

# Contact

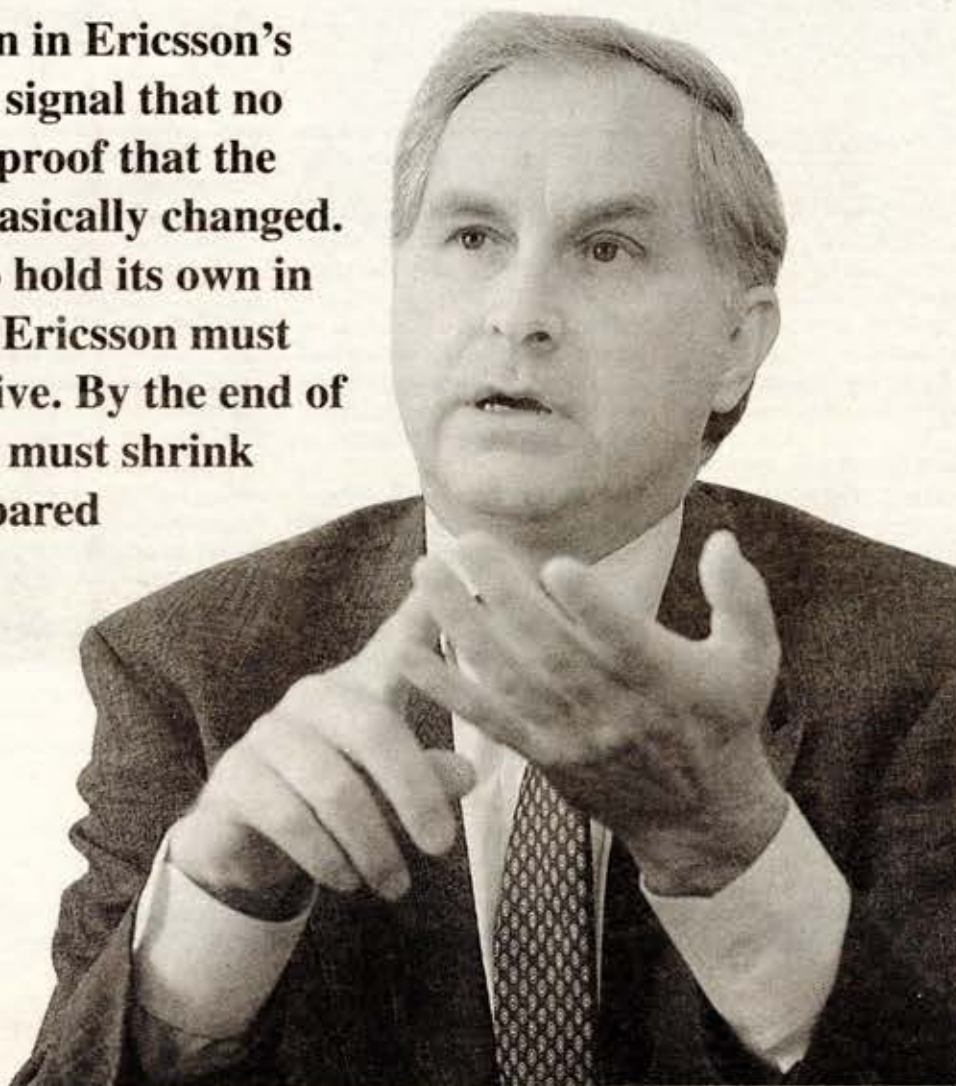
ERICSSON 

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## – Shrink costs level by 15 percent

The sharp downturn in Ericsson's profits is a warning signal that no one can ignore and proof that the telecom market is basically changed. If the company is to hold its own in future competition, Ericsson must become more effective. By the end of 1992, the costs level must shrink by 15 percent, compared with June this year.



### TRIM 92

The group that will help us to shrink costs. There will be no "sacred cows" when Lars Berg and his team go on the offensive throughout the entire company.

#### INSIDE:

#### POLICE takes Ericsson

The Swedish police is making fundamental re-equiping of its radio system. Patrolling police will get a modern radio with better alarm and ID functions.

And all the police and police cars will have radio sets from Ericsson.

Page 11

#### Clean air is PROFIT

If we had environment fees it would suddenly become economically profitable for a company to influence waste discharge, says environmental economy professor Lars Bergman from the Stockholm School of Economics.

