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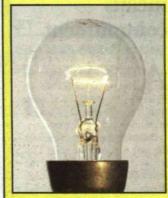
Major step toward the freedom phone

HotLine Pocket has been around for a few years now and has had tremendous success. The name, as it implies, is intended for it to be placed in the pocket. But now a Hotline Pocket has emerged that really justifies the name.

It is, in effect, the first mobile telephone that can really be placed in a pocket and that signifies a major step toward the total freedom pocket phone. It is about half as large as the old one and weighs only 420 grams.

Now, research continues toward even smaller mobile telephones. The first order came a few days after its introduction and Flemming Örneholm, head of the mobile telephone division in Lund, which developed the phone, had twice as much reason for being glad. There is no doubt about which is the new HotLine Pocket.

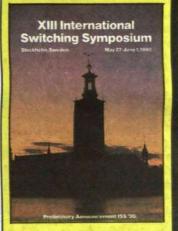
Back page



1989

It began with a light bulb

The origin of General Electric is linked to the inventor Thomas Alva Edison's light bulb. Today, the new Ericsson partner is a giant conglomerate that is the third largest company in the U.S. Page 4.



Historic tele symposium 1990

In May next year the International Switching Symposium will be held in Stockholm. It will be a historic conference, with 3,000 of the world's leading experts. Page 2.



"Back in the USSR"

Now we are "Back in the USSR." But we have never really been away from the Russian market, where we began operations in 1897 and built the factory, above, in St. Petersburg in 1990.

Page 3.

Investment means commitment • Page 2



Ericsson's convertibles:

Long-term investment means commitment

historic perspective is always useful. We in Ericsson can look back on a truly fruitful five-year period in our company's history.

But even a glance back over the past two years reveals a lot when one considers the development of Ericsson shares and the convertibles issued in the fall of 1987.

All those who increased their investments in the company by signing up for convertibles received immediately after the final sign-up day a reminder that one can never be absolutely sure of events on the stock market. As you certainly will recall. "Black Monday" caused a dramatic share price collapse around the globe.

There were a number of employees in Ericsson who wondered what they had let themselves in for, even with the knowledge that convertibles, unlike shares, can always be cashed in for their purchase price.

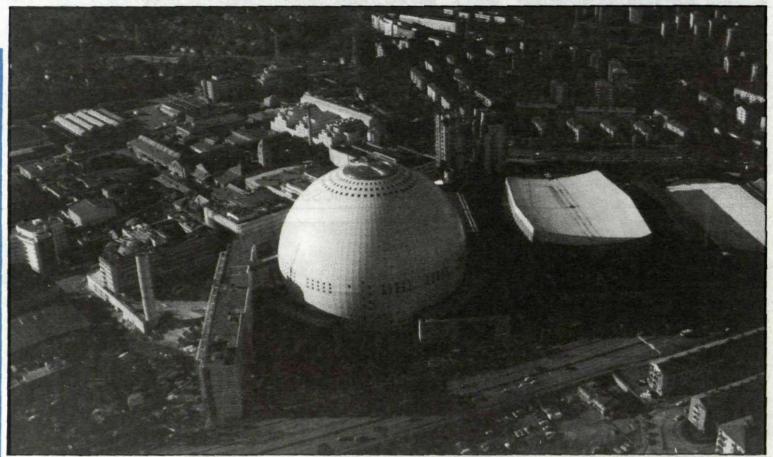
oday, we can confirm that there has been a rapid recovery on the stock market, and that Ericsson shares were among the market leaders. The share price can surely move up or down even now, and naturally no one can guarantee how Ericsson's shares will go. But, I am convinced about one thing, and that is that the upturn Ericsson shares have enjoyed is not merely a cyclical effect.

he upturn resulted, to a significant extent, from what the company achieved, and by that I mean the sum of the employees' input. I am totally convinced that this input is influenced by the fact. that today so many employees are also investors in the company through convertibles purchase. There is a significantly increased interest among our employees in the company's development.

ext February, Ericsson will apply for listing for its convertibles on the Stockholm Stock Exchange. For the first time we will have a market-pegged price for convertibles.

A long-term investment in Ericsson, either in the form of convertibles or shares, is a compelling reason for our continued mutual success.

> Carl Wilhelm Ros Vice President, economy and finance



The actual conference will be held at the Älvsjömässan exhibition center. But participants will be simultaneously guests in Stockholm, which naturally wants to show the best and most attractive that the city has to offer. As a result, there will be activities in Globen.

World's communications experts meet in Stockholm in 1990

On May 27, the 13th "In-Switching ternational Symposium" (ISS) will be held in Stockholm. It is the world's largest specialist conference in telecommunications. Some 3,000 delegates, from manufacturers, operators and administrators the world over will come to Stockholm to exchange ideas and experiences.

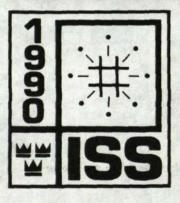
"Interest is at a peak since we have seldom seen the development of telecommunications on so vast a scale as in recent years," says Televerket's technical director Torsten Larsson, who is chairman

His Majesty King Carl XVI Gustaf, patron of the symposium, will inaugurate the event at the Stockholmsmässan exhibition center. It will run from May 27 to June 1 and is arranged by Televerket, the Swedish Telecom, and the Ericsson Group.

ISS is an international scientific and technical conference for the telecommunications industry, which is sponsored by the Swedish Electrical Engineers Society (SER) in cooperation with IEEE Sweden Section, the IEEE Communications Society, the Institution of Electrical Engineers (IEE) and the City of Stockholm. Principally, discussions will center on future technology.

Hosting of the symposium rotates between Europe, the United States World's largest symposium

in telecommunications



"The thrust centers on switching

technology but we have chosen to

present some broader subjects on

the opening day," says Thomas Haug, chairman of the scientific

members from 10 countries, that

will gather and select the lectures

that would be presented at the con-

ference. The lectures will come

under the headings of Network,

Systems and Technology. At pre-

sent, 474 papers are being evaluated.

