

Contact

ERICSSON 

MANAGEMENT

INFORMATION FOR ERICSSON MANAGERS WORLDWIDE

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Information Systems Becomes Business Communications

Ericsson's Business Area Information Systems is changing its name to Business Area Business Communications. Ronny Lejdemalm, currently head of the Components Business Area and president of Ericsson Components AB (formerly Rifa AB), has been appointed to head the business area. He succeeds Stig Larsson, who has been appointed General Director of the Swedish State Railways.

The new head of the Components Business Area and president of Ericsson Components AB will be Bert Jeppson, the current Executive Vice President.

The name Business Communications is more representative of the business area's new focus, following the transfer of the data systems and office equipment divisions to new owners. Operations will now be concentrated in the area of communications, where the PABX MD 110

forms the nucleus of system solutions for companies and organizations. Other product areas are telephone instruments, data network systems (local networks and Eripax), small subscriber exchanges, modems and intercoms.

Operations in the reorganized business area encompass

Ericsson in Brief

Following the streamlining of its operations, Ericsson now has slightly more than 60,000 employees, with operations in 80 countries. A total of 10,000 engineers and technicians are engaged in R&D programs, expenditures for which amount to 10 percent of Ericsson sales. Manufacturing is carried out in 30 countries.

about 7,000 employees. The development and administration functions are located in

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New Mexico Order Put at \$171 Million

At the beginning of February, Ericsson announced that orders valued at \$171 million had been received for digital and analog exchanges and transmission

equipment to expand the Mexican public telephone network.

The largest single order, worth \$162 million, came from TELMEX, (Teléfonos de Mexico A.A.). The digital exchanges include new AXE local transit and tandem exchanges for Mexico City and other parts of the country, as well as extensions to existing exchanges. The analog switching equipment is solely intended for extension of the ARF crossbar exchanges in the Mexican network.

The transmission equipment includes both analog FDM (Frequency Division Multiplex) and digital PCM (Pulse Code Modulation) systems.

In another contract, signed with Telnor, a wholly owned

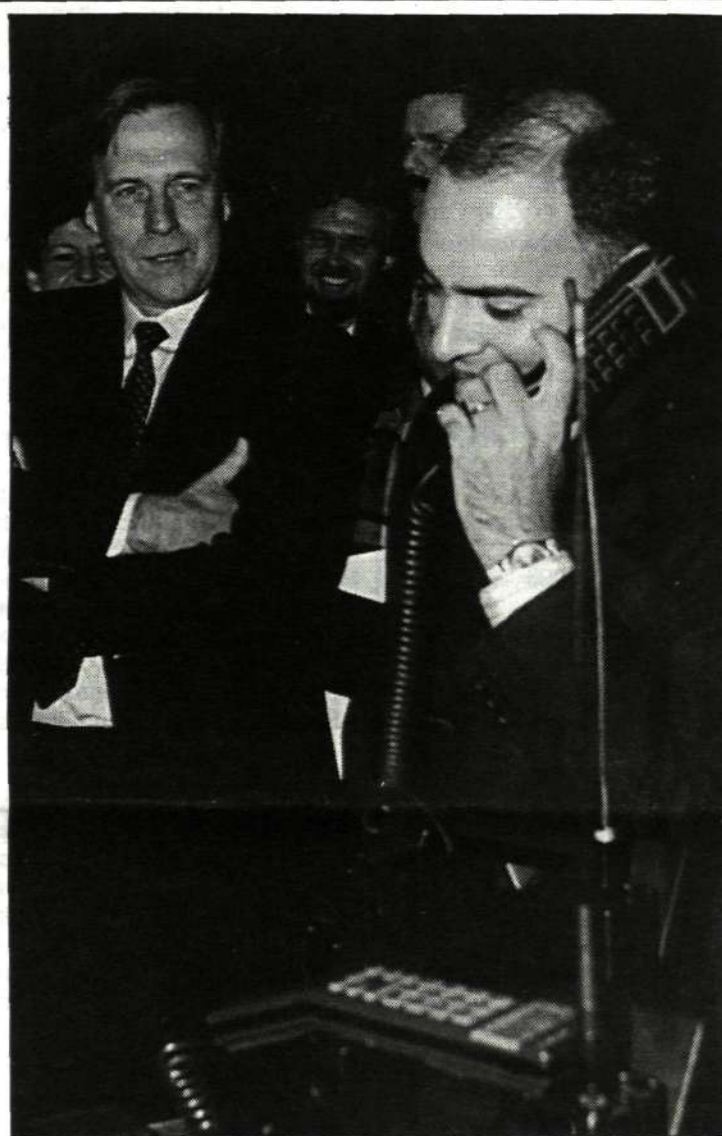
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Post-Strike Roundup

Sweden's leading manufacturing companies were affected by a three-week strike that cost them an estimated 16 billion kronor in lost orders.

The strike by white collar members of the Swedish Union of Technical and Clerical Employees in Industry (SIF) centered on wage increases for 1988 although the point the union fought most

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CEO Björn Svedberg with Prime Minister Gandhi.

Hello India, PM Calling

The main purpose of Prime Minister Rajiv Gandhi's visit to Sweden was to attend the Six Nations Nuclear Disarmament Conference in Stockholm. However, Mr. Gandhi allowed himself time for official meetings and visits to sectors of the Swedish electronics industry, in which he showed a special interest.

The new center, Electrum in Kista, just outside Stockholm, was provided with a golden opportunity to show off the electronic and computer technologies of the future for a visiting head of state.

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\$73 Million China Contract

Ericsson in mid-February received a general contract worth \$73 million to supply China with 210,000 local and 4,900 long-distance AXE lines as well as transmission, power and test equipment.

The contract is the largest commercial contract to be signed between China and Sweden. It is also believed to be the most extensive telecommunications agreement ever signed with the People's Republic of China and reinforces

Ericsson's position as the leading telecommunications supplier to Guangdong province.

In 1985, Ericsson already supplied the city of Guangzhou with what was at the time, the biggest digital telephone exchange in China, a local exchange with 26,000 lines. Further exchanges have since been installed in Guangzhou and Shenzhen in the same province.

The new general contract *Continued on page 6*

Earnings Improve In 1987

Ericsson's consolidated sales in 1987 amounted to SEK 32.4 billion (USD 5.53 billion) compared with SEK 31.6 billion in 1986, an increase of 2 percent. Excluding divestments during the year, the increase for comparable units was 3 percent. Sales to customers outside Sweden accounted for 77 percent of total invoicing, compared with 78 percent in 1986.

Order bookings totaled SEK 33.405 billion, up 2 percent from SEK 32.794 billion the preceding year. The order backlog at year's end was SEK 24.171 billion, against SEK 23.625 billion a year earlier.

The declining rate of exchange for the U.S. dollar during the year had an adverse impact on sales and order bookings.

Following a strong improvement during the last quarter, Ericsson's income before appropriations and taxes in 1987 was SEK 1.108 billion, against SEK 911 million a year earlier. Of this, net capital gains on sales of shares and other fixed assets accounted for SEK 377 million, compared with SEK 378 million a year earlier.

Net income per share after taxes paid was SEK 17.90, against a year earlier figure of SEK 14.96. After taxes paid and estimated deferred taxes on appropriations, income per share was SEK 19.26, against SEK 17.21.

Operating income after depreciation was SEK 2.019 billion, compared with SEK 2.114 billion in 1986. Income in 1987 was charged with restructuring costs related to the divestments announced earlier this year.

Ericsson's net financial expenses improved sharply during the year, declining by SEK 285 million to SEK 895 million. This was attributed to a reduction in the amount of capital tied up in operations and to an improved borrowing

Continued on page 2

Yearend 1987 Report

CONSOLIDATED CONDENSED FINANCIAL DATA

(Amounts in SEK million, except per share values.)
(The conversion rate is SEK 5.86 to the US dollar.)

