent of the market, very good profitability, and a positive cash flow. To that extent, we can make all those who have a stake in Ericsson happy.

An important task of the Business Area will be to support Ericsson's total range of systems. This can be done in several different ways – not only through the unit's investments – the largest within the Company – to make the "Ericsson" name known throughout the world.

"We view ourselves as a distribution channel for other business areas in the future, when they develop products that are suitable for the mass market. We are accumulating knowledge of who the consumers are. There are 5.8 billion potential Ericsson customers out there. They are all individuals with different cultures, different needs, and so forth. That is why we are working hard to increase our knowledge of how the mass market functions."

The Business Area has a growing portfolio of its own products to offer. New products are being developed in a never-ending stream. The product line is being increased continuously. It is estimated that 200 million mobile telephones, 50 million personal pagers and 50 million cordless data terminals will be sold throughout the world each year by the turn of the century. Plus a great many

other products whose appearance and function we can barely imagine.

"Ericsson stands to gain a great from all this. That is why we are working so hard to build up our brand name and to fine-tune our production apparatus."

Ericsson's production of mobile telephones is highly efficient. It is structured so that each plant concentrates on one or more system standards. Production is synchronized with orders received from customers, thereby avoiding costly buffer inventories. Despite the fact that a large number of products are being produced, common electronic and mechanical platforms are used to a high degree.

"We will launch a new common platform each year and upgrade it every six months," Johan Siberg says. A number of the new products this year are so-called dual-band products, telephones that function in the different frequency bands used for the same standard – 900 Mhz and 1800 Mhz for GSM, for example.

"And we will be producing a telephone for the Japanese standard," he adds.

JOHAN SIBERG HAS A CLEARLY FORMULATED VISION for the year 2000. Ericsson will then be the largest supplier of mobile telephones, the company that others prefer to work with, the company that is best at focusing on customers, and the manufacturer with the most efficient production.

"The structure that we have now applied to the Business Area is an important element in our efforts to realize these visions. We have divided our operations into three market regions and three business groups, depending on the standards for which telephones are being produced. These two dimensions – market and product – form a matrix corresponding to the one that Ericsson applies to its entire organization.

"Today, 9,000 persons are working within the Business Area. Together, we achieved sales of SEK 21 billion last year!"



From the very start, Ericsson manufactured products for the mass

market. The company's telephones were quick to triumph throughout the world.

Ericsson's vision

Ericsson's vision of the future is divided into three parts. Each deals with an important dimension of the company's operations, our business, our people and our structure.

Business:

The leading global supplier Ericsson is the leading global supplier, with a business concept defined as to supply:

- communication network solutions and services,
- wireless/wired networks and devices, enabling voice, data, image and video communication,
- support services and supporting systems for the commercial and technical operation of such networks and services.

People:

Top innovators and entrepreneurs working in global teams.

The world's best people are attracted to the outstanding personal development opportunities in the creative and open Ericsson work environment.

Ericsson's empowered and proactive employees demonstrate leading-edge use of communication tools, partnerships and teamwork. They are continuously developing a competence lead in foreseeing and satisfying customer needs.

Structure:

The prime model for networked organizations.

Ericsson is perceived as one global company, setting the standards in managing a flexible and borderless networked organization.

World-class execution is the benchmark for all activities within the company and for all sourcing via partners in the Ericsson network.

Ericsson's strategy

A company's strategy is the path chosen to reach its goals, to complete its mission and reach the objectives formulated in the company's visions. For Ericsson, "2005" resulted in a new strategy which will lead the company to a leading position in its industry.

- Deregulation of telecom markets. Increasing competition between incumbent and new players in the market
- The rapid development of new communication and information handling products
- The foreseeable convergence of the telecom, data and media industries

These four forces are creating an unpredictable and fast-moving market, the "infocom" market. End-user preferences will to a greater extent determine which solutions, services and products will predominate.

Ericsson's new strategy has been heavily influenced by this trend. It can be summarized in six points.

Broad offering broad range of customer segments

Ericsson's strategy in this volatile world is to serve its worldwide customers with a broad offering including solutions, services and products for both traditional telecommunication networks and for future multimedia communications. Ericsson will thereby be in a position to serve, support and assist its present customer base in their transitions into new businesses and roles, and also to serve new customers entering the infocom market.

Accordingly, Ericsson's strategy is to serve a broad range of customer segments, including present and new operators, service providers, corporations and organizations, as well as professional end users and consumers.

Marketing skills, selective marketing & sales

The growing number of potential customers in the market will, however, make a concentration of sales efforts necessary. Competence for market analyses and market planning shall thus be increased.

The trends toward continuing convergence of customer needs and technologies for communication solutions, e.g. the foreseeable convergence between fixed and mobile communication, support Ericsson's "one company" approach toward the customers.

Leverage Ericsson's worldwide presence

Ericsson's worldwide market presence and numerous local establishments give Ericsson a unique chance to capitalize on the trend towards globalization and internationalization of the infocom market.

The strategy is therefore to leverage this worldwide presence to serve and support

Continued on next spread

A challenge for Infocom Systems

BY LARS-GÖRAN HEDIN

"WHAT A CHALLENGE IT IS TO TAKE Ericsson into the information society!" Anders Igel exclaimed in Seville.

"We in the Infocom Systems Business Area are the ones who are to satisfy the market's need for high bandwidth. We are to operate in a market where 'Bell heads' meet 'web heads' – and be the fastest boats in Ericsson's fleet. Addressing the assembled company managers, Anders continued:

"When we met in Kuala Lumpur last year, I asked you to sell like hell. And you did. We were able to increase our sales to SEK 48,5 million in 1996. Well done!"

Anders Igel returned to the theme of the Seville Forum: Ericsson's future.