Pages 12-13

#### Breakthrough for VIDEO confering

Restrictions during the Gulf crisis provided a rescue for videoconferences. The negative attitude toward conferencing was just about blown away and the yearning for the technology was great.

Pages 14-15

#### NEW system for sick benefits

January 1, 1992, the so-called "employer period" will come into effect, which means that the company pays sick pay for the first fourteen days.

Benefits are unchanged and rules for calling in sick remain unchanged.

Page 20

Read more about TRIM 92 • Page 3-6



# Ericsson Telecom in change



**Tough challenges await Ericsson Telecom in the coming year. The ongoing deregulation and demonopolization in the telecommunications area have, together with the recession, have brought about a drastically changed market situation. If ETX/BX is to successfully make it in this hardening competition there will have to be radical changes in its operations.**

**"We must reduce our costs, streamline our organization and improve our quality," says Håkan Jansson, president.**

*How should one describe the negative result for ETX/BX – what exactly is happening in the market? Naturally, we are affected by the recession. But mainly it has to do with a radical structural reorganization on the part of the customer.*

Both politically and in business there is overall deregulation and demonopolization. This tendency is especially noticeable in the telecommunications area.

Several large and important customers have been privatized, entirely or partly, and others, like Swedish Televerket, for example, is waiting for its turn.

They make higher quality demands on us as producers and suppliers but at the same time they are pressing down price levels by letting in other competitors at each stage of negotiations.

Our major competitors Alcatel, Siemens, AT&T and Northern Telecom are there against us in all the big markets. They are very aggressive and goal oriented.

The increased competition makes it necessary to reassess our internal costs situation. In recent years we in ETX/BX have begun huge development projects in the transmission and operating and maintenance areas.

At the same time we were forced to pursue development of AXE 10 and invested huge resources in customer support.

This has led to increased costs for us. The good years of the late 80s, when order after order rolled

in, have spoiled us a little. I do not want to give the impression that we have handled money recklessly like the banks, but cost consciousness in our operations have slipped.

We must correct this, and I am convinced that we can reduce our costs.

Also a big company like this can get a touch of the public sector about it. We can be more effective. But above all it is important to raise quality in our products and services. Today, we incur far too many additional costs because of quality problems.

*It is against this background that one should see the program for ETX/BX's continued development as you, the company leadership and a special group charged with change have work with through the fall. What kind of change are you pursuing?*

In the continuing change process there are three areas that we will be working with and making employees aware of: time, leadership and attitude, as well as organization.

*What does that mean in more concrete terms?*

Let me take the points in turn and in order. Why should we focus on time? Because everything we do in this company is done in flow or processes.

Our various tasks are linked to each other. We are dependent on everyone executing his tasks as rapidly as possible in the best man-

ner and time – without sacrificing quality in the process.

On the production side we have lived under demands of time rationalization for many years. We have achieved fantastic results.

On the services side the demands have not been met in the same way. They are doing so now.

I hope that by 1993 we will have halved lead time in all our major operative processes in the company.

The higher the rationalization gains we can make by cutting lead times the more money we can invest in strategic areas like production and competence development.

*What is the problem in the present management role that you on the leadership side need to stress the significance of management?*

Problem? I think that is a bit strong. But it is obvious that everybody can develop further in his profession. That goes for managers too. I believe strongly in people and I feel that each person wants to and can develop both as a person and professional in his career.

As a manager one must feel that it is fun, stimulating and interesting to work with and through people and to have an understanding that people react in different ways to different things.

Not in the least are people in such a high technology company robots.

*It is not only the leadership attitude that must change. You also want to change other attitudes in the company. What does that mean?*

I will take an example. If we measure an individual and the work he does in kilo hours, that is an expression for an attitude, a sort of people offensive attitude. If we speak of "personnel" in terms of black blocks on an organizational chart, that is also an expression of people offensive attitude.

It is difficult to change attitudes. But it is necessary. Nevertheless, it

is equally important that we do not breed attitudes that are unique to Ericsson, but rather follows society's development in general.

Young people today have in many cases totally different attitudes and values than those in the 40s. We must recognize this, otherwise we will find it very difficult to recruit people who want to work in our organization in the future.

*There is a major reorganization of activities in ETX/BX. The new organization is being built on far-reaching decentralization of responsibility and authority. Why? Until now we have had an excellent functional, hierarchic organization. Such an organization is not necessarily ideal in a world that is in the midst of rapid change. It becomes top managed, stifling and bureaucratic.*

In order to work more effectively in the future we need an organization that is flexible, market adapted and profit oriented. We also need an organization that makes it possible for us to work more effectively.