That is some 130 more than were

presented at the last symposium in

Phoenix, Arizona, three years ago.

through the presentations and it will

be a difficult task to choose only

one-third of the submitted papers,

says Haug.

"We are in the process of going

committee of Televerket and ISS.

474 papers to evaluate

International Switching **Symposium**

Stockholm · Sweden May 27-June 1, 1990

ISS'90 will focus principally on the latest development of switching technology in the telecommunications field, which includes voice, data, text and picture as well as the factors that influence the development of these.

It is the scientific committee, with Gathering of world experts

one in the United States in 1957, symposium.

The third day is dedicated mainly to different presentations selected



Ericsson's technical Gösta Lindberg, hosting the event with Televerket, is vice chairman

by the scientific committee. The

fourth day is set aside for so-called

technical visits within the host

country's industry. The fifth and last

day will be taken up with the re-

maining presentations. Before the

end of the symposium, ISS'90 will

be officially declared closed and the

"staff" will be passed on to the next

country and sponsor, which will be

every three years since the initial follow much the same pattern. The first day is dedicated to registration and certain social functions. The official inauguration takes place on the second day, under the patronage of His Majesty King Carl XVI Gustaf. In addition, a number of delegates from leading positions within the industry will address the

Japan. "I am convinced that ISS'90 will be one of the most interesting conferences of its kind, very relevant to the developments we see today with deregulations and the technological advances within our field. But above all, it will present ideas and thoughts for the future by a world gathering of experts in telecommunications," concludes chairman Torsten Larsson.

Digital overlay boosts capacity in Macau

Sixty kilometers across the bay from Hong Kong lie the peninsula and two islands that make up Macau - the newest of Asia's newly prosperous economies.

Still under Portuguese administration, Macau joins Hong Kong as a part of China in 1999. When it does, it will have one of the world's most advanced telecommunications works.

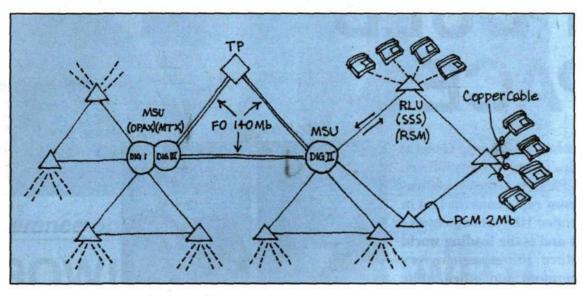
In 1981, with a population of 400,000, Macau had a waiting list of 20,000 for phone connections. Estimates of demand over twenty years called for a network of 200,000 lines. Traffic was handled by a couple of aging crossbar switches, and international calls even to Hong Kong - were manual through the operator.

The difficulties of modernizing the network were enormous.

Space and grace

Macau was a settlement of ancient buildnings, with inadequate foundations, and narrow, congested streets. Space everywhere was immensely precious. To find room for dedicated buildings of as little as 6m×8m to house network functions was not always possible, and extensive street excavation could lead to the extensive collapse of buildings.

Prosperity and the Portuguese influence have produced a unique place: Macau still offers the ambience of a Portuguese resort quiet streets, old shade trees, and pastel-painted villas along warm sea fronts - as well as the bustle of an Asian boom economy. The Administration was concerned to preserve as much as possible of Macau's charm - a moneyspinner as part of Macau's attraction for tourists.



Macau appointed Cable & Wireless to tackle the problem, with a 20-year concession to operate and expand telecommunication services. Cable & Wireless moved in with a majority stake in a new

company, Companhia de Telecomunicacoes de Macau (CTM).

Startling progress from a standing start

The attack stagnating Macau's network was rapid.

Within ten days, CTM introduced an automatic telex service.

Within a year, Macau residents had access to international direct dialling (IDD) facilities - initially to Hong Kong, but expanding rapidly to

reach today's 146 destinations 95% of all international calls are still in demand: increasing traffic with China's lower penetration network means greater demand for person-to-person calls.

In 1982, outgoing paid minutes for the whole year totalled less than 7 million. Now, they are running at 3 million per month. Growth has been encouraged by the addition of an earth satellite system in 1984, currently offering

links with Portugal, the U.K.,

Japan and Australia. By the end of this year, with two digital microwave links to Hong Kong in position, and the fiber optic cable between Macau and Zhuhai, the

consisted of crossbar exchanges largely connected by buried direct lead-sheathed cables.

To avoid major civil engineering works in a cramped, fragile environment, CTM recognised that

duct route size would have to be limited, and could be reduced even further if ducts were split to run along each side of a road where possible.

The size limitations in both connection and distribution

entailed large number of small exchange areas, each originalhandling 2,000-4,000 (8,000 lines lines today, us-

generation line equipment), served by remote line units from the new digital exchanges. Digital transmission, over optical fiber cables where necessary to provide high capacity would keep the ducts needed for inter-connection

HONGKONG

With the basic network structure agreed, CTM needed digital switches which could best support the distribution structure.

KEY

MSU: Main Switching Unit

MTX: Mobile Telephony Exchange

OPAX: Operator Call Handling System

RLU: Remote Line Unit

RSM: Remote Subscriber Multiplexor in AXE

SSS: Subscriber Switching System in AXE

TP: Transmission Point

Clearly, the distribution structure calls for high functional modularity in the switch, with the facility to put subscribers switching units in remote locations. At the same time, the switches had to supply large processing power to handle both local and transit working - and, most important, international capability, with its high requirement for reliability and

Stability and flexibility

In 1983, the first digital exchange was commissioned - DIG I, a digital AXE exchange from Ericsson. In 1986, a second digital exchange was added, DIG II was also an Ericsson AXE exchange. A third large digital exchange, DIG III, will go into service in

But it is characteristic of all fastgrowing economies that they change dramatically and, often, unpredictably. AXE provides the stability that the Macau network needed as the digital overlay replaced the analogue patchwork, but it also possesses the vital final requirement originally identified by CTM: the flexibility and adaptability which alone can provide a truly future-proof system (Ericsson Telecom, Connexion 16.)