"Internet Protocol (IP) communications make it possible to develop a long line of new telecommunications services. At the same time, demands for bandwidth are increasing all the time. Most of us now appreciate how rapidly the information society is developing. With the new line-up of teams in our Business Area, we are ready for this development."

"The Public Networks Business Unit is working with fiber, copper, radio and AXE. We are offering total solutions, from the design of network to advanced operating support."

"Enterprise Networks, which has taken over a large customer base from the old Business Networks Business Area, is offering the world's best business exchange, the MD110, as well as BusinessPhone, DECT and integrated data systems."

"The Transport and Cable business unit is active in an area where Ericsson has to strengthen its positions. But we have one of the world's best product portfolios in this area today!"

"Datacom and IP Networks is a new baby that, as yet, we really don't know what to do with. What we do know is that we have to increase our expertise in this area to avoid problems in the future."

THE PROSPECTS THAT INFOCOM SYSTEMS WILL become a profitable business area are good. More than 100 million new lines are installed in the fixed-wire network each year. The market is increasing at a rate of more than 10 percent annually. The increase for data communications is even higher: 30 percent. Ninety percent of the world's inhabitants still do not have telephones. Only one percent have access to telecommunications with multimedia capacity. There is a great deal to be done in this area."

"If we are to succeed, it is important that we do something about the gap that existed earlier between our knowledge of the market and the focus of our research. We saw what happened with SDH and ATM. And we have to reduce our



Broadband networks are the method of the future. In the early days of the century networks were more visible than they are today.

costs drastically. We want Infocom Systems to be a speedy power boat but our plants and our administration sometimes resemble supertankers. We must be an expert communications company that focuses on speed."

Ingemar Nilsson added to the picture showing how dynamic the market for public telecommunications networks has become.

"In 1995 we had 190 customers throughout the world. Last year the number had increased to 300. In Great Britain this year, for example, we have 13 customers – the same number in Sweden, and nearly 10 in Mexico."

"The number of customers is increasing steadily and they are making demands on us that differ completely from those imposed earlier. Today, they want proposals for complete solutions, rather than reactions to complete order inquiries. Customers think that our lead times are too long – especially where software is concerned – and we have to make major improvements to become what we are trying to be – the supplier customers prefer above all others!"

"We have responded to these demands by reducing lead times for exchange systems by 40 percent, and we are constantly improving our products."

Ingemar Nilsson unveiled the prototype for a new AXE access switch in a small cabinet only 1.5

meters tall – one fourth the size of its predecessor.

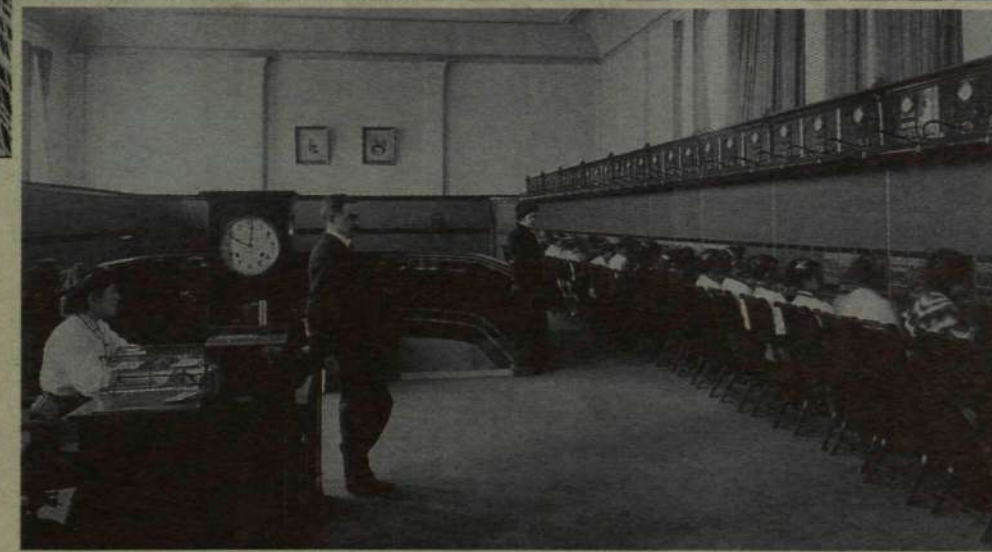
"We have rationalized production substantially, but we have to continue to rebuild our delivery structure," Ingemar said, warning that "our customers are not prepared to pay extra for our large production organization."

Bo Dimert, the head of Enterprise Networks, described the continuing success of the MD110 exchange. Its share of the market has increased from 7 to 12 percent and Ericsson's flagship business exchange was recently ranked number one in an international market survey.

"We are also a market leader in providing operations and maintenance support systems for PBX-es and we dominate the market for cordless business telephony," Bo said. "We are the largest suppliers of so-called 'call centers' in Europe."

"To further improve our market position, we have to develop indirect sales channels to reach customers. We also have to reduce our sales and distribution costs. And to increase our profitability, we have to sell a higher percentage of professional services for which we can be well paid. We will double our business over the long term, with at least 40 percent of revenues consisting of sales of services."

Rory Buckley, the newly appointed manager of Transport and Cable, questioned why he had



An early model of network management.

accepted the job. Entering this segment of the market is a tough assignment, but it can be done.

"We still have strong sales of traditional PDH transport equipment," he said. "In the SDH sector, we have the best digital cross-connects in the world and we are well in the forefront in other product sectors."

Anders Igel discussed the future of the Datacom and IP Networks business unit. He noted the need for a stronger presence in the U.S., where most of the action in this segment is taking place, as well as the need for Ericsson to approach Datacom as a small entrepreneurial company rather than as the international giant that the company has become.

continued from previous spread

all customers with the same excellence – whether they are customers with global, regional or local activities.