For year ending December 31	1987	1986
Net sales	32,400	31,644
Order bookings	33,405	32,794
Order backlog- at year-end	24,171	23,625
Income before appropriations and taxes	1,108	911
Income after taxes paid	684	569
Income after taxes paid and estimated Deferred taxes on appropriations	736	654
Number of shares outstanding, millions	38	38
Income per share after taxes paid	17.90	14.96
Income per share after taxes paid and estimated deferred taxes on appropriations	19.26	17.21

SALES BY BUSINESS AREA

	Total 1987	Of which external	Total 1986	Of which external
Public Telecommunications	12,247	10,901	11,506	10,316
Information Systems	9,584	9,205	9,371	9,187
Cables	3,461	3,206	3,833	3,618
Defense Systems	3,372	3,203	3,000	2,795
Radio Communications	2,883	2,839	2,752	2,688
Network Engineering and Construction	2,484	2,217	2,335	2,201
Components	1,810	763	1,509	788
Other operations	616	66	652	51
Less intersegment sales	-4,057		-3,514	
	32,400	32,400	31,644	31,644

OPERATIONS IN BRIEF

• **Business Area Public Telecommunications** – Reported a distinct improvement in operating income, compared with 1986. This was primarily the result of rationalization measures and high workloads in the Business Area's factories as a consequence of increased activity in a number of markets.

• **Business Area Information Systems** – Reflected a continuing strong improvement in operating results. However, figures still showed a loss. Steps taken to improve product and production efficiency yielded significant gains, particularly in the Data Systems division, whose operations were profitable.

• **Business Area Cables** – Saw operating income decline as a result of the fall-off in demand in the United States market. Other markets, notably in Sweden, developed favorably.

• **Business Area Defense Systems** – Reported lower operating income, primarily due to high project costs in the control systems area.

• **Business Area Radio Communications** – Made substantial investments in new product lines in the fields of mobile telephony and personal paging. As a result of the costs involved, operating income declined.

• **Business Area Network Engineering and Construction** – Improved operating income significantly. This was attributed chiefly to increased operating efficiency, which resulted in reduced costs relative to sales.

• **Business Area Components** – Posted a sharp improvement in operating results, notably in the power components sector.

Nokia Deal Caps Streamlining

Sale Paves Way For Consolidation

The sale to Nokia of the Data Systems Division within Business Area Information Systems means that Ericsson leaves that part of the data industry whose products, both commercially and technologically, are now being developed into a commodity that is easily obtainable from a number of suppliers in the Nordic region and internationally. The sale does not mean that we have lost our basic computer expertise.

Microelectronics, software and computer sciences are and will remain important technologies for Ericsson's operations within public telephone communications (AXE), transmission, private exchanges PABX (MD 110), mobile telephones and electronic systems for military applications. In reality, Ericsson's telesystems are nothing more than large, highly advanced data systems. Even after the Nokia transaction, thousands of Ericsson colleagues will continue to work with computers and software programs in the organization's Swedish and international operations and within the development company, Ellemtel AB, which is jointly owned with Televerket, the Swedish Telecommunications Administration.

The increasing degree of standardization in the market has resulted in welldefined interfaces between the general work station systems, such as PCs and so-called "plug compatible" IBM terminals, e.g. Alfaskop, and the communications systems. This means that it is no longer strategically necessary, or commercially important, for Ericsson to have its own products in data commodities.



Executive Vice President Lars Ramqvist.

For a product like a PC or a microcomputer it is important to be competitively priced. Nothing else counts since developments have within micro electronic technology, including the relevant components, made all products equally good from a quality viewpoint, irrespective of who produces the computers. Low prices require similarly low manufacturing costs, which in turn demand that large volumes be produced. Ericsson is a supplier of systems and has never been a high-volume producer in the electronics area. In contrast, through its concentration on consumer electronics (television sets), Nokia has become a mass producer.

Nokia is thus able to continue to positively develop the Data Division's operations in a different way than Ericsson. Nokia Data now has annual sales of 7 billion SEK, to which may be added Nokia's TV operations.

The Nokia transaction may be regarded as a very favorable alternative for the employees concerned, especially when it is appreciated that the

company is the most efficient producer of general data products in the Nordic region. The transaction is also positive from a purely Swedish perspective, since the new Nokia company will have its head office in Stockholm. Quite simply, Nokia Data will be based on the present Data Systems Division in Information Systems. As a result of Nokia Data becoming a Swedish company, its high volume products and mass-production know-how in the electronics field will be extremely beneficial to Sweden.

Through this divestment, Ericsson is able to release additional resources for new investments in the previously listed, strategically important areas. It also makes a contribution to Sweden attaining a leading position in the field of advanced computer technology.

Lars Ramqvist
Lars Ramqvist
Executive Vice President
Ericsson

Earnings Improve During 1987

Continued from page 1
structure, with consequent lower interest costs.

The rate of capital turnover continued to improve, from 0.92 to 0.97, during the year. Inventories as a percentage of sales declined 4 percentage points, to 26 percent. Accounts receivable rose one percentage point, to 33 percent of sales. This was attributed to higher deliveries during the closing months of the year.

As a result of the positive cash flow, Ericsson's consolidated equity/assets ratio improved from 30.5 percent to 31.8 percent at the end of 1987. The announced divestments to be completed in 1988 will further strengthen the equity/assets ratio by slightly more than 3 percentage points.

Total investments in property, plant and equipment in

1987 totaled SEK 1.592 billion, compared with SEK 1.643 billion a year earlier. Of this, SEK 756 million was attributable to projects in Sweden, against SEK 858 million the preceding year.

The parent company, Telefonaktiebolaget LM Ericsson, reported net profits of SEK

495 million, against SEK 493 million a year earlier, after appropriations and provision for taxes in 1987. At year's end, the parent company had unappropriated earnings of SEK 989 million, compared with SEK 838 million the preceding year.

STOCK QUOTATIONS

1988	Stockholm Stock Exchange			NASDAQ		
	SEK			USD		
Week of:	HIGH	LOW	VOLUME	HIGH	LOW	VOLUME
Jan. 8	170	158	282,750	28	27¾	301,100
Jan. 15	164	155	394,350	26¾	26¾	120,000
Jan. 22	186	161	754,800	29¾	28¾	253,600
Jan. 29	199	185	1,029,200	30¾	30½	243,800
Feb. 5	204	194	429,353	33¾	33	241,400
Feb. 12	211	199	668,000	34¾	34½	189,800
Feb. 19	211	200	512,503	34	33¾	113,600
Feb. 26	204	196	197,145	33½	33	132,200
March 4	204	196	304,700	33¾	33¼	118,400
March 11	219	202	273,866	37½	36¾	199,800

Flexibility, Key to Managing for Results

'We shall aim to develop result-oriented managers.'

In the corporate world of human resources and development, the challenge of meshing individual abilities and aspirations with company goals can be a daunting one. Britt Reigo, recently appointed head of Human Resources and Organization at Ericsson, is already rising to the challenge of overseeing thousands of employees scattered around the globe.

From the vantage point of several years' at SAS and, before that, as vice president administration at Svenska Stål AB, Britt comes to Telefonplan with a wealth of experience that should stand her in good stead as she takes on the task of strengthening Ericsson as an industrial unit by developing and implementing a worldwide corporate personnel policy that takes into account national conditions.

She sees her position as defining policy, mapping strategy and taking a long-term approach in analysing the needs of Ericsson.

"I become almost flustered when one refers to the fact that I have to deal with thousands of employees," Britt says. "Naturally, I cannot establish and maintain perso-



Senior Vice President Britt Reigo and Executive Vice President C.W. Ros discussing key issues.

nal contact on a daily basis with every unit and its numerous employees, but I can dedicate myself to building up relations between these units and corporate headquarters. There are certain aspects that are important to have in common. These do not have to be that many, but company policy and direction must be solidly anchored in the entire organization."

As for power, Britt, at 45, takes a philosophical view. "Power can be fun," she says, "not for the sake of mere power but in that it can allow one to be influential in a larger context."

On working with technicians, her approach is right down the line. "Technicians are easy to understand," she says. "They are logical and straightforward in their manner of communicating. And I have always been at ease in that setting."

Her admiration for professional candor extends beyond

the technical horizon. "I like working with qualified people in every field, from top to bottom," she adds. "It's a mutual learning process, and with the variety of talent at Ericsson, this makes for all the more positive feedback."

Prominent among Britt's and Ericsson's objectives are the need to strive to achieve a well-coordinated and flexible market oriented organization with well-defined organizational units through which profitability and other objectives can be measured for each Business Area as well as for individual business units.

Another key aspect of Britt's task is the need to coordinate the development of automated administrative systems to effectively manage information within the organization.