CHINA Kwangchow adjacent area of China, all

international connections will be fully digital.

There are 68,000 digital lines currently installed. The figure will reach 84,000 this

By 1991, CTM plans that all lines in Macau will be digital which will make Macau one of the world's first all-digital communities and certainly the first in

year - 85% of all installed lines.

The case for a classic digital overlay

The network inherited by CTM

Soviet Union 76th country to buy AXE

Ericsson's AXE system is quietly forging a name for itself Siemens have both received huge market, where, like in China, as the most widely diffused telephone system in the world. The 76th country to install AXE — and it is not just simply another country — is the Soviet Union. This means that Ericsson is seriously re-entering a market where we have historic roots and a good reputation going back more than one hundred years.

It was not exactly with a fanfare of trumpets that Ericsson announced that the Soviet Union had ordered two AXE stations. One, a local station; the other, a transit station.

In the first place, we are not

the first telecommunications manufacturer in the West to benefit from Mikhail Gorbachev's perestroika and glasnost by receiving an order for advanced electronic equipment. Our competitors, Alcatel and

contracts since Cocom, the restrictions for high-technoloy exports to the East.

Actually, it is not Ericsson that will manufacture the two stations. Instead, it is the Yugoslav licensed manufacturer Nicola Tesla in Zagreb. But the purchase is obviously a troika, with the Soviet Union, as customer, Nicola Tesla, as licensed manufacturer, and Ericsson.

The Soviet Union is a huge

there is room for several major Western control group, eased manufacturers. It is reckoned that the country will need 100 million new telephone lines over the next ten years. Telephone density is only 11 phones per 100 inhabitants, compared with Sweden, at the top with 64.

Ericsson has a very good standing in the Soviet. Russia, at the turn of the century, was Ericsson's largest market. It was such that at the end of the 1890s, the company seriously considered moving its entire operations to Russia.

Now, as Ericsson notes that the Soviet is the 76th country to purchase AXE, it is really no new export market. We were already exporting to czarist Russia more than 100 years ago, and we have never really been completely out of the market. But now, with historical links behind us, we are seriously returning to compete in the Soviet investments for the

FROM EDISON'S LIGHT BULB TO SPACE

Ericsson's new partner in mobile telephony, General Electric (GE), is one of America's largest corporations. In the United States, General Electric arouses admiration — and concern. The company represents the best in American industry. It was founded 111 years ago by the inventor Thomas Alva Edison and is the leading world manufacturer of, among other things, such very American products as refrigerators and other white goods, aircraft engines, space equipment and, naturally, lighting.

GE is headed by the controversial wolves, dangerous and on the offen-

Many employees - and a number under. of outstanding figures - describe Welch as a hardnosed restructuring executive who is only concerned ting General Electric in branches as diverse as financial services and television production.

Nevertheless, one cannot take away from him the fact that he has turned around the bureaucratic and sluggish General Electric into one of America's most admired corporations and that he himself has become one of the nation's top chief executive officers.

Welch's climb to the top has been a steep one and is classically American. Born into a simple home, with his father a locomotive driver, Welch finished his studies rapidly to become a chemical engineer with a doctorate and began with GE in the plastics division. Nine years ago, at the age of 45, he became the company's youngest

Aggressive Vikings

The group that he leads can be compared to a combination of Electrolux and ABB (Asea Brown Boveri). A few years ago, in an internal publication Welch referred to the two Swedish corporate leaders Anders Scharp (Electrolux) and Percy Barnevik (ABB). They were seen as extremely dangerous and fast-moving competitors, he felt, and likened them to aggressive Vikngs and an attacking Robin Hood.

That he has now chosen to collaborate with another Viking pair, Björn Svedberg and Ericsson, should be seen as a mark of high

But Welch is also controversial. One wonders what kind of company he has built with its multiple buyouts and takeovers. He himself has said that General Electric will be the world leader or number two in its 14 different business areas.

Where GE is not in place, Welch

Jack Welch. He has said of Swedish about joint plans with Ericsson. In company directors: "They are those areas where there are no the factories so that now there are possibilities for being No. 1 or No. only four different reporting divi-2, that means selling out or going

A typical example of a Jack Welch business strategy is the large purchase of the American RCA, for with buying up companies and put- \$6.5 billion in 1986. RCA includes one of America's leading television networks, NBC, a large defense materiel sector and a number of



NBC was absorbed by GE, as a Small divison new business area with 3.6 billion in turnover in 1988, and the defense Ericsson venture is a rather small operations were merged with GE's.

tion's third largest concern, will be a small business. This seems absurd, but the thinking is to foster the small company speed and decision making within GE, eliminate bureaucracy, and aim for widespread involvement by personnel, or with a typical Welch formula "to be a large company with the glow of a small

5 layers of management

intends to take it to the top through jectives a reality, by, among other has until very recently been a



Thomas A. Edison

joint ventures. That says something means, eliminating five layers of domestic market oriented company

management between himself and sions from the shop floor to top management. GE's well-known strategic planning with a flood of paperwork has now been reduced to a few A-4 pages per year.

"That means freeing staff from the paper montains," says Welch, whose leadership style entails con-

The traditional core in the concern is equipment for production Community in several production and transmission of electrical areas. The company has also underpower, engines, lamps, white goods taken a number of other ventures and transport systems, Here is with giants like Japan's Toshiba and where it competes with Sweden's West Germany's Bosch. Electrolux and ABB.

Through rationalization, Welch has succeeded in increasing productivity and improving competitiveness. "Jack Welch has never seen a company that he didn't think could be run more effectively," they say at headquarters in Fairfield, Connecticut, north of New York.

Two of the company's largest mostly as supplier of high technol-Ericsson's and presently account for GE venture. nearly 35 percent of gross profits of some 35 billion kronor.