Competence for customized business solutions

Ericsson shall respond to an increased demand for comprehensive communication solutions and services for individual customers. This will require a profound understanding of the customers' businesses and the end-user market. Ericsson shall therefore enhance the marketing competence for such purposes and the competence for providing solutions and services, close to the customers in the worldwide market organization. To be regarded as a valued contributor and even a member of strategic customers' organizations is a goal.

Fast and low-cost operation

In order to meet customer demands, Ericsson's strategy is to shorten time to customers by strengthening the coordination of the market organizations; striving for flat, flexible, borderless, entrepreneurial and project-focused organizations and working methods – like concurrent engineering – by speeding up internal processes.

As need occurs, Ericsson shall further develop distribution channels for products satisfying demands for speed, flexibility and mass market coverage.

Short time to market and low-cost operation will be of major importance for success. Focusing on architectures, Ericsson will concentrate its R&D resources into core areas where Ericsson deems itself to be, or be within reach of becoming a world leader, and selectively into such other areas where Ericsson has a clear competitive edge.

In other areas Ericsson will source or co-develop with external partners, using an active sourcing and partnering strategy. R&D programs shall continuously be closely correlated with market developments, with possibilities for rapid redirection.

The same flexible strategy will be valid for the production area where in-house production will be concentrated to core areas where Ericsson has clear competitive advantages of owning production.

Promote market development

Deregulation of telecom markets is generally promoting a rapid market growth. Paired with technological improvements, dynamic forces are let loose creating new possibilities for mass communication of voice, data, image and video. Ericsson shall, as appropriate from market to market, promote liberalization of telecom regulations, benefiting from the resulting market growth by actively creating and pursuing the new opportunities.

Ericsson shall also support the creation of a multimedia mass market with an increased number of interactive services delivered electronically to end users. This will spur demand for a build-out of networks and creation of new services. Ericsson shall actively participate in these markets, alone and with partners, and promote the integration of multimedia in telecom networks by offering equipment and solutions for real-time communication.

Springboard or pitfall?

BY LARS-GÖRAN HEDIN

ONE OF THE INNOVATIONS IN ERICSSON'S NEW ORGANIZATIONAL STRUCTURE IS THE establishment of so-called Global Account Executives. They are persons in high positions within the Company who are ultimately responsible for Ericsson's relations with its largest customers – those who operate globally. In Seville, Bo Hedfors, who heads up Ericsson's operations in the United States and who is himself one of the Global Account Executives, described the importance of the "global accounts" for Ericsson. The subject is a "hot" one and gave rise to a long discussion in the panel debate that followed Bo's presentation.

"Global accounts are something that customers today are demanding from us," Bo Hedfors declared. "As the operations of large customers become increasingly global, the customers want to work more closely with Ericsson and they want 'central' contracts with us covering pricing, discounts and the like for all of their transactions with us. This includes transactions with companies in which the global companies are only part-owners.

"I can give many examples of how important the global accounts are – and will become – for Ericsson. I personally am responsible for one of our very largest customers, AT&T. It is one of the twelve global customers whose headquarters are located in the U.S., and for which our company – Ericsson Inc. – is mainly responsible. The largest of these companies account for combined annual sales of four billion dollars. And there is a substantial business potential in signing global contracts with companies of this type."

"AT&T, which up to now has done business mainly via AT&T Wireless Systems – the former McCaw Communications – is now expanding its transactions with Ericsson to include systems for fixed-wire telephony. This is largely due to the fact that we have a global account with the company – an account that already exceeds one billion dollars."

"SBC Communications Inc., managed by Southwestern Bell, is another large global customer that is about to become even larger as a result of a merger with Pacific Tele- sis. SBC's purchases from us also amount to several hundred million dollars and the company is promising larger deals if we can offer global prices and discounts."

A supervisory group has been established to guide Ericsson's global accounts program. It includes Bengt Forsberg, Senior Vice President-Corporate Markets; Åke Persson from Mobile Systems and Rolf Eriksson from Infocom Systems. The group's task is to ensure that prospective new global customers are offered this form of co-operation with Ericsson. There are already more than 50 global accounts that contribute a very large percentage of the Company's sales.

But there are also problems associated with global accounts. Bo Hedfors referred to a couple of them that are generally brought up during the course of internal discussions:

- By operating in this manner we are shifting revenues from one sector of Ericsson to another. This is not always appreciated by those whose revenues are being eliminated. And there is, of course, the risk that global contracts will result in increased pressure on prices. A contract based on global price lists may divert from the pricing in a single country. The effect may be similar in contracts that often contain global discount clauses.

THE PROBLEMS WITH GLOBAL ACCOUNTS WERE UNDERScoreD BY SEVILLE DELEGATES in a panel debate following the presentation. Raimo Lindgren, the head of Ericsson's operations in Spain, declared:

"There has to be total control over our agreements with customers to whom we give global accounts. The global account executive has to have a clearly defined responsibility for pricing and for the rules that apply. This, in turn, requires that the Company's business areas apply the same pricing strategy – which they are not doing today."

"The trend is toward the harmonization of prices between different countries," Ingemar Nilsson said. But he warned that global price agreements can in practice become a "ceiling," from which discounts are then negotiated. And he underscored how important it is for global customers to be treated equally well by Ericsson, regardless of where in the world they are dealing with the Company.

Kurt Hellström urged caution in establishing global accounts.