In describing the tasks ahead of her, Britt singled out result orientation as a pivot around which human resources organization revolves.

"We shall aim to develop result-oriented management by fostering broad managerial skills within the framework of the corporate values - teamwork, persistence, quality awareness and international understanding," she emphasized.

As for increasing employees' competence and motivation, Britt plans to offer continuing educational training, opportunities for job rotation and individual recognition.

On a one-to-one level, Britt has set the stage for closer cooperation within personnel and human resources. "Over the years, I have learned not only to delegate but also to bring people together," she says. "Now, I know that have an understanding with my colleagues and that they can say openly when they feel they have ideas that could benefit the company. Communicating that resource is a good start in implementing constructive proposals."

Touching on a recent misinterpretation of her views concerning management - labor relations, Britt hastened to point out that she is for the firm and fair approach. The concept that management should distance itself from staff is a destructive, not constructive approach in any organization, she notes.

In a multinational like Ericsson, corporate policy must inevitably transcend national norms and take on a global aspect. Britt plans to take what is best in Ericsson and apply it to local companies worldwide. However, she stresses, this does not mean that Ericsson policies will be imposed without consideration for national conditions.

Commenting on her objectives at Ericsson, Britt says: "Our products are stimulating to work with. They deal with human communication and bring people closer together, contributing in their unique way to better understanding, democracy and social welfare in the world. Keen and able competitors, we shall always have. In the face of this challenge, the many and varied parts of Ericsson must combine to create an industrial whole where people cooperate on both a formal and informal level. We shall strive for satisfaction in a productive milieu and, in so doing, keep Ericsson at the forefront among employers."

'Company policy and direction must be solidly anchored in the entire organization.'

On this note, and in a somewhat philosophical vein, Britt concludes that "maybe I have changed jobs a little too often." But, she says, with a reflective smile, "I have never changed purely for the sake of changing." There is every reason to believe that this versatility would make its mark felt on human resources and development at Ericsson.

Taking Off:

A New-Look Ericsson Is Setting the Stage For a Globally Coordinated Market Offensive

"At last, things are starting to take off at Ericsson. A major improvement in earnings and profitability is within reach this year and should continue in 1989 from a very low level upwards. The company's showcase product area, public exchanges, is increasing its market share and improving profit margins. The balance sheet is clean and finances look healthy. Now it's up to the management to extract results from this new situation."

This introduction to a 10-page analysis of Ericsson and the telecommunications market appeared in Issue No. 7 of the Swedish business weekly *Affärsvärlden*. The magazine

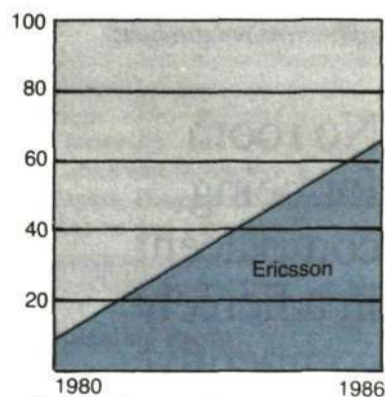
maintains that our risk exposure is higher than that of our competitors due to a limited domestic base and weak political support, but that we will nevertheless be one of the five big companies to survive. *Affärsvärlden* believes that with our stable delivery base, next year we will be able to compete for world second place with Alcatel and Northern Telecom.

The magazine is impressed by our position as world leaders in mobile telephony and reports that "experts in the United States and Europe are unanimous in their admiration for Ericsson's technology and its future potential."

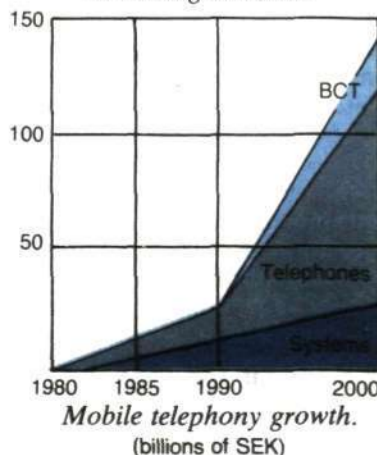
The article continues: "To

judge by market performance in recent years, AXE appears increasingly to be one of the most outstanding products ever developed by Swedish industry. And this is even more impressive when one considers that the telephone system in all its complexity is in fact the most extensive mechanical system devised by mankind."

Affärsvärlden does not neglect the other business areas either. The MD110 is referred to as the third "leg of the telephony tripod" and Cables and Network Engineering are seen as steady "cash cows," while Components is a development center for essential components for the exchange systems.



Ericsson's position in worlds 20 leading markets.



Mobile telephony growth (billions of SEK)

Mexican Contract

Continued from page 1

subsidiary of TELEMEX, Ericsson's AXE and transmission equipment were specified for the extension of the local network in the Tijuana-Mexicali area of the northwestern province of Baja California.

"These orders further secure Ericsson's position as the largest supplier of telecommunications equipment in Mexico," said Lars Sköld, marketing director for Ericsson Telecom in Mexico.

The major portion of the equipment for both TELEMEX and Telnor will be manufactured by Ericsson's Mexican subsidiary, Teleindustria Ericsson S.A., at its Tlalpanantla plant. Delivery will take place mainly during 1989.

These orders take the total number of AXE lines installed and on order in Mexico to 1.7 million.

The Nokia Group

Finnish High-Tech Pacesetter Boosts Sales With Acquisitions

With the divestiture of the EIS data division to Nokia, Ericsson will "enter into partnership" with Finland's biggest industrial enterprise. This Finnish conglomerate has been taking over companies at a tremendous pace during the last few years, intent on becoming one of the major electronics enterprises in Europe.

Eyebrows were raised two months ago, when Ericsson announced the sale of the data division of Ericsson Information Systems to Finnish Nokia. Sweden's leading data company, with a turnover of 4.5 billion kronor and 4,000 employees, is now to be merged into Nokia's data division. This ranks Nokia Data among the top seven of Europe's computer companies, with 8,000 employees and sales amounting to 7 billion kronor. Ericsson's holding in Nokia Data will be 20 percent.

But to those who know all about Finnish industry in general, and Nokia in particular, the takeover only confirmed a development that has been obvious throughout the 80's. The Finnish industry is internationalizing at a rapid pace, and Nokia has paved the way. The sharply increasing Finnish investments in Swedish companies and the acquisition of them are indications that Sweden is the first stage on the way to worldwide operations.

One may wonder, of course, why Nokia thinks it will be better able than Ericsson to run a computer company in cut-throat competition. Well, it's very much a matter of choosing a strategy. Ericsson, after the last five years' diversification efforts in the data processing market, involving rather heavy losses, is now focusing operations on the core area, *telecommunications*, in the broad sense of this concept.

Almost all telecom enterprises have found their ventures in the field of information systems and computers to be burdensome. Also, development in standardization enables today's tele-giants to sell their classic telecom products to users of office equipment without having to supply peripherals such as workstations and computers. Customers easily buy these things from the specialists.

Nokia's situation is different. In the late seventies, this conglomerate still operated in basic industries: wood, paper, cable, metals, and rubber. Ten years ago, annual turnover slightly exceeded 2 billion kronor and electronics was a minor side branch.

But Kari Kairamo, Nokia's

This article is one in a series on Ericsson's competitors and partners.



Nokia has a wide range of digital microwave products.

No room for being complacent in a fiercely competitive market.

dynamic, 55-year-old chairman and strategist since the late seventies, wanted things to happen. He chiseled out a corporate strategy: that of maintaining and developing the traditional basic industries as financial cows — profitable, slowly growing activities, capable of funding an expansion not only into new rapid-growth markets, like mobile telephony and information handling, but also in those with established breadth: cus-

tomers electronics and, notably, color TV.

This strategy has been successful. Nokia's annual rate of growth was close to 16 percent up to last year; primarily as a result of its taking over a number of companies. Annual income has increased by fully 10 percent. With a 16 billion kronor turnover, Nokia was Finland's biggest private enterprise.

Then came fabulous 1987. That year, Nokia bought 12 companies with a total turnover of 12 billion kronor. Income rose by 75 percent and reached 8 billion. In 1988, sales will no doubt exceed 30 billion kronor, which will make Nokia one of the biggest industrial companies in the Nordic countries and rank it among the European leaders in electronics.