By decentralizing responsibility and authority deeper and broader in the organization we will reduce the bureaucratic processes by shortening the route to contacts and decisions.

We will also give more people the chance to take greater responsibility in their job. You mentioned authority. Yes, maybe we should turn to the concept and begin to talk about non-authority. Assume that everything is allowed – except for that which is absolutely prohibited.

Detailed and pinpointed authority is a remarkable base for the destructive preserve-thinking that we want to get away from. We want people to work more together, come up with suggestions themselves for improving operations, take increased initiative and increased responsibility.

If for example you feel that you

lack the conditions and the tools for accomplishing your task in a good and effective manner, you should not sit passively and wait for your manager to do something. Then the issue comes up for discussion in the department or section – immediately. That is a quality issue.

*Do you feel that Ericsson employees get the encouragement they deserve when they come up with good ideas or take the right initiative?*

I am certain that we do not encourage our employees enough. But we must change that. It is an attitude issue. And a leadership one. Initiative taking should be seen positively, but we people find it difficult to give compliments or a pat on the back.

*You have said that you want more "straight to the point" approach in the organization. Is it so?*

We live in changing times. We must change our old ways of working and adapt ourselves to the time in which we are actually living. It is high time to allow new ideas and values to come into our organization.

*What you want to achieve in your new organization is a sort of internal deregulating of operations – you want your colleagues to look less at detail and to trust more in their sound reasoning. Now I wonder if it is authorized to talk about a new start for Ericsson in 1992?*

I doubt it. You have just placed squarely on my shoulders words that make it feel as though I am almost hearing a flapping of wings. But I met an old Ericsson colleague a few days ago. He has spent his entire life working in the company. He said that this is the biggest change the company has ever undergone. Let us be happy with expressing it that way...

**Johan Lundberg**

## EDITORIAL

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# The drive is on for a more effective Ericsson

"Ericsson organization has never done better than during this year. But in lingering recession with stagnating volumes our resources are not enough to carry our considerable investments in the technological development that is crucial to our future as the leading international supplier in telecommunications. Therefore, I have set up a creative group that will work effectively to radically reduce company costs. In principle, the group will have a free hand to develop a realistic program for costs reduction and streamlining. All employees, at all levels and in all companies, are being challenged to support the group in its efforts."

With these words, Lars Ramqvist set in motion the work for TRIM 92, the work group that will now explore every possibility, by means small and large, to make Ericsson a more effective company.

The group consists of five members, hand-picked by the president, for this important task. The chairman is Lars Berg, president of Business Area Cable and Network. Other members are Kjell S. Andersson, Radio System AB; Torbjörn Andersson and Rolf Pettersson from ETX, and Åke Stavling, LME.

## On the offensive

Lars Ramqvist underscored that the cost reduction measures that must now be carried out should not affect Ericsson's standing on the market.

"We must continue to move aggressively on the market, win new customers and new markets. Everything must be done to maintain revenue upward. But that is not to say that sales costs and the like are sacred. In TRIM 92, there should be nothing whatsoever that

is so sacred, the chief executive stressed.

Without diminishing business activity, there could be room for streamlining as is seen today. This applies at the lowest as well as the highest level in another area that continues to have top priority: Research and Development.

"We have to live with technology costs for developing the new large systems. We must follow up on what we have done. That is obvious. Renewals in the AXE and digital mobile telephone system are examples of where we should not fall behind. But the goal is still not to exceed 1991 costs level for technical costs, either in relative or absolute terms. Surely, there is reason to take a closer look at how things are going with productivity also in R&D.

## Increased costs

By the end of 1992, the costs level for all of Ericsson should have fallen so that it is 15 percent below the level of where it stood at the turn of the half this year. This will



The work group for TRIM 92. From left, Åke Stavling, Torbjörn Andersson, Lars Ramqvist (who created the group), Lars Berg, Kjell S. Andersson and Rolf Pettersson.

serve as an average for the entire group, which means that certain operations must reduce their costs even more, for the benefit of higher prioritized areas.

"I have given TRIM 92 as a goal that the total costs for research and development, sales and administration must not exceed 35 percent of Ericsson's turnover. That is a level that we maintained earlier in the year but which as a result of stagnant sales we exceeded by far too much this year," Lars Ramqvist notes.