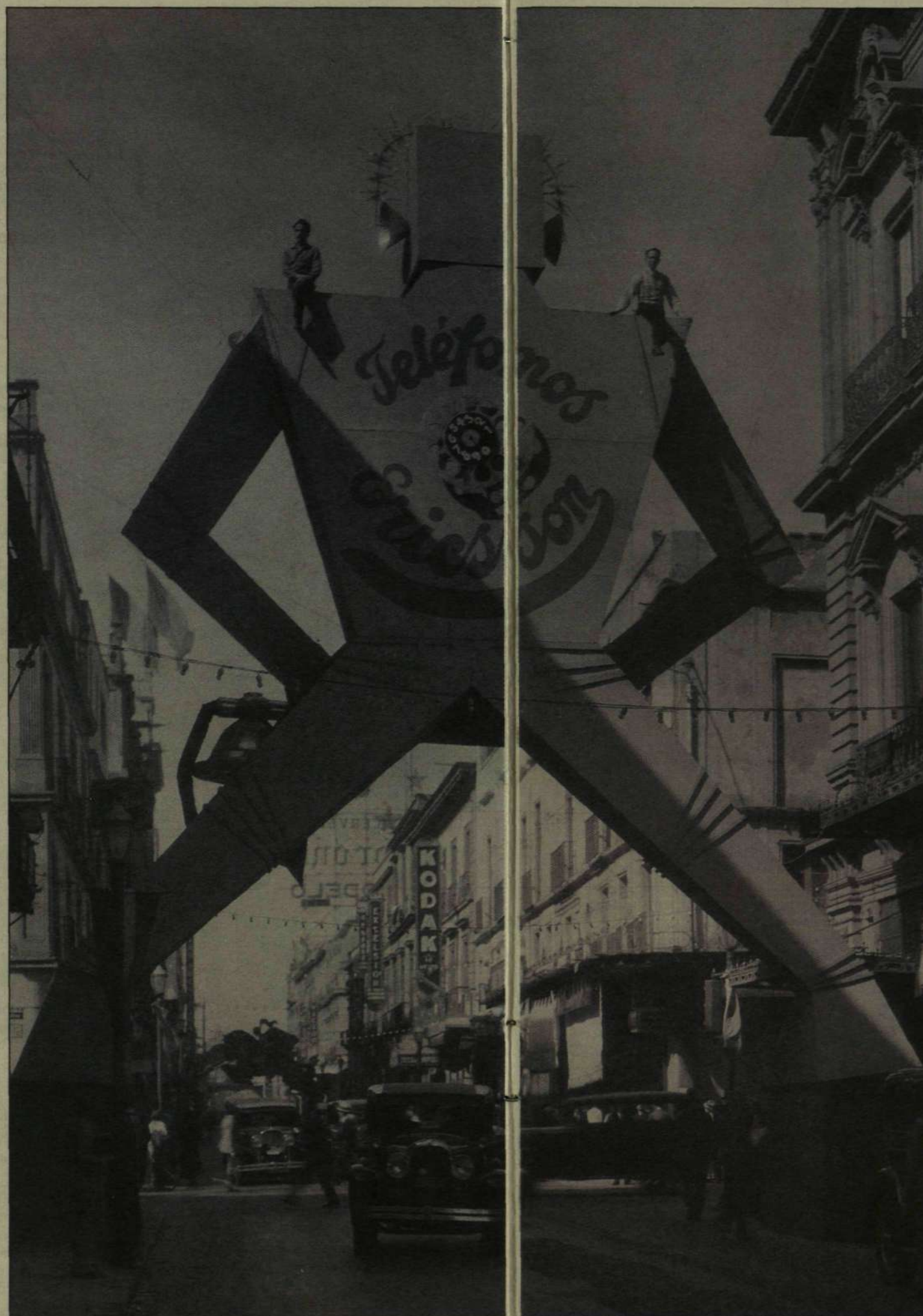
"This is one of the most difficult problems we will have to deal with in the future," he said. "We should therefore not be in a hurry to introduce global accounts. We have to appreciate that they put pressure on pricing and that there is always a risk that Ericsson will end up in a defensive position with respect to the customer," Kurt warned.

"The global accounts should not make it more difficult for us to exploit and benefit from our advantages," he added.

Johan Siberg joined the discussion with advice to the global account executives: "Focus the global contracts more on taking care of the customer than on pricing."

Bo Hedfors noted in his presentation that the global accounts as they are constituted today are not the final solution to Ericsson's way of doing business. "But they are definitely a bridge to our future way of operating," he said.

Global accounts – an innovation that stirs heated reactions



Ericsson has been a global enterprise almost from the start. The new element is that our customers

are now also becoming global.

Ericsson's strategic objectives

Investment in Ericsson shares shall be attractive

The overall strategic objective is to continue to generate the return needed on capital employed and on equity to enable sound financing of market investments and development costs required for growth; and to secure a competitive economic return for shareholders on their investments in Ericsson.

By making Ericsson's vision come true via the business concept and strategies outlined above, this overall strategic objective will be met.

Ericsson shall capitalize on the customer base

Ericsson is the recognized leader in mobile telephony. Ericsson has a unique market position, with the AXE system being the world's most widely used digital circuit switching system. To a large extent, Ericsson's telecom systems have an architecture with proprietary interfaces, maintaining a market for complete system deliveries, services, expansions, upgrades and addition of features from Ericsson.

It is a prime strategic objective for Ericsson to persistently and aggressively explore and develop the commercial opportunities created by this advantageous market position. Ericsson shall thus capitalize on its large customer base, its large installed base of systems, its recognized brand, and its world class products and systems. This shall be accomplished by Ericsson proactively serving and assisting its customers, being their best business partner.