This tremendous expansion has been possible with Nokia's financial standing kept intact; for which, indeed, the management's thanks may go to trustful stockholders. Every other year they have contributed fresh capital in the form of reissues or other replenishments. Likewise, Nokia has been able to fund several takeovers by launching new issues of shares as a means of payment.

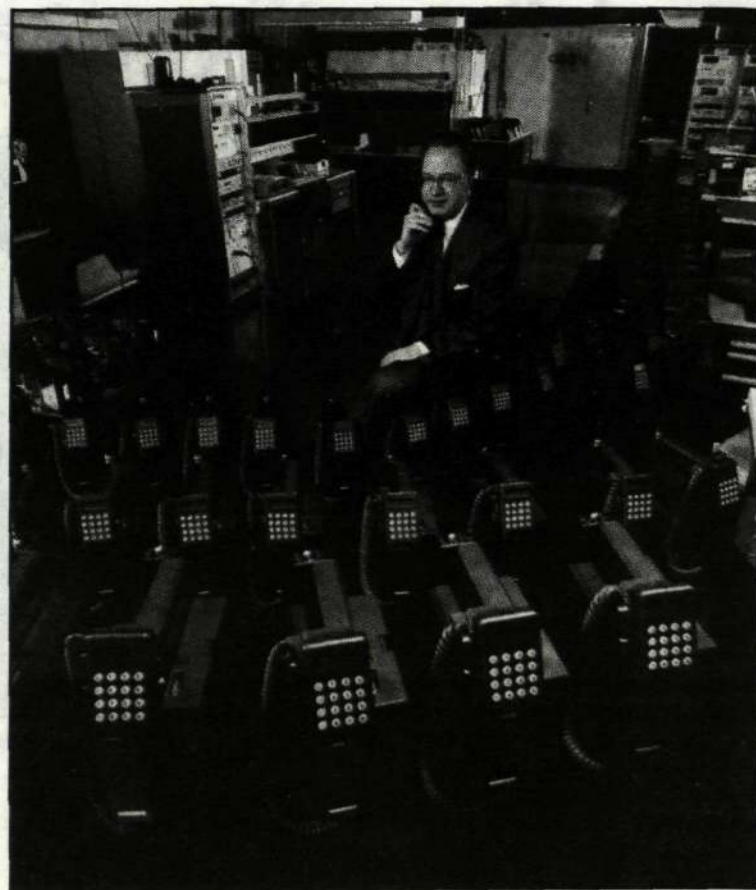
What, then is Nokia like today?

Let's start with the electronics sector, which, after the latest gigantic buyings, accounts for nearly 20 billion kronor and thus represents two thirds of the volume of business. Operations are in consumer electronics, mobile telephony, telecommunications, and information systems; that is, several areas in which Nokia and Ericsson will be rivals.

Consumer electronics is virgin territory, the heart of which is the Finnish color-TV manufacturer Salora, bought in 1984, the year that saw Nokia make its first major move toward the surrounding world by taking over Swedish Luxor. Nokia's management skills were demonstrated through the ensuing boost in Luxor's profitability.

But the color-TV market has been saturated for several years and is growing rather slowly. An elimination process is going on, and there is a trend toward concentration into larger units. Major European manufacturers, like Philips and French Thomson, have engulfed one company after the other. Without a counter move being prepared, Nokia's consumer electronics looked pretty much like a candidate for cornering.

Last fall, countermoves



Kari Kairamo, Chairman of Nokia.

came in rapid succession. First, Nokia bought Swedish Electrolux's TV manufacturer Oceanic in France and, in December, the West German giant Standard Elektronik Lorenz, owned by France's Alcatel and with a sales volume of 5 billion kronor.

The West German deal suddenly made hitherto anonymous Nokia into one of Europe's major manufacturers of television, videos and other consumer electronics. Upward of 2 million TV sets a year give Nokia a 14 percent share of the European market, beaten only by Philips and Thomson. And we must reckon with Nokia's trying to take over a few more companies in order to consolidate its position. Consumer electronics has an annual turnover of some 10 billion kronor.

The telecom sector accounts for roughly 2 billion kronor, the greater part of which represents transmission systems. Nokia has also developed a switching system of its own; it holds a strong position in Finland and is beginning to be marketed overseas. Particularly Nokia's rural switches, with their rugged design, have found niches in some developing countries.

This sector has produced an offshoot: mobile telephony, the rapid-growth line of Nokia's operations, expanding through intrinsic power. Large investments are being made in the production of base stations and paging systems. But terminal equipment the Mobira telephone is the bestseller. Today, mobile telephony with its 30 percent annual rate of growth is rapidly outgrowing the telecom division.

Like Ericsson, Nokia has benefited from the success of the Nordic Mobile Telephone network. Using the Nordic countries as a base, Nokia has been able to expand into being one of the world leaders, with a world market share of 14

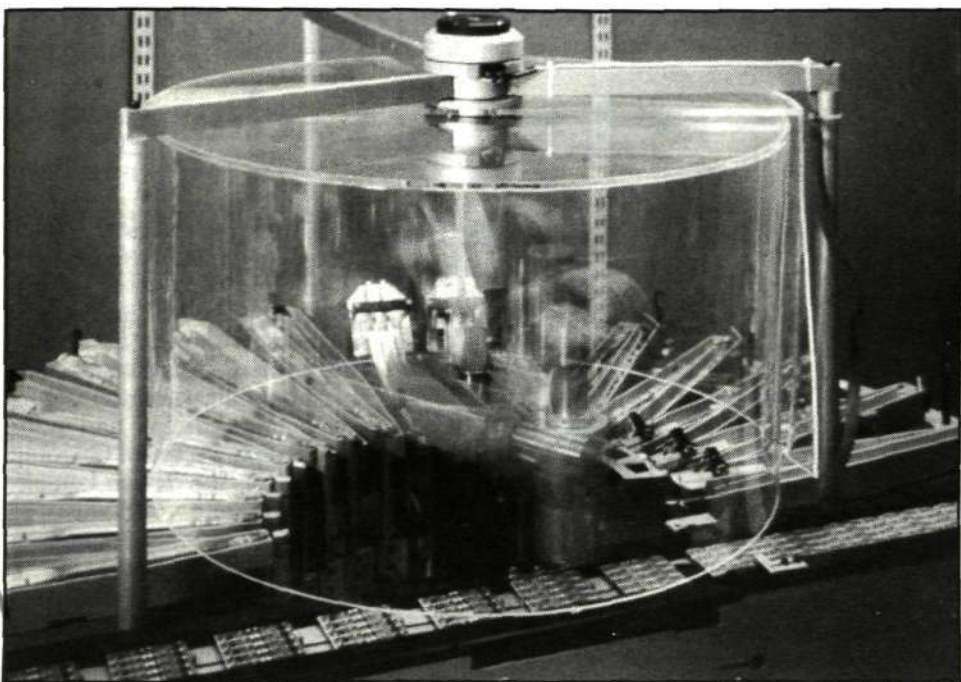
percent on the terminal side. Today, sales abroad account for 75 percent of total sales in this line. Nokia's success is striking; notably its deliveries in the U.S. market from a factory in Korea, run in co-ownership with the American computer company Tandy.

Nokia's data line, incorporated in the Information Systems division, will also have a considerable share of the international market, thanks to the acquisition of EIS' data operations. This division Nokia Data engages in the development, manufacture and marketing of systems, equipment and services for information handling. Sales amount to 7.5 billion kronor.