Between now and the turn of the half next year, it has already

been proposed that Ericsson's total workforce be reduced from 71,000 to 67,000, that is by 4,000 employees.

Half of the cutbacks will be made in Sweden. Since personnel charges are such a large part of overall costs, it is certain that one of TRIM 92's conclusions would be for additional cutbacks.

"All companies must be involved in the ongoing streamlining process," Lars Ramqvist emphasizes. He pointed out that the work group has full support from leaders everywhere within the company. It

is part of TRIM 92's brief to leave no stone of the huge Ericsson family unturned. Right now, TRIM 92 has the highest priority.

"I really hope that this work group will be well taken overall," Lars Ramqvist says. "There is already a positive spirit about the need for cutting costs and we should take advantage of that and administer whatever is necessary. All employees are being challenged to share their ideas about cost savings. No suggestion is too small to be discussed in these times."

Text: Lars-Göran Hedin

## Lars Berg takes on the role of Libero

An incredibly responsible and important assignment. That's how Lars Berg describes the task that he and his four colleagues in TRIM 92 have been charged with carrying out by the company leadership.

"Now we have to mobilize the highest possible creativity in this job. And not be afraid to suggest overall change where it is needed. Our mission spans all of Ericsson, so we need support from all of Ericsson's employees.

"As chairman, I must take on the role of Libero. I must roam the entire field," says Lars.

It is Friday afternoon, the day after the official launching of TRIM 92. Lars Berg and his colleagues in the work group - Kjell S. Andersson, Torbjörn Andersson, Rolf Pettersson and Åke Stavling - have already gotten started on the job.

A "central command" is being set up in A-House at Head Office and a secretary spokesman for TRIM 92 has been appointed. He is Bertil Nilsson and he comes from the plant that was closed down in Kungsbacka. Bertil will work as a

coordinator and spokesman for the work group.

"It is an important and urgent task that awaits," Lars Berg emphasizes. "We have no reason to believe that 1992 will be a better year than the current one. That's why rapid and concrete cost-cutting measures are needed. But still it's not merely to ride out an incidental storm in the market that led to the creation of TRIM 92.

"Our task must lead to a solid base for increased competitive

strength. The way things look price-wise on the telecom market today, every company that want to survive the future must put its house in order. Lars Berg points to an example from "his own" operations.

"The meter price for opto cable today is only a quarter of what it was seven years ago. In order to deal with such a price development we really had to rationalize our cable operations. We have exerted ourselves to the limit to eliminate excess costs in manufacture. At the same time Ericsson Cables has rationalized its cable activities throughout the entire country. From five to two cable factories in the same time space.

## Better than cheese slicer

Lars Berg sees the experiences of the cable operations' reorganization as a good example of how so many times it is easier to move ahead by stopping and taking stock.

"Certainly, many costs can be trimmed with the help of the cheese slicer principle, but the real lasting

result often comes when one slices off slightly bigger bits.

"TRIM" is a well-chosen word from this point of view," says Lars. Trimming means precisely pruning and tending, a positive approach with the the extreme aim of stimulating long-term growth capacity.

## Positive spirit

Well before the work group could go out and earn some publicity for itself, tips and ideas began to stream in. Lars Berg emphasizes that he and his colleagues will not set aside any suggestions. On the contrary, he welcomes both suggestions for new moves as well as tips on areas that should be tackled.

"We are beginning now to look at accounting to identify the real problem areas. Then we will have a first review of all the business areas to deal with what is already being done in conjunction with budget work. A little later there will be a review also with the Major Local Companies and other subsidiaries in the group.

"Another important aspect is to look at how competitors are faring

from the costs angle," Lars Berg points out. Competition watchers in the group have been asked to draw up comparative materials. Even if figures are difficult to compare, it is still important to know where companies like Northern Telecom, Alcatel and Siemens stand.

"It feels a bit frustrating every time a competitor succeeds in getting an order by offering a lower price. The simplest reaction, to speak about dumping and unprofitable deals do not often hold. The competitor is still around - perhaps thanks to low costs for meeting deliveries."

Lars Berg is convinced that Ericsson has all the requirements for strengthening its position on the market. Under the condition that he and his group truly succeed in living up to the highly placed expectations that they have been charged with. "Cost cutting for competitive edge" is the motto for TRIM 92. It is one that surely everyone can relate to.