The area that is connected to the division in the Communications and remainder, with 41,000 Services business area. Manufacemployees, was sold or disbanded . ture involves equipment for mobile The other aim is that GE, the na-telephony and mobile radio, with headquarters in Lynchburg, Virginia. Sales last year amounted

to slightly over 2 billion kronor. General Electric is ranked third or fourth in market share for terminals, and earnings are affected not least by the tough competition from the Japanese on the American market. GE's leadership has, thus, found it difficult on its own to be the world's

In spite of its size and leading-Welch has tried to make these ob- edge technology, General Electric

operations is a very new one

Over the past two years, for instance, GE has expanded with Hotpoint in England, the country's leading white-goods manufacturer, traded its large but unproductive radio and television manufacture for France's Thomson division for medical equipment and, moreover, entered a very promising venture tinuous questioning - following with its namesake in Britain. General Electric Plc. That gives GE a solid foothold in the European

Hand in glove

Even if Jack Welch is not loved by all, the majority is prepared to give his toughness and rigid demands, for "better, higher and larger," he has made a model out of General Electric for American business. He future challenges in the form of. business areas are aircraft engines among other things, globalization and space technology, the latter and increased competition from the Europeans and the Japanese. Ericsogy for defense systems. They each son's immense international exhave a turnover about in line with perience goes hand in glove with the Mats Hallvarsson

GENERAL ELECTRIC IN FIGURES

General Electric group in figures:

(in millions of dollars)	1988	1987	
Turnover	50,089	48,158	
Gross profit	5,715	4,440	
Net profit	3,386	2,915	
Balance sheet total	110,865	95,414	
Employees	298,000	322,000	
of which abroad	43,000	45,000	

Turnover and grass profit

(in millions of dollars)	Turnover	Gross profit
Space technology	5,343	640
Aircraft engines	6,481	1,000
TV and radio production	3,638	540
Industrial products	7,061	798
Household products	5,289	61
Materiél	3,539	733
Power systems	4,805	503
Technical products and		
services	4,431	484
Financial sector	10,655	1,027
Other	394	168



Ericsson's technical director, Gösta Lindberg, in discussion with Hidenori Tanaka, head of Hitachi's Strategic Sales Promotion, and Funimaro Kawakatsu, head of Hitachi's semiconductor division.

Conference on fiber optic communications

GROWING MARKET WITH UNLIMITED POSSIBILITIES

could start being used in Sweden in

Dr. Michiyuki Uenohara from NEC

showed how the dramatic development

in microelectronics now has its parallel

in optoelectronics with 20 years

from chips with some hundreds of func-

tions to chips with more than a million

If optoelectronics follow the same

development path as IC-technology, we

will have completely new possibilities

with automatic translation. The new op-

totechnology can make an enormous

contribution to global understanding in

functions," Dr. Uenohara said.

Without limits

The new opto technology can mean a great deal for global understand- can easily be overcome, Dr. Uenohara along the lines of systems have been far ng by bridging language and cultural barriers.

Dr. Michiyuki Uenohara from NEC sees a future in the new opto technology. He thinks it can bring mankind a step nearer, for example, toward a dream product such as a telephone with automatic transla-

Dr. Uenohara was one of the 188 participating speakers at Europe's largest and most important conference in the field of fiber optic communication, ECOC 89, which took place recently in Göteborg.

Participants from the world over gathered to discuss the future, opportunities and developments in the telecommunications market's most expansive sector.

No fewer than 700 delegates from tion with transmission speed of 2,5 GBit some 20 countries participated. The conference was arranged for the 15th time, the first on Swedish soil. Sixtyfive participants from Japan and 68 from the United States point up the significance ECOC holds far beyond

Fiber optics today is the most expansive sector in the telecommunications market. The total world turnover for fiber optic components amounted last year to 40 billion kronor. The annual growth has in recent years been put at between 25 and 30 percent and is expected to surpass 30 percent this year.

Only the beginning

"And that is only the beginning," says Isviatko Ganev, head of the fiber optic department in Ericsson Components. When the digital broadband network becomes a reality around the year 2000, growth is expected to be even larger as a result of the increased communication possibilities that subscribers will have access to.

That is the background to ECOC, the European Conference on Optical Communication, which assembled some 700 participants from around the globe to a conference in Göteborg.

Several, of the conference's opening guest speakers entered directly into the explosive development in the field. S.O. Johansson, technical director at Televerket, the Swedish Telecom, confirmed, for example, that growth of the Swedish telecom network was about 15 percent a year, which means a doubling every four years.

"At the same time, technical developments make for higher transmission speeds," he said. Today's long-distance connections have a speed of 565 Mbts/s, fiber. We reckon that the first connec- Michael Zanetti.

Ericsson's technical director, Gösta Lindberg, dared - despite the pace of development - to sketch a scenario on how the information society would appear in the year 2004. This included, for example, a four-color newspaper personally composed on a home printer, three-dimensional high-definition TV, cordless personal telephones with mailbox functions, and more.

"With the evolution we are now witnessing in fiber optics and other areas, these visions can be reality within 15 years. But they will be a reality only if customers are offered such products and services that they see as cost effective," Lindberg stresses. "There has got to be a continuing dialogue between the technological possibilities and the real

"In 20 years, IC technology has gone A change

The number of presentations at the conference — 188 in all — was the largest ever. Of these, no fewer than 56 were

Ericsson Telecom's Lars Thylén, an international authority in the field of optical switching, noted a marked change for realizing dreams such as a telephone in contributions to the conference

Whereas earlier a major part of these sessions was oriented toward technolthat language and cultural differences ogy and components, contributions



Production of fiber optic components at Ericsson Components in Kista, which corresponds to 8,000 calls per bonding of detector chips. From left, Suzanne Almqvist, Asa Mattsson and

Nothing entirely new, thought Thylén, was unearthed in Göteborg, even if he, like many of the others, found developments in the field of lightreinforcing fibers very interesting.

What does he think, then, of our own Ericsson level?

"In certain areas good and, to some extent, even leading. In other areas, on the other hand, we have obvious potentials," he says.