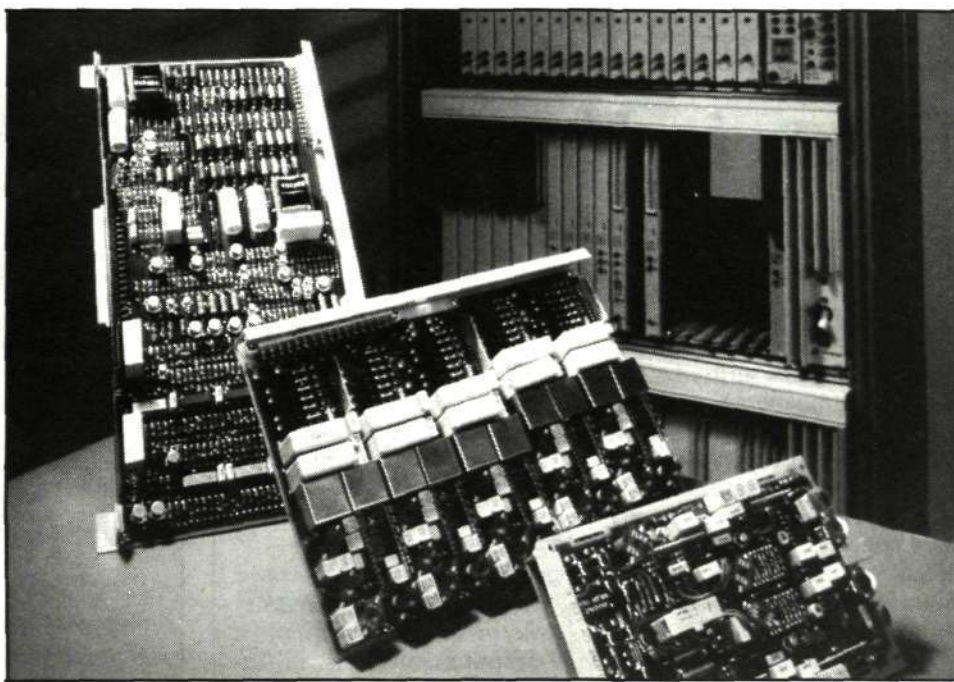
In some areas, Nokia Data will have impressively large market shares. This goes for the European workstation market, for example, where Nokia is led only by IBM. In personal computers, Nokia will be the leading make in the Nordic countries. Synergy effects of the merger should lead to reduced costs of production, better utilization of research and development, and a wider product range.

The acquisitions of the last few years have made electronics the decidedly predominant area of Nokia's operations. In all probability it will be even more so in the future, with additional takeovers and a high rate of growth. But this should not be taken to mean that the traditional basic industries are becoming unimportant. Nokia's management shows no inclination of wiping out the mark of a conglomerate, despite some critical comments alleging Nokia to be a "general store run wild."

By way of an example it may be mentioned that Nokia is investing wholeheartedly in its paper division, which, with a turnover of 4 billion kronor, long since has been the most profitable division. Main



Automatic high-speed insertion equipment from Nokia.



Digital PABX Dixi handles up to 500 extensions.

The formation of the ECR 900 consortium is regarded as strengthening the European telecommunications industry as a whole, giving it a solid presence in the growing cellular infrastructure markets.

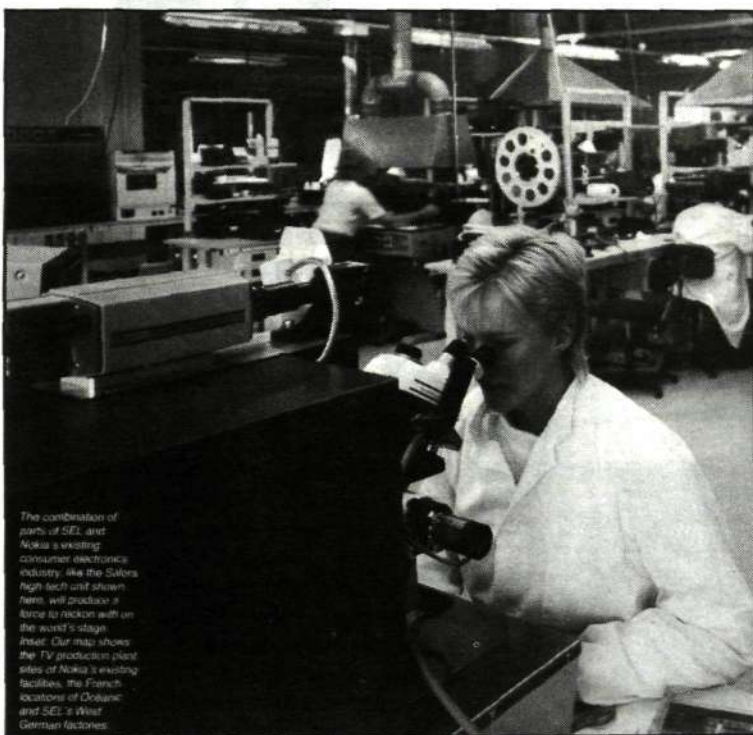
products are tissue and other paper consumer products. In January this year, Nokia bought one British and one French company to consolidate its position on the tissue markets in these countries.

At the same time the sale of a major holding in a Finnish pulp mill demonstrated that Nokia's management is a flexible one. Those in the corporate executive committee are open to reconsideration of ventures in different industries, as circumstances may require. In this case the money was better used elsewhere; to pay for some of the large investments in electronics, for example.

To many consumers in the Nordic countries the name Nokia, at least up to the latest ventures, in electronics, has meant rubber boots and tires. Nokia's rubber and plastics divisions have a 2 billion kronor turnover and have expanded through taking over some companies in Sweden and West Germany. Nokia has large shares of the Nordic markets for industrial rubber and PVC flooring.

Finally, operations also include cable and engineering production with a turnover of about 4 billion kronor. The cable division markets cable in most fields of application but tends to be focusing on more sophisticated specialty cable. The chief product, perhaps, is cable machines. Nokia is a world leader in this business and, last fall, took over one of the big European competitors, Swiss Maillefer.

Financial analysts like to point out that greatly diversified operations as those of Nokia are hard to control. In



Nokia's high-tech unit Salora producing consumer electronics.

many countries more and more companies have abandoned the conglomerate strategy to concentrate on areas in which they have their real strengths.

In Nokia they just won't listen to such talk. Top executives contend positively that their flexible management and decentralized decision-making render them perfectly capable of carrying on the numerous activities in a number of branches. And there is no gainsaying their capabilities so far.

During the expansive period of the eighties, which we have gone through, Nokia has managed to give its stockholders a reasonable profit. Profitability on working capital has remained steadily above 10 percent, which is an accept-

able level, and the equity ratio Nokia's financial strength has in no way been seriously weakened, in spite of frequent takeovers.

However, risks can increase in years to come. It will be a matter of amalgamating several large acquisitions in foreign countries, which is quite difficult, considering diversities of language and culture. What financial analysts call a downturn in mergers is not at all unlikely.

But with its broad operations, excellent management and rapid rate of growth, Nokia stands a good chance of becoming, in the nineties, one of the European leaders in electronics. And with this an interesting "partner" for Ericsson.

Nokia Group Consolidated Statements of Income Jan. 1-Dec. 31

	1987	1986
	(in millions of dollars except per share earnings)	
Net sales	3,471	2,974
Cost of sales	1,156	2,731
Operating profit	314.7	242.5
Shares of results of associated companies	17.6	9.67
Net interest and foreign exchange differences	28.52	60.76
Profit before tax and minority interests	303.8	172.12
Tax	48.11	27.03
Minority interests	46.6	13.3
Net profit attributable to shareholders	209.06	131.68
Earnings per share	USD 3.79	USD 2.63

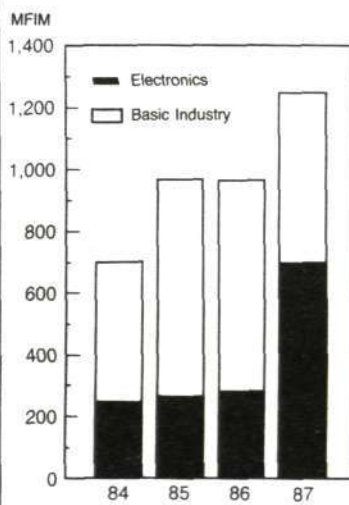
Consolidated Net Sales by Industry Segment

	1987	1986
	(in millions of U.S. dollars)	
Electronics	1,639	1,293
Cables and Machinery	821	786
Papers, Power and Chemicals	665	595
Rubber and Floorings	397	379
Inter-segment eliminations	64	79
Nokia Group	3,471	2,974
Exports from Finland	1,168	1,038
Foreign subsidiaries and exports from Finland	2,089	1,770

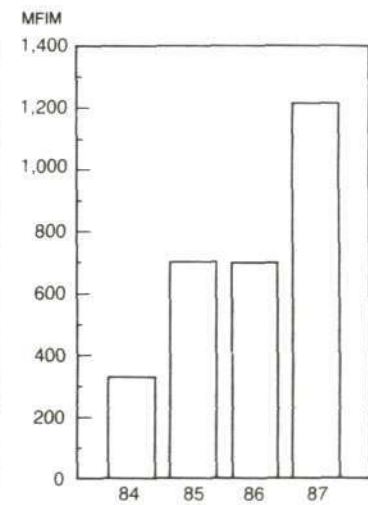
Consolidated Operating Profit by Industry Segment

	1987	1986
	(in millions of U.S. dollars)	
Electronics	174	84
Cables and Machinery	53	58
Papers, Power and Chemicals	70	71
Rubber and Floorings	18	29
Nokia Group	315	242

Operating Profit



Profit before Tax and minority interests



For Rajiv Gandhi, Home in New Delhi Was a Hotline Away

Continued from page 1

Prime Minister Gandhi spent 45 minutes enjoying the informal atmosphere and admiring the equipment on display. He heard a professionally delivered presentation by Ericsson and greatly appreciated a speech by Ericsson CEO Björn Svedberg, who paid tribute to the Prime Minister's knowledge in this field.