Ericsson shall be prepared for possible charges in market demands towards open system structures and more cost-effective transport infrastructure

The transport infrastructure and the service provisioning infrastructure are to be separated. Enabling a multitude of service providers to offer services from many separate computers (servers) connected to the network will fuel a rapid development of "network-centric" services as opposed to driving functionality and services into the end-user devices. In tune with market demands Ericsson shall be able to provide open system based services in co-operation with application providers, assisting its customer base to act in a service provider role.

Cost-effective infrastructure and low-cost operating systems for network operators, service providers and end users will be required for the supply of low priced on-line multimedia services. In fact, the limitations of available funding for info-communication infrastructure in the world makes more cost-effective infrastructure a necessity for the build-out of the networks to accommodate the increasing need for bandwidth. Cost-effective solutions will be required also for developing countries with large unsatisfied basic communication demands. Ericsson shall prepare itself for such market demands.

Open interfaces will allow each industry participant to focus on its respective key competence area, thereby enhancing the competitiveness of offerings in the market. In such a development towards open interfaces, Ericsson shall focus on the primarily software-based functionality layers, leveraging its network competence. Coordinated with market demands, Ericsson shall direct R&D efforts towards designing open systems.

Ericsson shall have a strong software and data culture in the company

Software is the most important enabling technology in Ericsson's future businesses. Profound datacom competence is a must for participation in the info-communication business. The active transition from a hardware company to a software company allows Ericsson to run its business smarter, cheaper and with better quality than its competitors.

- Ericsson shall foster a software culture by:
- Adapting to the shift towards the "data paradigm" in the infocom business. Increasing the software-based sales of functions.
- Constantly developing software pricing mechanisms and software marketing methods.
- Focusing on efficiency and quality in software development.
- Developing its internal business control and management systems to highlight key success factors in the software development work.
- Actively participating in the software and data industry, its organizations and standard developments.
- Adapting to the data industry standards in layering software etc., enabling the use of sourced standard building blocks.
- Creating an attractive environment for advanced software professionals within the company.

Ericsson shall have proactive empowered employees who have the competence and drive to make Ericsson the winner in an industry in transition

- Ericsson shall increase empowerment and motivation through effective leadership and management systems. The aim is to fully utilize the skills of all employees, thus increasing the number of initiatives taken within the framework of the company's vision, objectives and strategies. Ericsson's proactive empowered employees shall feel that they have the opportunity to experience lifelong learning within Ericsson.
- Ericsson shall develop leaders who can manage operations in a business environment that is becoming increasingly complex, and in which creativity, flexibility and speed are crucial. Demands on the next generation of leaders will be different than today. The ability to use all four dimensions of the Ericsson Manager – business manager, operations developer, competence developer and team builder – will be a prerequisite. In addition, effective two-way communication shall be strengthened, as well as the ability to lead with vision and work strategically using a holistic view. Ericsson shall actively rotate and develop leaders from many countries to further strengthen competent international management teams.
- Ericsson shall develop a business-focused, team-oriented and open culture which promotes sharing of information and experiences. By participating in multiple teams (organizational, functional, virtual and external) employees develop a true Ericsson team – spirit, which supports a borderless organization and increased effectiveness.
- Ericsson's values – Professionalism, Respect and Perseverance – form the basis for the corporate culture. As market conditions and cus-

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"This is how we are finding the way to 2005"