At the conclusion of the conference, there was an exhibition with some 20 exhibitiors. Among them was Ericsson, which chose, for the first time in a collective presentation of products from Cables, Components and Telecom, to show the cream of the world's experts on fiber optic communication what we have to offer the market.

Cables presented its fiber manufacture and demonstrated its fiber welding process for seaming fibers. Telecom showed, for the first time publicly, in full operation, its polarisation independent 4x4 switch in lithiumniobate. In the demonstration, visitors could direct signals themselves from four independent video sources linked to four dif-

Tsviatko Ganev and his colleagues made use of the opportunity for an international introduction of its products -Mbit/s to 2,4 Gbit/s fiber optic transmission on systems as well as switches and modulators foreseen for future fiber op-

Tough investment

The department for fiber optics in Ericsson Components, in this context, is worth a chapter in itself. Last year, it had sales of 50 million kronor, which is not bad for a group of enthusiasts that was threatened with disbanding more than once. The bulk of this came from internal sales within Ericsson, but the department has external customers not only in Europe but also in the United States and Japan. (It is a fact that of Ericsson's total sales in Japan last year, Ganev and Co. accounted for 20 percent)

"In 1993, we will be a recognized supplier of opto components in Europe. with close to one-third of our sales outside of the Ericsson group, says Ganev, without batting an eyelid. Kåbe Lidén

System lift for largest source system

Ericsson Telecom has started a project for laying in new functions like CENTREX and small station applications in its largest source system for AXE.

APT210 08 R5 will be the new version in the 08 system, a volume product that is sold to a large degree around the globe.

The new system is expected to be ready next fall and FOA (First Office Application) will be a station in Denmark.

Thereafter, two million lines are slated to be delivered in 1991, at the same time as stations with the older system are being modernized.

"In the Nordic area alone, we expect to modernize AXE stations to the extent of over two million lines in the next year," says Torbjörn Andersson, regional head for the Nordic area in ETX.

The entire ETX leadership is behind the project, where high quality from the beginning is the key to success.

The economic significance of satisfactory results is enormous, since the new system affects more than 15 million of the 21 million lines installed the world over. (Switchen)

Ericsson forms new company

A new company, Nira Sverige AB, has been formed to handle sales of Ericsson's cordless telecommunications systems. The company is included in the Ericsson Paging Systems Group of companies, which is currently a worldwide market leader in the local paging systems area.

Nira Sverige AB has been formed to support the launch of cordless systems in the Swedish business communications market.

Ericsson's paging systems, which are currently marketed collectively under the Teletracer brand name, include everything from simple paging systems to complete information systems with comprehensive text messages in small credit-card sized receiving units.

DECT 900, a range of cordless telephones, will be launched as early as 1990. These telephones will enable companies to replace fixed cord extensions with portable cordless telephones, which can also be used outdoors, for example, at airports and shopping centers, via so-called telepoints. They can also be used in the home.

The new cordless telephones will radically change our communications habits. According to several market surveys, they will attain very rapid market growth. Based on a cautious assessment, 3 to 5 percent of Western Europe's company switchboard extensions will be cordless within a five-year period, which corresponds to 3 to 5 million extensions.

Nira Sverige AB will provide the Swedish market with support and expertise in connection with the introduction of the cordless communications systems of the 1990s.

Ericsson Paging Systems is part of Ericsson's Radio Communications Business Area. The Ericsson Paging Systems group has annual sales of approximately SEK 600 million, with some 1,000 employees. It is headquartered in Amsterdam and has a plant in Emmen, Holland.

Processor number 500 delivered

The Älvsjö factory within ETX has delivered its 500th APZ 212, the powerful processor for the AXE system. It went to British Telecom's station in Chelmsford, northeast of London.

Since manufacture was begun on the APZ 212, which from the beginning was thought of as a special application for a particular purpose, it took two years to produce 100 units.

Now, the production level has been doubled through the manufacture of an additional 400 in the past two years, and a further 500 processors are expected to be needed between now and 1991.

"We should do something that is the world's best, and we have accomplished that," says the head of ETX's system construction division, Kjell Sörme, emphasizing at the same time that this processor is something that our customers need in an ever more hardening competition climate. (Switchen)



Export financing plays a key role

Financing of our business often plays a key role in our battles with our competitiors.

This significant part of our operations often functions "in silence" while the sales force takes home the plaudits for a well executed offer.

"When it comes to industrial nations, often there is nothing for us, but poor countries of Africa and Latin America as a rule need help with financing and this is where we enter the picture," says Ossie Everum.

He heads the operations in Ericsson Telecom, where a staff of seven work with export financing and guarantees in order to determine how our customers in the poor countries can pay for the products we sell them.

"Our policy is that someone other than Ericsson should take the financial risk," Everum stresses. "We should not run the risk of not being paid for what we sell and deliver."

As examples of risk takers, he names bankers, the Export Credit Organization (EKN) and private insurers.

More often than not, the solution could be found in a combination of several of these.

"We are dependent on the support we get from EKN for our operations, which affect 1-1.5 billion kronor of ETX sales." says Everum.

EKN is a state body, which gives guarantees for export credit that is supplied by a bank. EKN is often a condition for Swedish companies to do business with poor countries. The financing aspects often are prerequisite for the customer.

The credit that is guaranteed by one of the above-named groups is referred to as "export credit."

Along with this, there is a system administered by BITS, an organiza-

tion for international technical cooperation, which extends socalled U-credit or what is popularly known as "soft credit."

BITS', whose operations are part of the Swedish aid to undeveloped countries, extends credit at low or sometimes zero interest.

They both take risks and gives subsidies, the latter being part of the Swedish aid program, which through SIDA and the World Bank, is supported by the Swedish government.

The norm is that BITS pays all or part of the interest on credit and makes no damages claim on the bank if a client defaults on payment.