He saw demonstrations of mobile telephones, AXE and the development and construction of microchips. Swedish Prime Minister Ingvar Carlsson, Education Minister Lennart Bodström and Chairman of Ericsson's Board, Hans Werthén, were present during the visit.

Prime Minister Gandhi also found time to visit Ericsson Components AB/RIFA in Kista.

The high point of Mr. Gandhi's visit was his attempt to ring home to India using a Hot Line mobile telephone. The Prime Minister's residence was engaged (despite Mr. Gandhi's insistence that nobody could be at home). He then rang the Indian Communications Minister, Mr. Singal. But the Ministry thought it was someone playing a practi-

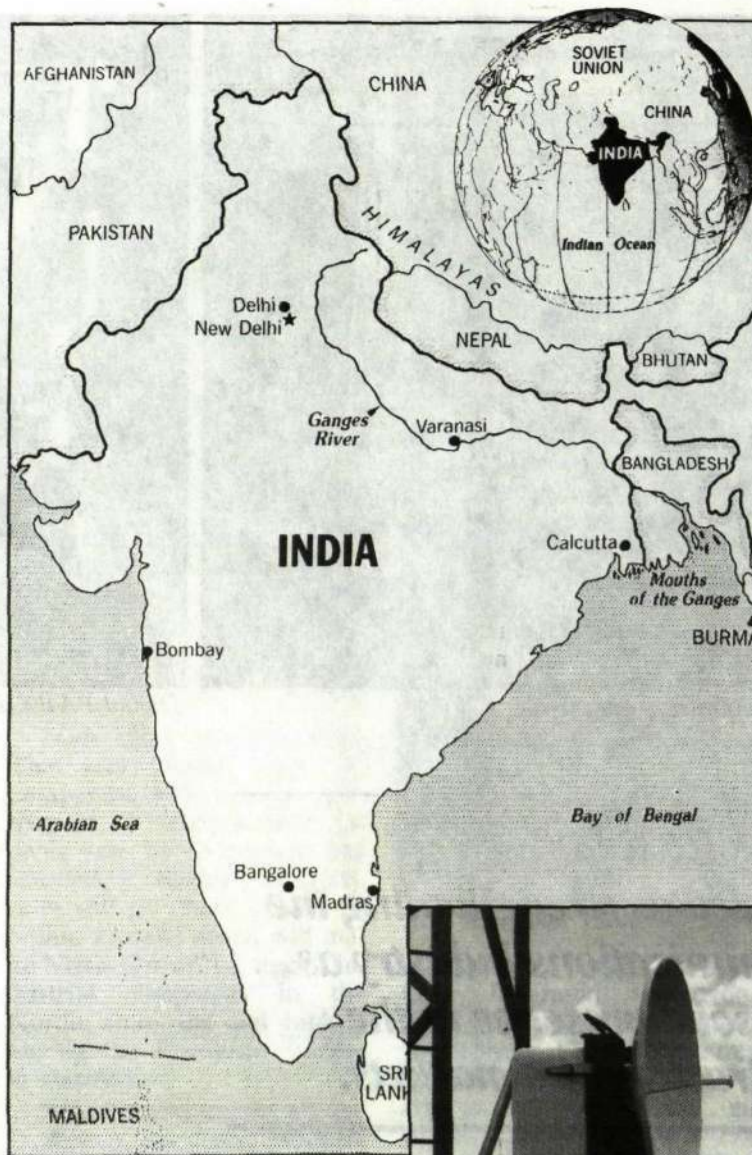
cal joke when the Prime Minister identified himself, much to the amusement of Mr. Gandhi and his party.

Ericsson In India

Ericsson has played a key role in the development of telecommunications in India through joint ventures with local industry. Its presence on the subcontinent has extended over many years and many products.

Most recently, since 1984, Ericsson has had technical cooperation with Vindhya Telelinks in the production of telephone cables. Extending this connection, Ericsson is entering a new phase of cooperation in a factory in Uttar Pradesh, in which it will be a 20-percent shareholder.

Among other contributions is the Ericsson Diavox push-button telephone set. The Diavox is an advanced model based on chips and built by Bharat Electronics Ltd. in collaboration with Ericsson.



Rural telephony is making rapid inroads on the Indian subcontinent.



India Plans Exchanges

Region Emerges as Priority Market

India is one of Ericsson's priority markets, with special emphasis on the public telecommunications and public telephony areas. Ongoing tender calls have been launched for operator exchanges in New Delhi, Bombay and Calcutta and five other cities, where Ericsson's AXE digital computer controlled telephone system would ensure effective and reliable communications services.

Today, cellular system technology is on the verge of being introduced in the Indian market. Ericsson hopes to play a leading role when the first cellular system for mobile telephone subscribers is set up in Bombay, and in the successive expansion to the centers of New Delhi, Calcutta and Madras and other major telephone districts.

In India, the government is planning to have at least one telephone in every village by the end of the century. This means that more than 500,000 villages are now waiting for telephone service.

To install the rural electronic exchange developed by the state-owned Center for the Development of Telematics in more densely populated villages and to give connection through cellular systems in more distant and less populated areas, could prove to be a very fruitful combination of telecommunication technologies.

The expansion of India's telephone system also necessitates a simultaneous expansion of the long-distance networks. To achieve this, the Indian Telephone Industries has developed a family of optical fiber systems and Ericsson is currently negotiating for supply of key components. One of several recent improvements apparent to the subscriber in India has been the introduction of Subscriber Trunk Dialing and the direct dialing facilities on all the major trunk routes, a direct result of the advanced FDM equipment supplied by ITI and Uptron in collaboration with Ericsson.

The most noticeable improvement to the subscriber in India is the introduction of Ericsson's Diavox push-button telephone sets. These are currently being manufactured by several Indian companies. In fact, there are more Ericsson Diavox sets being manufactured in India than any other push-button telephone instrument.

The Diavox is an advanced model built around a few IC's (chips) and built in India by Bharat Electronics Ltd.

China Places a \$73 Million Contract

Continued from page 1

will supply the two cities and another 10 metropolitan areas in the province, among them Taishan and Zhanjiang, with new digital AXE equipment to be delivered and installed during 1988-90.

Within the general contract Ericsson has already received specified orders for delivery of more than 130,000 local and 3,600 long-distance AXE lines plus transmission equipment to eight of the cities.

Special agreements have also been signed separately for the implementation of support centers, such as maintenance and training centers, in Guangdong province. Also included in these agreements is the transfer of know-how for installation as well as training and maintenance support.

The contract partners for all these agreements are the China National Machinery Import and Export Corporation and Guangdong Provincial Post and Telecommunications Administrative Bureau.

Ericsson had earlier supplied AXE equipment to the capital, Beijing, several cities in Liaoning province the city of Shanghai. With the latest orders, the number of AXE lines in China amounts to



Chinese technicians check system in Guangzhou.

442,000, of which 187,000 are already in service.

In January this year, world sales of AXE reached 21.5 million lines in 70 countries, 14.1 million of which are already in service, in 1,386 AXE exchanges worldwide.

In China, local and provincial authorities are independently responsible for arranging to buy telecommunications equipment. That means a contract to serve one area of the country will not necessarily

lead to a contract elsewhere. Still, telecommunications experts believe that by tying down contracts in major regions, companies can increase the likelihood that their equipment will be chosen by authorities in other areas as well.