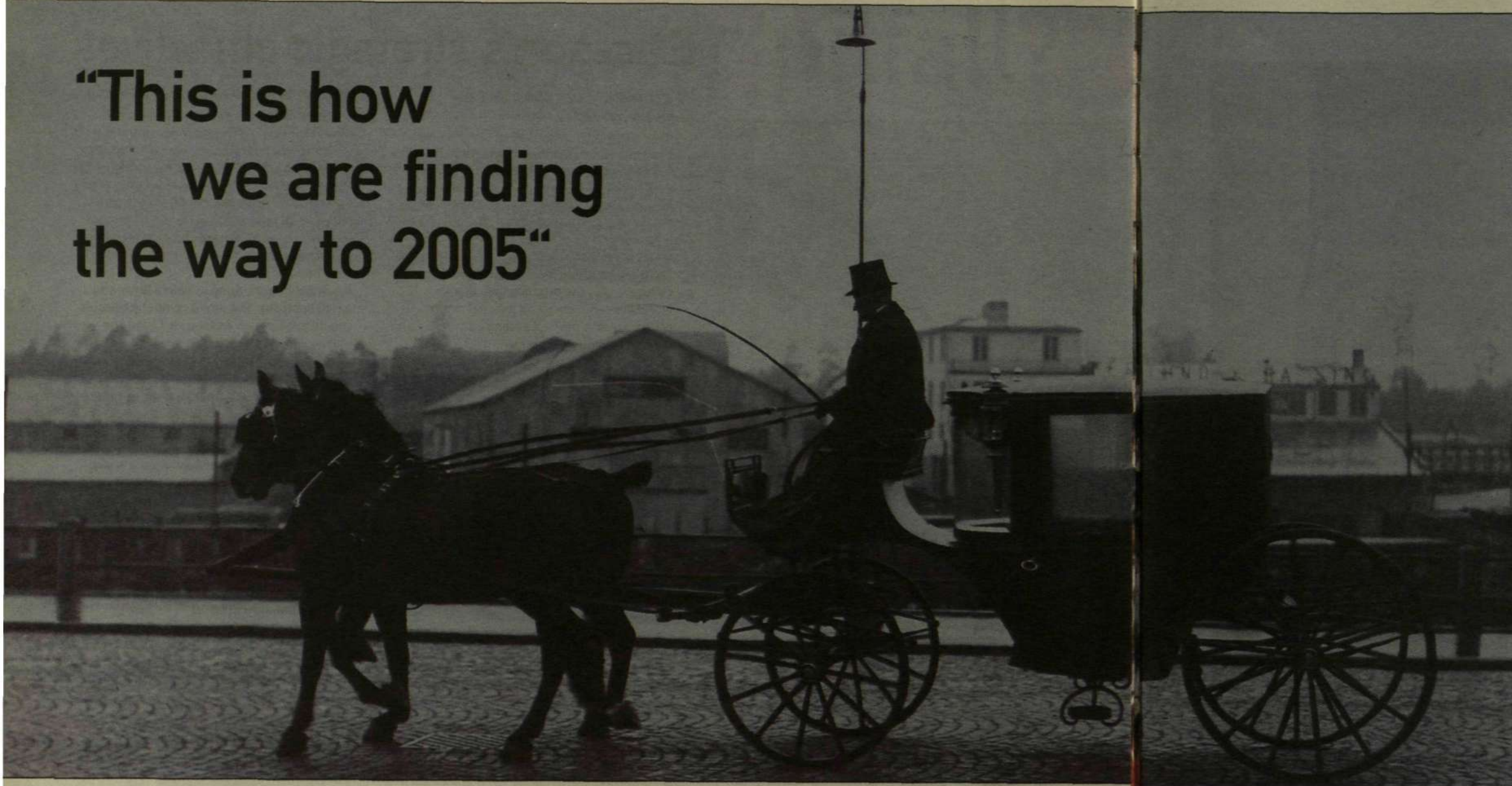


PHOTO: PRESSENS BILD

"WE BEGAN BY DRAWING UP THE THREE scenarios for the future in our industry. Based on them, we developed a 'Wanted Position' for the year 2000 – a description of what we have to accomplish to be on the right track to 2005. And we identified the ten critical issues Ericsson will have to deal with. With the aid of our strategic objectives, we will be able to handle these issues."

That is how Lennart Grabe, Senior Vice President-Corporate Business Development, summarized the work to date on "2005" and Ericsson's new strategies.

Lennart opened a session of the Seville Forum in which Ericsson's companies in Australia, Denmark and the U.S. reported on how they have started the journey to 2005, with "Wanted Position" as the first stop in the year 2000.

Gillian Bowers, personnel manager at Ericsson Australia, described the comprehensive and ambitious program that the Australians have undertaken in connection with the "2005" project.

"We have worked hard on Wanted Position and 2005," Gillian reported. "We have a good starting point. Ericsson is an industry leader in Australia and since we received the Australian quality prize last year we have an even better reputation than we had earlier. We have truly appreciated the need to be a world-class operation."

"Our challenges are to develop new business more rapidly than we have been accustomed to doing. We have to understand and react quickly to changes in the market. And we also have to – as we say – empower our employees. By that we mean that we have to give them more influence

over their work in order to release their creativity and talents."

Ericsson Australia has set a course toward three areas of Wanted Position: business, employees and structure.

"As regards the business dimension, we are now shifting the focus from technology to customers and their customers – the end-users in telecommunications systems. Our joint marketing activities with Telstra are an example of concrete projects in this area," Gillian noted.

"Our customers have very clear ideas of what they want from us and they are demanding that we provide good answers to their proposals. To be able to do so, you have to do more than focus on the customer; you also have to understand the entire market in which you are operating."

ERICSSON AUSTRALIA IS TACKLING THE SECOND dimension in Wanted Position – the employees – by means of many different activities.

"We are investing in competence-development. We are working to change the role of managers. We are increasing our investments in executive development, with strong emphasis on our candidates for managerial positions within our Management Planning program. And we are studying how we handle our jobs, in order to determine exactly how various tasks can be performed in the best possible manner."

"It is a matter, ultimately, of utilizing the human capital in the company. This is the area in which our competitive advantages lie."

"We have also introduced a new system of compensation data that is based in part on objective performance data and in part on our quarterly

reviews of all segments of the business. We are doing this so that our employees will feel that it pays to do a job well, and will see the connection between their own performances and the company's commercial results."

The program involving the company's structure – the third dimension in Wanted Position – focuses on the need for flexibility and better information technology (IT) support.

"We have to have an organization that shapes and adapts itself for the future rather than being focused on problem-solving, which was the traditional way of operating."

"So we are working hard to become faster at everything we do. We are optimizing our entire delivery chain to get goods out to customers quickly."

"What we have learned is that change is difficult and time-consuming. Personal changes are the most difficult of all. But by communicating with each other more than we ever did before – and making everyone a participant in the company's concerns – we are reaching our objectives."

"That is how we will handle the journey to 2005. Not changing is not an alternative for us. And being number one is the only thing that counts," Gillian emphasized.

Björn Olsson, ERICSSON'S PRESIDENT in Denmark, also reported that the Company had strengthened its position in his country. The Danish telecommunications market, which has been completely liberalized since 1996, is imposing heavy demands on suppliers. This is true, in particular, in the case of a company that is a market leader in both fixed-wire and mobile net-

works. Now the Danish company, too, is working actively to cope with the changes required by developments in its market.

"We have to change from selling products to offering total solutions," Björn said. "And we have to adapt to different market conditions for different segments of our product line. In Denmark we are now concentrating on improving, and on our capacity to change, by focusing on three critical factors:

- All employees must understand, and become involved in, our objectives and how we are achieving them.

- Links have to be established between individual efforts and the company's results.

- Employees must be given greater freedom of action. Ninety-five percent of all decisions should be made by those directly involved.

"We teach our managers how to handle confrontations at such an early stage that they do not result in conflicts," Björn noted. "In this way, we release a great deal of energy, and this has contributed substantially to creating a more open atmosphere in the company."

Lennart Grabe concluded the discussion on the journey to Wanted Position in the year 2000 by observing that a great deal that should be done involves the human factor.

"It is largely a matter of changing our own attitudes and those of our employees," Lennart said. "Different companies have different approaches but we are working toward the same objective."