The large nations that finance through EKM, BITS etc. are Mexico, Venezuela, Argentina, China, Algeria, Tunisia, Morocco, Pakistan, Uruguay and Colombia. (Switchen)

Our important exhibition operations

Baghdad, Geneva, Beijing, Teheran, Singapore, Algiers, Hannover, Shanghai — a number of large cities around the globe — what do they have in common?

They all are, or have been, venues for international or national exhibitions in the telecommunications field. Exhibition operations in Ericsson are handled by Lars Bernring.

Almost all exhibition projects, in which Ericsson Telecom participates, is concern linked, that means it involves several business areas with a central administrative unit.

Since for some time central resources have been lacking, organizational responsibility has been divided up among the business areas. Through them, Bernring has had project responsibility for a number of exhibitions.

As such, he sees to it that a functioning stand is in place at the right time. This means, for instance, having contacts with fair arrangers, taking care of setting up stands, looking after electricity, telecommunications, hotel rooms, producing exhibition material and seeing to it that it is all in place.

In other words, it means juggling several balls in the air at the same time.

Costs are divided among the business areas according to the extent of the display in the exhibition. Normally, it costs about 10,000 kronor per square meter of stand space. (Switchen)

Ericsson supports European standard

A number of major European telecommunication companies, such as ASCOM, Alcatel, Philips and Ericsson, have signed a Memorandum of Understanding (MOU) supporting the DECT standard for the Digital European Cordless Telephone system. The MOU offers support by the signatories in the standardization work and development of products according to the DECT standard to enable its implementation by 1991.

The signatories call for an early clarification of the relevant frequencies to enable development work to start as soon as possible. It is expected that more companies will join this DECT support within the coming months.

The introduction of the first DECT telephones can be expected in the autumn of this year.

Image campaign in West Germany

Business Areas Radio Communications, Public Telecommunications and Business Communications have just launched a joint campaign in West Germany. It is the first time that a joint investment of this type has been made. Through ads, various press announcements and input from several key persons, the aim is to make Ericsson more widely known in Germany. For Radio Communications, it is important to have a solid platform since Germany will soon be choosing a supplier for GSM, that is the pan-European digital mobile telephone network.

For Public Telecommunications, Germany is an interesting market since its telecommunications monopoly is in the process of being dismantled. Business Communications is already in Germany, but is still somewhat unknown among most companies. The Ericsson campaign will run through the beginning of next year.

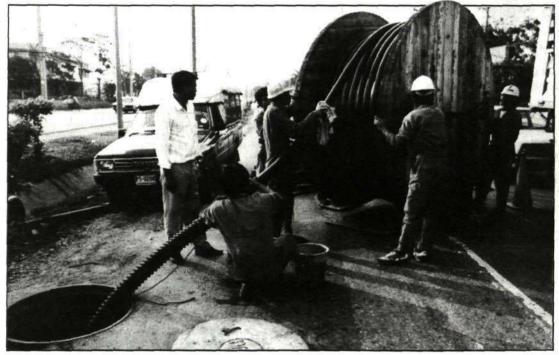
West German order for Ericsson

ABB Mannheim has signed a contract for the installation of a digitial telecommunications system MDII0 at the company's operations in the Mannheim area in West Germany. ABB Mannheim is part of the conglomerate ABB, Asea Brown Boveri Ltd. in Zürich.

The contract is worth 4.5 million DM (15 million SEK) and covers a digital PBX system with 8,000 lines for voice and data communications. When the installation comes on stream in 1990, it will be one of the largest private digital communications systems in West Germany.

ABB has 20.000 employees around the world. The largest concentration of its activities is in the Mannheim area, where some 30,000 people are employed in 30 operations. Ericsson won the contract from ABB Mannheim in competition with a number of the world's leading telecommunications companies.

In addition, the world's leading manufacturer of printing equipment Heidelberger Druckmaschinen AG in Heidelberg, has placed an order with Ericsson for an MDII0. It covers a digital communications system for 4.000 lines and is valued at 6.5 million kronor. Heidelberger Druckmaschinen AG has 7,500 employees in 200 locations around the world.



Ericsson receives contract from Thailand

Ericsson has been awarded a contract valued at SEK 175 million to further expand the telecommunications network in Thailand.

The order covers the expansion of the local network in the Bangkok area in northeastern Thailand, where Ericsson is currently expanding the telephone networks in more than 158 locations. The work is being carried out by Ericsson Thai Networks Company. The project is expected to be finished by year-end 1990.

"This order consolidates our standing as a leading supplier of telecom networks in Thailand, and it strengthens our position in the important Southeast Asian region," commented Lars Berg, head of Ericsson's Cable and Network business area.

OUTLOOK

BY MATS HALLVARSSON

Mobile telephony is moving ahead in the United States many tens of percent per year over as its popularity takes off. But, for once, the branch is also taking up the foreseeable problems of the future. These include not only a capacity problem but also price and the threat of regulations.

uddenly, clouds are beginning to darken the mobile telephone skies in the United States. It is not only the pleasant concerns such as the strong demand and the capacity problem in Los Angeles, New York and other large cities. It has now become difficult there to get contact with free lines.

The mobile branch is afraid that the authorities could change the rules of the game for both establishing and pricing in this expanding sector, which until now has been unusually free of re-

In summer, word got around that the U.S. Congress was contemplating a law that would allow other competitiors into the market. The established operating companies saw their shares tumble drastically on the stock market.

This is no light matter, Mobile telephone operations in the United States is a duopoly. The market is divided into different "divisions", where "Division 1" covers the 30 largest cities. "Divison 2" the next 30 largest cities, and so on. In every city or market area, two operating companies are granted licenses for "noble contest."

nd competition there has A been, but there is also a strong concentration trend within the branch. Successful operating companies have bought up others

in adjoining or cutoff operating areas for far higher prices.

Therein lies the increased capacity problem. England, which has a similar national system, has already indicated that an additional two operating companies will receive licenses alongside the already existing two. If this becomes a reality in the U.S., it would mean a pressure on

There is also some thoughts about the authorities regulating prices. Today, the operating companies, as a rule, are entirely free to set their prices - and they are not low. A monthly subscription can cost \$30-\$40, plus up to half a dollar for a minute's conversation. In California, the authorities are studying a suggestion that will reduce prices by upward of 20 percent.