"We can feel more secure because we now have a strong position in the major industrial areas," said Per Olof Björk, Ericsson Telecom's marketing manager for China.

Ericsson In China

During many years, Ericsson has been particularly interested in the complex question of rural telephony. The outcome of investigations of rural telecommunications demand is the integrated digital rural concept, which offers a complete network solution for rural telephony.

Nowhere is this concept more manifestly applicable than in the People's Republic of China. The advanced operator system in Ericsson's AXE is utilized both in the Guangzhou toll exchange (50 operators) and in the Shenzhen local/transit exchange (25 operators).

With the Remote Subscriber Switch, full AXE features are offered also to small subscriber groups, at the far end of the network.

New BA Business Communications

Continued from page 1

Stockholm, with production mainly in Vedeby and Karlskrona, as well as at Ericsson plants in Italy, the U.K., Spain, Mexico and Australia. Marketing is handled via Ericsson's sales companies, both directly and through telephone administrations.

"The business area will be highly competitive in the international market," says Ericsson Executive Vice President Lars Ramqvist. "Our systems solutions for business communications have been well received in a number of pilot countries. We will now be focusing on the introduction of additional functions, both wireless and wire-connected."

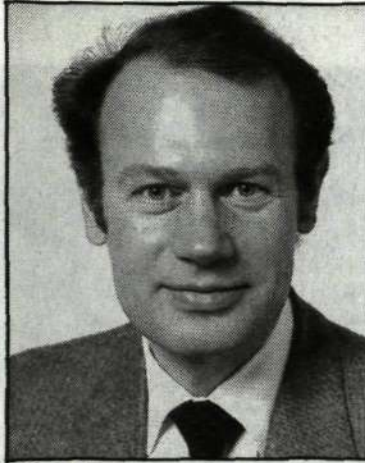
The changes are scheduled to take effect as of April 1,



Ronny Lejdemalm

provided that government approval of the divestments are completed.

Ronny Lejdemalm joined Ericsson and Rifa in 1972. After holding a number of positions in Rifa's technical and sales departments, he was ap-



Bert Jeppsson

pointed divisional manager in 1985, and president in 1987.

Bert Jeppsson joined Ericsson in 1981, assuming the post of manager of Rifa's technical department in 1983, becoming manager of the division's development department in 1986 and vice president in 1987.

The Strike: Limiting the Fallout

determinedly for — and one that they eventually lost — was control at local union levels over where the pay increases should be distributed.

SIF eventually agreed to a basic pay rise of 2.8 percent, which, once wage drift and other ingredients are taken into account, would amount to an increase of 4.2 percent. Wage costs for the companies is expected to rise by about 5 percent.

SIF called out 42,000 workers. Two weeks later some employers locked out 50,000 SIF members.

The action affected about 40 leading manufacturing companies, among them Ericsson, Volvo, Saab, Atlas Copco, Asea Brown Boveri, Electrolux and SKF.

The consequences of the strike for Ericsson meant late deliveries in several areas of business.

According to Lars Wiklund, personnel director for Ericsson Telecom, who dealt with the media on behalf of Ericsson during the conflict, the strike has caused a temporary setback in customer relations, the result of delayed deliveries. However, he noted, customers were more tolerant and understanding once the circumstances of the conflict were clear.

Speaking about the post-strike relationship between SIF and Ericsson, Lars Wiklund noted that the company has met with SIF representatives to ascertain why matters went the way they did. "We are trying together to make sure that the strike does not leave any lasting tension our relationship," he said. "There were a number of issues that arose during the conflict that are still not resolved. Now, we are in a position to work toward a resolution of these problems and at the same time determine how we should act should a similar situation arise again."

The actual cost of the strike to Ericsson has not been fully computed as yet Lars Wiklund indicated.

The Business Areas experienced varying degrees of disruption, but overall the setbacks centered mostly on delayed deliveries.

Business Area Public Telecommunications, like the others, expects to keep the negative impact on invoicing and production to a minimum.

Business Area Business Communications will strive to keep its budget intact, though some adjustments could be expected.

Business Area Cable was mostly set back in its deliv-

eries, to the automotive industry. However, recovery is linked to auto manufacturers stepping up production to offset the fallout of the strike.

Business Area Defense Systems expects to weather the storm with stepped-up output to counteract delivery setbacks.

Business Area Radio Communications should be back on production schedule before the end of the year and expects to reach projected targets.

Business Area Network Engineering and Construction expects some increase in costs as a result of the conflict but plans to minimize the effect on orders.

Business Area Components experienced limited setbacks, mostly with third-quarter deliveries.

Breakdown of strike participation within Ericsson was as follows: 8,000 white collar workers out of a total of 20,500 were on strike. An additional 2,300 were locked out in the last week of the conflict. On the worker side, 5,000 of 16,000 had no available work.

Overall, effects of the strike were relatively small in terms of production. However, most of the problems were on the technical side.

Ericsson Update

Setemer Sells Shares in Data

Racal Electronics PLC, Great Britain, and Setemer SpA, Italy, have reached an agreement that Racal will purchase Setemer's majority interest (67.6%) in the Italian company ARE (Applicazioni Radio Elettroniche SpA). Ericsson owns 71 percent of Setemer, which is registered on the Italian stock exchange.

ARE, Italy's leading supplier of modems has an annual turnover of approximately 200 million SEK and 290 employees.

Market Role

Olof Höstbeck has joined Corporate Market Coordination in a new capacity (DMDC), coordinating defense markets. He will report to both Magnus Lemmel and Bo Landin.

Mobile Radio Changes Name

In order to better reflect future operations, the Mobile Radio Division within Ericsson Radio systems AB will change its name, effective March 15, 1988, to Mobile Voice and Data Systems Division. Its Swedish designation will be Divisionen for Mobila Tal och Data System.

Coming Exhibitions

Ericsson participates in numerous trade shows around the globe and is planning to take part in a number of these fairs throughout the year. In addition, there are several other exhibitions under consideration in which Ericsson units are weighing participation, both individually and in a coordinated effort.

Among the events for 1988 and beyond are:

Intertelec '88, Jakarta, April 5-9.
Telecom '88 ITU, Rio de Janeiro, from May 16-21.
Alger Int. Fair, in Alger, May 22-June 3.
SFAX International Fair, Sfax, Tunis, June 4-19.
Phil Telecom '88, Manila, Aug. 30-Sept. 9.
SITRA '88, Seoul, Oct. 19-Nov. 1.
Communicasia '88, Beijing, Oct. 26-31.
Baghdad International Fair, Baghdad, Nov. 1-15.
Comm. Istanbul, in Istanbul, Nov. 2-6.
Eurocomm '88, in Amsterdam, Dec. 6-9.
Tunisia Telecoms, Tunis, Nov. 24-27.
Comtel Asia, Hongkong, Dec. 13-16

Mecom '89, Manama, Bahrain, Jan. 23-26.
ITU-ASIA Telecom, Singapore, Feb. 20-25.
Communications Indonesia '89, March 29-April 1.
T'89 Telecom for Business, Industry and Service, Paris, May 23-27.
ITU Comm 89, Electronic Media, Geneva, Oct. 3-9.
Itelex '89, Florence, Oct. 15-18.

Telecom '91-ITU, Geneva, Oct. 8-15.

Sevilla '92, Sevilla, part of World Expo Columbus, 500 years.

U.K. Adds AXE Orders

Thorn Ericsson Telecommunications Ltd., the Sussex-based joint venture between Thorn EMI and Ericsson in the United Kingdom, has received an order worth \$ 22.1 million from Racal. The order covers three AXE mobile telephone exchanges (MTXs) and two additional database switches. Including this order, Thorn Ericsson has provided 10 AXE exchanges for the rapidly expanding Vodafone cellular mobile network in the U.K.

The current orders, announced in February 1988, are part of an expansion program to meet increasing demand for Vodafone services in the U.K. According to Kenneth Boiardt, Ericsson Telecom's marketing director for the U.K., Racal has standardized on AXE switching technology and is planning to introduce additional MTX exchanges, at a rate of up to three a year, over the next five years.

These latest switches will be located throughout the U.K. and will join an existing network of MTX exchanges. One of these, the London MTX, is the world's largest cellular mobile telephone exchange.

The AXE MTX is from the same family of switches as the AXE digital exchanges being supplied by Thorn Ericsson to British Telecom for its local exchanges replacement program.