Those words can serve as a summary of the entire Seville Forum. The general opinion of the delegates was that Ericsson has never been as unified as it is now.

Ericsson's strategic goals...

tomers charge, the goal shall always be to develop Ericsson's values and culture so that they support Ericsson's ability to fulfill its mission. Ericsson's employees of all nationalities will appreciate and take pride in being part of the organization, doing things the "Ericsson way." The meaning of the values shall therefore repeatedly be communicated, discussed and developed together with the employees so that everyone can understand them and relate to them. A strong common culture unites the organization, supports worldwide efficiency and internal communication, creates respect among customers and creates a competitive edge.

Ericsson shall develop diversity into a clear competitive advantage by fully utilizing the competence and thinking.

- Ericsson shall increase employees' awareness of business and the results expected. This awareness, combined with improved and faster feed-back from leaders, will increase motivation and understanding in relation to "new competition" and its requirements for break-through improvements in terms of speed and responsiveness. The entire Ericsson organization should be characterized by a constructive impatience and sense of urgency.

- Ericsson shall recognize and regard the business impact of increased speed and responsiveness, leadership, empowerment, individual proactiveness and teamwork.

- Ericsson shall have an organization set for speed, proactiveness, innovation, entrepreneurialism and market focus

- Ericsson shall strengthen the market dimension in its matrix organization. Utilization of the quality, talents, management skills and knowledge of all employees of different nationalities and locations in the global organization, combined with flexible and entrepreneurial working conditions shall allow for competence and business development close to the market.

- Ericsson shall report more visibly on local results and local value added. Equal importance shall be put on the customer, market and product dimension reporting. Ericsson shall focus more visibly, in all parts of the organization, on the continuous measurement of "real-time issues" affecting time to the market and time to customer.

Ericsson shall add more marketing and customer-solution competence locally in the market organization.

- Local professionals shall be employed to an increasing extent. Competence centers and corporate functional support for geographical areas covering several countries shall be established in the relevant area when deemed appropriate. With competent personnel, Ericsson shall work as closely as is possible and appropriate with its customers; creating an understanding of the customer's business and actively contributing in achieving the customer's business goals.

- End-user understanding shall be increased by a general focus on the subject in all parts of the organization and by decentralized initiatives.

- Ericsson shall develop open and generous work environments to facilitate a borderless organizational concept. All possible actions to

develop more effective working and communication processes will be explored.

- Ericsson shall provide employees with the most efficient working tools. The marketing opportunity of a workforce demonstrating leading-edge use of communication tools will be fully utilized. Furthermore, Ericsson shall deploy competence centers located close to customers, reading universities and research communities.

- Ericsson shall within the company create structures and systems that give employees the benefits of working in both a large and a small company. The small company benefits can be exemplified as follows: Close customer contact, opportunity to see impact on business results, easy to connect regards to achievements, little bureaucracy and quick decision processes.

Ericsson shall have an R&D organization set for speed and flexibility

Growing business dynamics in the market will make it inherently difficult to project future successful product offerings. In order to be the leader in new business segments, the R&D organization must be optimized for the fastest possible development speed. That requires an R&D organization which:

- Focuses on architectures which will allow maximum modularization

- Consistently uses road maps to predict and take into account possible developments of key technologies and competencies

- Makes decisions on what to source or do itself or to develop together with partners, based strictly on business and market considerations.

- Continuously develops necessary components to such a status that product development is basically system integration. Projects shall be run according to the "small company approach" for maximum speed and flexibility.

Ericsson shall run its business as a "low-cost operation"

The infocom market is increasingly being driven towards decreasing prices and an increased use of standard modules and products. As a leader in this industry, Ericsson shall adopt a low-cost operation philosophy for all of its activities and in all planning for the future. For an increasing number of products, a mass-market logic must be observed in the whole chain from design through to distribution via multiple channels. Short product cycles and mass production will necessitate concentration of Ericsson's own production to selected core areas and an active outsourcing strategy. Outsourcing shall however be done in a coordinated way and only to the extent, and in such a manner, that Ericsson does not become unduly dependent upon the performance of others.

Ericsson shall explore the business opportunities with partners

Ericsson's strategy of providing its customers with a broad range of products must be paired with an active partnering and product-sourcing strategy. The cost pressure and the need for short time to market makes it impossible to do everything in-house. In a selective and well coordinated way, Ericsson shall therefore work with partners in its business and actively introduce a culture where partnering is normal and as a result "not invented here" reactions do not arise. With a generous attitude Ericsson shall develop a skill for creating "win-win" situations with its partners.

It started in

SONTHOFEN

Lars Ramqvist unveiled Ericsson's new organization in 1990

■ IN SEPTEMBER 1990, A FEW MONTHS after he had become Ericsson's President and CEO, Lars Ramqvist gathered his troops around him for the first time. Against the background of the south German alps, Ericsson managers came together for several days of meetings that can be described most accurately as the new chief executive's "program declaration." It was here, in Sonthofen, that Lars Ramqvist presented "Ericsson in the '90s," a document that was to guide Ericsson's operations for the greater part of the decade. And it was here – or, more precisely in Stuttgart, on the last day of the meeting – that Lars Ramqvist unveiled Ericsson's new organization structure, presenting a long list of changes in the Company's management that had been kept secret up to then.