Besides, the operating companies must do something costly - to increase the system's capacity. Demand is so great that the solution appears to be to advance the introduction of digital mobile telephony by several years. That should greatly increase capacity and quality in the system, but at tremendous cost for new equipment - and lower prices for consumers.

The new signals could forebode difficult times for mobile telephony in the United States. But not to the extent that demand could be lessened.

No, it is a question of growth by

many years until there are, among other things, new variants of mobile communication, such as the ultra small pocket telepphone for pedestrians, known as the Telepoint in England.

ew and changed rules in the game should shake up the established players and at the same time increase competition further. not only in operations but also in supplying, where Ericsson figures prominently. It is against this background that one should see Ericsson's new joint venture on mobile telephony with with the U.S. giant General Electric.

It will soon be three years since Ericsson's archrival on the world's markets. ITT, threw in the towel and sold its telecommunications sector to France's Alcatel. That created Europe's largest telecommunications group — with a lot of skepticism among its competitors. How goes it today? Fine, thank you.

t was a first-class sensation when the deal between ITT's telecommunication division and the French Alcatel was concluded at the end of 1986.

The tough competition, not least from Ericsson, and the difficult and costly development of System 12, made ITT, archrival since the beginning of the century, abandon the telecommunications sector.

The merger with the French Alcatel was greeted with a lot of skepticism in telecommunications circles. How could they reconcile a fusion of so different cultures, and how could they push and develop two so very different systems, the Alcatel E 10 and ITT's System 12?

The new group found its legal residence in Holland and its headquarters in Brussels, but very soon came to be French dominated. The majority shareholder is to be found in the large French conglomerate CBE, with 65,5 percent. ITT kept 37 percent.

arnings was the key element in the new constellation, but size was imposing. Sales rose to 80 billion French francs, the number of employees to 140,000 and global market share to 14 percent.

Now, almost three years later, one can say that the skepticism was unfounded. Alcatel has made great strides, both in productivity and in structuring and to a great extent has held its market position in the world.

The company has been trimmed back rather cleverly and it has sold off several operations that had no direct bearing on telecommunications, among them the radio and television division to Nokia of Finland, as well as its personal computer manufacture. As a result, the number of employees has shrunk to about 120,000.

ationalization has taken R ationalization parallel operations, such as the selling of products and systems in the office equipment market, such as switches, telephones, fax etc. The huge cable operations have

also been trimmed back. Productivity - sales per emplyee - has increased by about 5 percent a year, and will continue to do so, according to the group's president, Philippe Gluntz.

The same sort of rationalization has streamlined the entire production network around the world. Alcatel has operations in 100 different countries and the two telesystems, E 10 and System 12, have been sold to 76 different countries, the same number as for Ericsson's AXE system.

nformation has been very sparse about the long-term problem of maintaining and developing the two different systems. Gluntz has said that the next generation of switching products could supplement the existing network. It is not a question of replacing the E 10 and System 12, but rather joint further development.

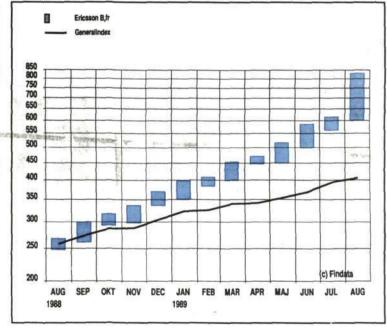
There is a very optimistic view about Alcatel, and the figures for 1988 do not belie that. Sales fell back a bit, the result of disposals, to 78 billion francs. Net profit amounted to 2,560 million francs, an increase of over 14 percent, and the number of ordered lines are put at 6 million, 15 percent better than in 1987.

lcatel says it now has 40 per-A cent of the European public market and close to 70 percent of the office switching market. To that, one can add that it is the world's largest cable manufacturer, thanks to its subsidiary Cable de Lyon. As such, Alcatel is Ericsson's main competitor in Europe.

☐ Ericsson's half-year report bucked the downturn on the stock market. Forecasts for a full-year profit earnings of 3 billion kronor prompted B free shares to set a new price record of 830 kronor and to rise a full 10 percent in a single day, something extremely unusual for a company in the top 16 list. Since then, the price has gone slightly back and forth under and above the 800 kronor level.

The rapid price gain in August (about 35 percent) means that the share price has risen close to 120 percent this year, compared with 33 percent for the general index.

The majority of analysts were taken by surprise at the excellent results of a 1.7 billion kronor gain in the first six months of the year, and they continue to recommend buying Ericsson.



ERICSSON'S SHARES

	Mutual Fund		Share Savings Fund	
	Share Price (SEK)	Assets (MSEK)	Share Price (SEK)	Assets (MSEK)
31 Dec 1987	70	27,1	147	31,7
31 Dec 1988	135	52,2	343	56,0
31 July 1989	215	75,8	569	63,8
31 Aug 1989	285	98,0	763	82,6

During 1989, share prices have increased by 111 percent in the Mutual Fund and 122 percent in the Share Savings Fund.

The funds' holding of Ericsson B free shares had, at the end of August, a market value of 816 kronor per share.

Introduction in Switzerland increases international investment in Ericsson

"I hope this will increase international investment in Ericsson, for we are truly an international company. So concluded group president Björn Svedberg in his address when Ericsson shares were introduced in Zürich and Basel in Switzerland at the end of August and the beginning of September.

It was a satisfied Björn Svedberg, together with vice president Carl Wilhelm Ros who visited investors and analysts in Zürich on Thursday August 31. One week earlier, the excellent half-year results were made known. It was a six-month earnings report that triggered a strong upturn on exchanges where Ericsson shares are listed.

Naturally, Svedberg returned time and again to the six-month report when he described the present Ericsson and our position in relation to our competitors.