Text: Lars-Göran Hedin

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# A savings culture revolution in Ericsson

Ericsson is currently one of Sweden's most profitable corporations. The company has good liquidity, that is to say money in its till, but a lot of money has gone out in the past year. Profits for the first nine months was 1.5 billion kronor. Still, all of us working in Ericsson must help in saving money...

*"We have a loose sitting belt that we now have to tighten"*

The positive side of Ericsson today cannot hide the fact that right now things are going much better for some of our biggest competitors. The last quarter's loss is a warning sign that we all must take very seriously. That's why there is a need now for a savings culture revolution at all levels in the company.

C. W. Ros is one of the three in the Ericsson "leadership troika," the corporate leadership. Together with Lars Ramqvist and Jan Stenberg it is he who must steer the company out of its profit crisis that it is now undergoing. The negative quarterly results are certainly bothering shareholders, but this is not the biggest - and only - problem.

## Customers' faith

"What we are really afraid of is that our customers faith in Ericsson as a far-sighted collaboration partner will be damaged," says C. W. Ros. "It does not help, for example, for the company to have good solidity if customers no longer have faith in us."

"We must also bear in mind that several of our competitors so far have fared better economically, despite the long and deeply drawn out recession. They are companies with a large base of installed systems. For example, equipping earlier systems with new software and new functions is often very good business for telecom companies."

## Billion savings

Work on drawing up the budget for 1992 operations was long started in many areas of the company when signals from corporate leadership for even stricter measures cropped up. In a fast reaction



Now it is matter of thinking before you go on a trip, representing or for seminars. In this area the leadership demands are crystal clear. Costs must be reduced by 30 percent compared with this year, says C W Ros.

to the negative quarterly results and the latest information from markets, Lars Ramqvist went out with a direct challenge to the company's top executives to work on the budget.

This indicated that the demands were not being met for the cost reductions that were determined earlier.

"The new directive from corporate leadership means that sales and administration costs must fall by 15 percent in relation to the 1991 level," explains C.W. Ros.

A large part of this must come from allocations for travel, representation, seminars etc. The demand is crystal clear. Costs must

be reduced by 30 percent compared with this year.

## Decide yourself

"We have a strong delegated organization in Ericsson. Hence, we are not going out with any detailed rules for savings but rather we are leaving it up to managers and employees to take the

responsibility for achieving the desired savings goal. It is important that each and everyone of us should decide for ourselves where and how we can save on costs. A profit improvement in the range of a billion could be attained if the savings goals are met.

## Harder prioritizing

C.W. Ros notes that it is on all levels and in all areas of Ericsson's operations that costs should be trimmed. Not even research and development will be excluded. Also operations could be streamlined, among other ways by better use of all the advanced research equipment that exists in the company.

"Costly testing equipment should be used all day and it is important to use every opportunity to share resources among development projects, among companies and among business areas. In many cases there is also a need for much harder prioritizing of research projects," says C. W. Ros.

## Attitude change

"What we need now in Ericsson is a real change of attitude. We cannot push under the chair the fact that in many areas we have been spending freely during the fay years. That's why there is very loose sitting belt that we must now tighten. That we must now really save in our expenses does not necessarily mean that we have to be dispirited.

"At the same time I would like to stress that savings will be matched with other, more offensive measures. That has to do with more effectively using our production resources and improved pursuit of our markets and customers.

"Despite the seriousness of the situation, we must - as always - keep our faith in the future and our push forward," C.W. Ros stresses. During the year we have sailed out of many storms. There are many of us who feel that it is exciting and fun to ride the Ericsson crest in a powerful headwind.

Text: Lars-Göran Hedin  
Photo: Lars Åström

## C.W. Ros savings tips: Not so many to seminars

Although the corporate leadership does not want to spell out detail rules about the coming "savings campaign," there are naturally a lot of ideas on how we all can help to reduce Ericsson's costs. C.W. Ros gives us some good tips on doing so:

### Travel yourself

"We don't need to have so many people always attending conferences and seminars. In many

cases it would be enough to send only one, well-prepared person, someone with the assignment to listen and learn so that he can then report back to his colleagues."

"Telephone and video conferences are alternatives that we should use to a greater extent - even if this media is difficult to use as we approach Christmas lunches".

### Leave costly premises

"There are many ways of reducing the company's needs

for premises. We should be a little more thrifty on space for a few years. Premises that are leased at high costs can maybe be changed to our own or for those that have lower rents".