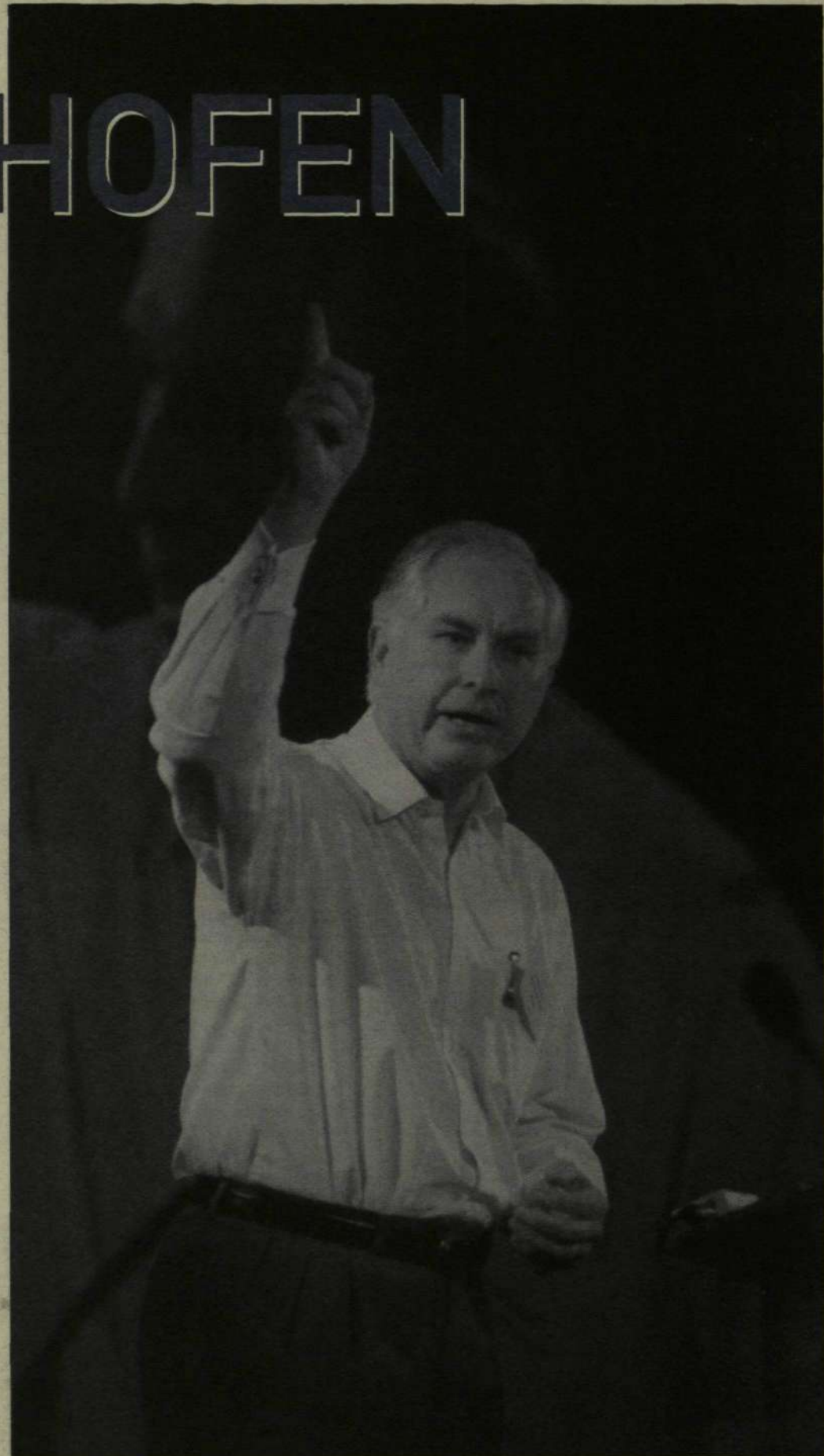
The new structural concept that Lars Ramqvist introduced was primarily the stronger emphasis on the importance of markets for Ericsson. The Company was now organized in accordance with a matrix in which markets constituted one dimension, and product areas – consisting of business areas and business units – the other dimension. To unify this matrix, the corporate functions – the units that support the Executive Committee in key areas of expertise – were strengthened and expanded.

The new "market" dimension was represented in the "Sonthofen model" by Ericsson's Major Local Companies. In accordance with this concept, which was new in 1990, all of Ericsson's activities in the largest markets were represented by a single company. The purpose, of course, was to implement one of the important principles set forth by Lars Ramqvist in Sonthofen: that Ericsson should present "one face to the customer." Today, there are Major Local Companies in Australia, Brazil, France, Italy, Japan, China, Mexico, the Netherlands, Spain, Great Britain, Germany and the United States. India and Russia are fast-growing markets that will acquire Major Local Companies later this year.

WHEN THE SONTHOFEN MEETING WAS HELD, Public Telecommunications was still Ericsson's largest business area, followed by Radio Communications, a newcomer in second place. Business Communications, which at that time was still a completely separate business area, had great expectations for the new DECT technology that was enthusiastically presented by the Dutch company.

This was a market that the optimists figured would amount to millions of dollars annually, and which Ericsson would be able to capture almost exclusively.

During this period Ericsson was producing



"We will move rapidly ahead if we all pull in the same direction." It was in Sonthofen that Lars Ramqvist took the helm as he brought Ericsson's top managers together for the first time.

Photo: LARS ÅSTRÖM

analog mobile telephones, half-heartedly and without any great confidence in its ability to earn much money from such things. GSM had not yet been introduced, so digital mobile telephony was still untested commercially. Although many persons had some idea of the dynamics of mobile telephony, no one dared to forecast the growth figures that have been recorded since the introduction of the GSM, D-AMPS and PDC stan-

dards. And no one in the auditorium in Sonthofen could imagine that Ericsson would be a leader in the market for pocket telephones with annual production of millions of units!

Seven years have passed since Sonthofen. What will the real world be like seven years from now? How much of the three scenarios in the "2005" program will we recognize? That's the big question! ■