'We are the most international telecommunications concern, with operations in more than 80 countries. We have our origin and our headquarters in a small country with a limited and protected domestic market," he said.

"For this reason it has always been necessary for Ericsson to penetrate other markets to increase volume with signed orders.

"In the world market for public telecommunications, we rank number four, in terms of local lines installed. But what is important to note here is that Ericsson is the only company of these four majors that shows an increase in the number of lines installed. It is precisely because of this that we are not dependent on a single domestic market.

Svedberg, of course, touched on, among other things, Ericsson's successful investments in mobile telephony and the new joint venture with General Electric.

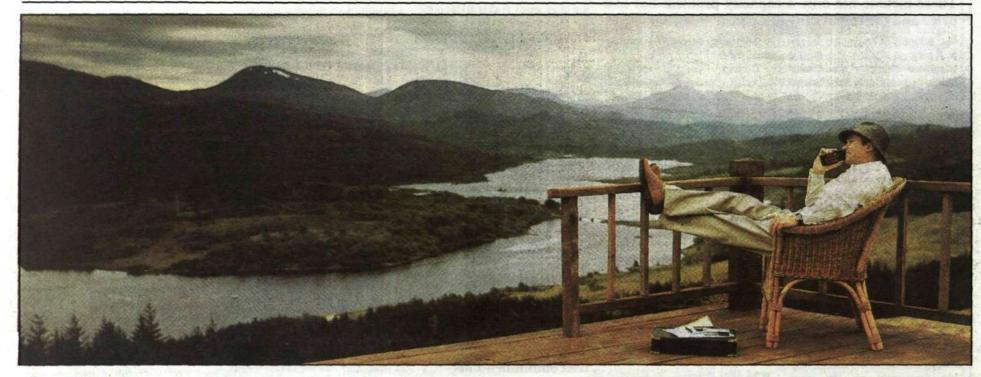
About 30 percent of Ericsson's total 40 million shares is owned by shareholders in countries other than Sweden. The exchanges, beside Stockholm, where Ericsson B free shares are listed are Düsseldorf, Frankfurt, Geneva, Hamburg, London, Oslo and Paris, as well as in the form of American Depository Receipts (ADRs) through the NASDAQ system in the U.S. The largest turnover is outside Sweden, in London and New York.

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Olivia – the freedom pocket phone Ted Bates to all our present

born in a basement

A few weeks ago Ericsson presented its new pocket phone. Almost half as large as the older one, it is now hailed as the first real pocket phone. And for the first time, one can really put it in one's pocket. Its invention was an adventurous route from start to finish. It was decided long in advance how small it should be. Then, it was a matter of resolving the technological hurdles.

"We began with Olivia, the name we gave to the phone after an acquaintance, well before the first pocket phones appeared about two years ago," recalls Nils Rydbeck, head of the development department at the mobile telephone division in Lund.

"At the time we decided how large it should be. We said about 0.3 liter. I myself sat in my basement with my children and tried to come up with a model. (Of course, the children came up with models of their own.)

Made in Lund

Rydbeck recounts also that 50 persons were involved in the development of Olivia. Among them, a core team of about ten. Almost all the work was done in Lund.

The main development took about a year and a half. It began with more or less in a win or lose race with the order of microchips, which was a starting point. And we very correctly determined the development pace. The chips came through and from there on everything else resolved itself.

Olivia marks a new generation of mobile telephones for Ericsson. The smaller volume is noteworthy in itself, the shape and weight

needing fewer construction resources. It provides almost twice as long function time as the normal battery operation (the eternal problem with all pocket phones) as well better receiving and transmitting capacity.

The phone is 18 centimeters long and weighs 420 grams. The sound signal can be adjusted to several levels, the button positions



Head of development, Nils Rydbeck, left, and division manager Flemming Örneholm show Olivia, along with a few predecessors.

NMT 900 system, a system that is used for mobile telephones in Sweden, Denmark, Norway, Fin-

are involved in the production of mobile telephones, both pocket and the larger combimodels.

Freedom dream

With the even smaller mobile telephone, one gets nearer to the realization of a dream of total freedom. This was also noted very significantly in the marketing of the HotLine.

The new photo model (who relaces the super detective Harry) gives a more relaxed impression. He is pictured out in the nature, in places where you can sense calm and freedom.

"The earlier figure we had just did not fit in with all markets," explained Leif Dahl, head of marketing communications in Lund. "Our new collaboration with the Ted Bates advertising agency, which has offices around the world, has produced a concept that is acceptable to everyone. We have just made a tour together with

markets."

Suitable local campaigns were developed from the basic concept. But is the trade mark that is being sold. Products have an all too short life span now.

Huge advertising campaigns are being mounted to position Olivia as a market leader, assures Dahl. We have come that far. The telephone has acquired pocket size, but no one really believes that it will stop at that. Rydbeck himself has visions of something significantly smaller.

"A telephone does not have to be much bigger that a wedding ring. Or a watch," he says.

But it will be some time before we get there. Telephones will surely shrink every year, or every three years and at about the same pace of shrinkage that we will witness over the next 30 years.

If nothing revolutionary happens in that space of time.

Lars Cederquist



The core team, from left, Dag Mårtensson, Mats Lindoff, Kjell Granlund, Stefan Persson, Carl-Magnus Hansson and Lars Åke Nilsson. Sitting, Mats Pettersson, Paul Marsäter, Bengt Larsson and Anders Larsson.

are modified and you can handle the phone with one hand flip through 99 numbers.

Olivia is the first model in the new generation for the so-called land, Switzerland and Holland.

Like the old HotLine pocket phone, Olivia will be manufactured at the Kumla factory in Sweden. Some 500 people there

Holland Purchases

The Dutch PTT, post and telecommunications, is buying our new pocket phone. They have signed a letter of intent with the mobile division in Lund. The order is worth at least 20 million kronor through 1990.

"This is a perfect start for our model and this shows that we have come up with a good product," says Flemming Orneholm, head of the division in Lund.