"If we succeed in organizing our units better, we could reduce our published internal information".

### Avoid new furniture

"Investing in new furniture, curtains or cars are examples of

decisions that should be looked at more carefully. Not only because purchases can sometimes shoot up for purely functional reasons but also because such investments are so spur of the moment".

"Simply changing furniture because the department has shifted offices is, for example, a way of giving employees totally wrong signals. It makes it more difficult to maintain the spirit of saving that Ericsson so crucially needs now".

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# Ericsson's personnel costs more than 8 billion

In order to maintain the important investments in research and development Ericsson must cut down its other costs. That is a fact that no one can deny and that, even more so, means a need to reduce the workforce. At the same time technological developments have made it so that job content in our products are reducing all the time. It is quite simply that fewer people are needed to make more products than was the case a few years ago.

Of Ericsson's total costs, personnel accounts for the single highest amount. Annually, the Swedish part of the corporation spends close to 8 billion kronor on salaries and other personnel costs. When we are talking now of cutting back costs it is only natural that eyes are being cast in the direction of personnel.

The group leadership has already made it clear that about 4,000 staff will be gone by mid-'92. About half of these jobs will be in Sweden. Although 4,000 is a considerable number, it is not sure that it will be enough with that. It is quite possible that streamlining of operations and the ongoing assessment of costs could lead to additional layoffs. There are several factors to explain this.

## Less job content

Job content in modern electronic products is reduced in line with technical developments in the area. In an AXE switch the manufacture time for line boards was 8 minutes per connection. Only three years later, 1993, that time will have been reduced to 3 minutes. An even greater leap in technology development is the next step in microelectronics.

A radio base station of the ana-

log type demands 18 man hours of work per voice channel. The new digital stations need only three hours. A mobile phone, which in 1988 needed 90 minutes work, will need 20 minutes in 1992. And so on.

## Other game plans

Deregulation of the tele markets have not only increased competition for customers and led to even tougher pricing pressure; it has also basically changed the requirements for Ericsson and other companies setting up overseas. Whereas earlier there was a clearly pronounced demand from the market that manufacture and development as well be local, today the first question is which prices suppliers are offering.

Manufacturing capacity that was built up in various countries as a result of major orders from tele administrations today can be seen in a totally different light than previously.

It is a combination of technical production factors and other game plans in the market that have led to an overall personnel rationalization in the company, which among other things means staff reduction. Regardless of how big it is, there are clear rules and goals



"Our basic philosophy is that all personnel matters be conducted in a professional way, with as much humanity and respect as is absolutely possible," says Britt Reigo.

that also regulate how Ericsson acts in such a situation.

## Dealing with people

"Our basic philosophy is that all personnel matters will be handled in a professional manner, with as much humanity and respect as is absolutely possible," says Britt Reigo, head of corporate function personnel and organization. Britt feels that Ericsson's three common values are well placed in this context.

"In all such situations it is always people we are dealing with in the end. Hence, we need a humane view of the problem."

Another basic demand why personnel reduction should be carried out without any major problems is that those affected should be really informed about the background behind the

decision. Here the company must do everything in its power to inform, explain and spell out the motive behind the decision for laying off.

"It also means that afterwards it could be shown that the measures taken had a positive effect," says Britt. "This way we can maintain a spirit in layoff discussions without the company's motives needing to be questioned."

## Many methods

When personnel reduction becomes a necessity, there are many principles to carry it through. As far as possible Ericsson, like other modern companies, tries to resolve the problem through natural attrition, early retirement and similar measures. For some staff it can mean in certain cases job offers in other parts of the

company's operations, in the same place or elsewhere. The individual can also seek help to get a job outside the company. Training aimed at increasing his own competence is often a solution that is accepted.

If a number of people have to go, there are different principles to follow. Since the point of departure is that the company must emerge strong from the crisis, it is important to retain personnel that have the competence that new technology demands. Sometimes this means a step away from the principle of seniority, "last in, first out."

"This could come into conflict with the trade union's main line of reasoning, which is usually based on the seniority principle," says Britt Reigo. "But the union organizations are also aware that we must take care of the company's competence and that it is equally important for personnel as it is for the company."