In October last year, Racal took delivery of a new version

of radio base stations that are also capable of working in the broader bandwidths of the new E-Tacs frequencies.

In another development, Ericsson, through Thorn Ericsson, has received further orders for AXE digital exchanges worth in excess of \$ 34 million from British Telecom. The orders, which represent a total of 226,000 lines, follow the recent round of competitive bids. The order received by Ericsson equals approximately 40 percent of the total to be awarded by British Telecom in this round of bidding. The remaining 60 percent has not yet been awarded.

New Signal Units Are Established

Ericsson has established a new company, Ericsson Traffic Systems AB, which will coordinate all activities in the signaling area in Sweden. An identical company is being established in Denmark, Ericsson Traffik Systemer A/S. The establishment of these companies is part of an ongoing restructuring program within the Business Area Network Engineering and Construction.

Approximately 170 persons are engaged in signaling operations within Ericsson. Sales for this sector in 1988 are estimated to amount to 140 million SEK.

EQ Shifts Into Second Phase

At the initiative of Björn Svedberg a few years ago, Ericsson Quality (EQ) came into being, a project that propelled a new and lasting approach to enhancing quality. After four years, the original project is over and EQ is well into a second wave.

Its philosophy and methods are integrated into daily operations and improving quality is a continuous and never-ending process.

Post-project findings clearly indicate that quality is everybody's concern and that lack of it costs money. Moreover, quality is still a management issue that requires management commitment. Indeed, human needs for quality have existed since the dawn of history. However, the means for meeting those needs — managing for quality — have undergone extensive and continuing change, an appreciation of which is reflected in Ericsson's quality strategy.

'A quality revolution is going on in the industrial world.'

"A quality revolution is going on in the industrial world," notes Sture Ögren, Manager of Corporate Quality. "It is highly visible in leading American and Japanese companies, much more so than in Europe. Competition in quality is keen, and Ericsson, is in the forefront of this competition." Ericsson quality thinking is based on five metastrategies, built around zero defects, a happy customer, prevention, everybody's concern and long range.

Some noteworthy and diverse success areas within Ericsson include Spain, which has been participating in national programs on quality, and Ireland's EQ team, which won an Irish award and parti-



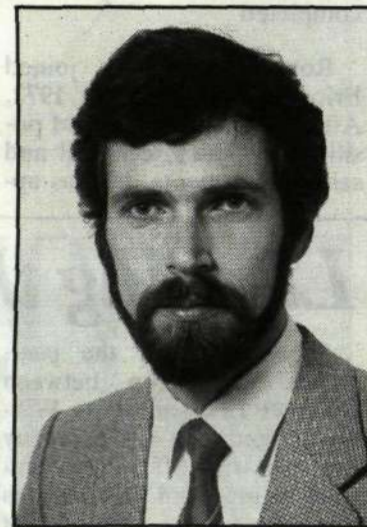
MD 110 Operator Console.

icipated in the European Organization for Quality Control. The Dutch and Australian subsidiaries and Facomec in Colombia have also made strides in their quality objectives.

The Japanese approach to quality has put them in the lead and, in recent years, the industrial West has seen the advantages of sound quality as perceived by the customer, of using quality techniques and of companywide quality control.

At a recent symposium in Tokyo, in a global review for the next decade, it was noted that some of the world's most successful companies are now building their growth around a powerful business strategy that fits the increasingly competitive world marketplace, and is likely to govern management actions for achieving total quality in the future. The strategy is that, to be the customer perceived quality leader in important international markets, companies must offer essentially perfect products at much lower cost. The strategy recognizes that this requires essentially perfect business work processes — not only in production, but also throughout marketing, technology, finance and service.

This objective, it was pointed out, has not been accepted as either realistic or necessary by many company managements until only recently. A principal reason is



Sture Ögren.

that implementing this total quality strategy requires a market-oriented managerial discipline and methodology, which begins by recognizing that quality is what the customer says it is — a buyer determination rather than an engineer's or marketer's determination — and which then integrates the necessary quality leadership actions in detail throughout the entire organization together with its suppliers and vendors.

At Ericsson, as a result of the EQ project, the aim is for companywide recognition that quality begins at the start. "Quality is synonymous with customer satisfaction," says Sture Ögren. "It is anticipating the customer's needs and meeting them."

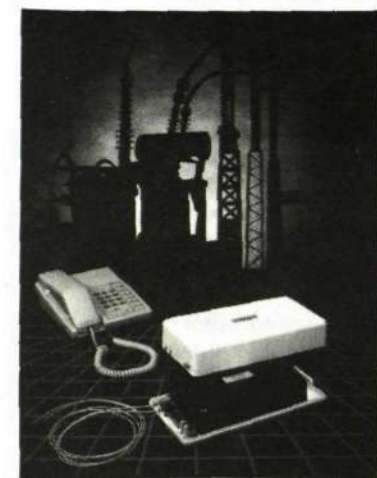
Stressing the need to reduce the defect rate and thereby im-

'In recent years, the industrial West has seen the advantages of sound quality as perceived by the customer.'

prove productivity, Mr. Ögren noted that momentum must be maintained and that new goals must be established and new improvement programs must be set up.

In the years since the completion of the EQ project itself and the implementation of its findings, considerable progress has been made toward achieving efficiency in quality. However, perfection, never easy, can still be elusive. Advocates of quality point out that it can often be an uphill battle setting up quality programs and implementing them. They feel that when quality becomes an integral and continuous part of the business process, rather than just an occasional input, only then will they have achieved their goal.

In the corporate culture of today, quality is emphasized as everybody's job but also that it will become nobody's job without the proper structuring to support individual quality work with effective quality teamwork among all functions and departments. In the end, as Sture Ögren concludes, quality is the primordial catalyst to competitive productivity.



Tucon 852.

NZ Opts For Tucon

The use of telephones in most countries is expanding so rapidly that telephone companies are faced with a shortage of cable pairs. A solution to the problems is the technique of pair gain using subscriber carrying systems (1+1) that allow an additional telephone subscriber to obtain service on an existing cable pair. Both the new and existing subscriber have simultaneous and independent use of their telephones while using only one cable pair.

Ericsson Communications Ltd of New Zealand, using frequency modulation (FM) instead of the amplitude modulation (AM) method used by most pair gain systems, has devised the Tucon, which was chosen by the New Zealand Telecom Authority over competing AM systems. More than 10,000 Tucon systems have been installed in New Zealand and exported to other countries including Singapore, Cyprus and Sri Lanka.

The latest generation of the Tucon subscriber system is the model 852. It employs frequency modulated carriers, which give the unique advantage of an audio output that is dependent only upon the frequency deviation and is totally independent of carrier amplitude.

More Contracts From Finland

The Finnish Telecommunications Administration has concluded an agreement with Ericsson's Finnish subsidiary, Oy LM Ericsson AB, for the supply of equipment put at FIM 100 million (USD 25 million) for the country's telephone network.

Supplementary contracts were also signed for the delivery of mobile telephone exchanges for the cities of Oulu and Tampere to expand the NMT (Nordic Mobile Telephone) 450 network.

The Finnish PTT has also signed a contract covering nationwide sales of Ericsson Hotline phones for NMT networks.

Riverside County Orders MD-110

Ericsson has been awarded a contract from Riverside County, California, for its digital PBX system, the MD110 Intelligent Network. The County joined the City of Riverside in selecting Ericsson to provide advanced telecommunications services.

Riverside will configure its 48 Line Interface Modules (LIMs) as multiple MD110 systems and will network the systems together utilizing microwave and cable. The wide area network will extend from the western Arizona border to just east of Los Angeles. The

total network will be equipped for 7,568 stations and will service over 100 county office buildings, including the county administration buildings, courts, sheriff's department and numerous other utilities and services.

The survivability of a distributed architecture, as in the MD110, was a key factor in the County's decision. The County is located in an area of heavy earthquake activity, and the remote nodes would allow continued service if an LIM was affected by an earthquake.

Riverside chose Ericsson over several other firms, including Harris, Universal Communications Systems (USC) and AT&T, because of the MD110's technical merits, price and low operating costs. The MD110 will provide the most cost effective service to several new county office complexes under design and construction and will yield significant cost savings from the replacement of Centrex service and central office equipment at existing county facilities.

Contact

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