## Be stronger

"We who are responsible for personnel matters in Ericsson are deeply conscious of how hard layoffs can hit the individual and of what uneasiness these can create in the workplace. Still, despite everything, a reorganization is sometimes necessary. There is no doubt whatsoever that more effective utilization of our personnel is one of the best ways to assure our competitive advantage."

"Despite everything, Ericsson needs profitability if it is to continue to be an excellent employer," Britt Reigo emphasizes.

## Technology hits hard at need for personnel

An important task for TRIM 92 is to draw the right conclusions about technical developments in the areas that Ericsson is active in. This means in many cases a strongly reduced need for personnel in production. The layoffs that have taken place this year are mostly the result of technical developments.

### Talk of layoffs in Gränna

Ericsson Components is concentrating its manufacture of micro circuits to increase efficiency. That's why negotiations have led to talk of closing down operations in Gränna and reducing personnel in Kista. Altogether some 160 persons will be laid off.

Additional reductions in the workforce could be done through so-called natural attrition, pen-

sions and job rotation in Ericsson.

Once again it is the technical conditions for production that is hitting the need for a work force. The new generation of microelectronics means that highly automated and high technology processes replace earlier more manual manufacturing methods. Ericsson must keep up with these developments so as not to lose ground against competitors. Microelectronics is at the heart of a

new revolution in that one is now building in deep several functions in the same circuits — up to 20 million in a single chip.

### 300 to go at main plant

Ericsson Telecom is restructuring mechanical production at the main plant in Midsommarkransen in Stockholm. They will set up a competence center for mechanical manufacture in Sweden, which means that several different operations in Ericsson will be merged. This rationalization of production means that some 300 persons will be made redundant.

No move on these layoffs are slated for the present, but they are not ruled out in the future. In the first place ETX management reckons that the reductions will be done



Ericsson components concentrates its manufacture on micro circuits. This means, among other things, the factory in Gränna will be closed down.

through natural attrition, pensions, training and job relocating.

More modern construction techniques for AXE cabinets is one of the reasons given for the reduced need for personnel. Another is that the new automated central warehouse will be in operation, which means a more rational flow of ma-

terial. Certain unprofitable operations will be discontinued. Restructuring also means that mechanical production from Ericsson Radio Systems will be transferred to the main plant. Negotiations are also on the way with Ericsson Business Communications along the same line.

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# No golden age when the market turns around

Recession and deregulation. Increased technology costs but sinking volumes. Ericsson's steady will to hold its strong position on the market is just now being directed to profitability.

When recession turns around and volume picks up again, many of the vast changes that came with deregulation will come with it. The most obvious is strong increased competition and an whole new pricing picture than what the telecom industry has been spoiled with.

"That's why Ericsson must be prepared that long-term profitability will be somewhat lower than during the good years of 1989-90," says Jan Stenberg, vice president and one of the three members of the Corporate Executive Committee.

The second half of the 1980s was truly a golden age for the telecom branch. Besides an international boom over several years, there were a number of factors working in a positive direction within our field. The average growth in tele investments was 6.8 percent. During the period 1990-1995, it is expected to be reduced significantly, to 4.7 percent, according to forecasts.

The grim outlook for the telecom industry is attributed to several factors. Two of them are tied to technical backgrounds: During the past year a technology change has taken place in tele networking. Digital technology, fiber optics, broadband and intelligent networks are only some examples of the technological revolution that is moving through this branch.

The breakthrough for mobile telephony is also a technological factor. This has meant a lot for all Ericsson's operations, since the group has become a world leader in precisely this field.

## Good position

Along with the technological changes there has also been a politically directed revolution in the market. Deregulation and privatization have been key words in the past year. Market after market has been liberalized. This means that new operators have been admitted as competitors to the state-owned tele administrations, prices have become free and national

consideration more and more determines the assessment of offers from a growing band of suppliers.

"Deregulation has opened up many new business opportunities, that we in Ericsson have been clever to utilize," says Jan Stenberg. "Quite simply, Ericsson was in the right market with the right product and price at the right time."

In the Mediterranean countries there has been considerable expansion of tele networks during the past years, as a result, among other things, of a widening EC policy. For example, Spain has been investing very heavily in telecommunications, partly with financial backing from the EC.

"In Spain and Italy, Ericsson has had the advantage of solidly being anchored in the countries since well before. We were also much better off than many of our competitors in terms of personnel and other resources. Hence, Ericsson could apply aggressive pricing."

## Warned early

Success in recent years, as is known, has been reflected in very good earnings results for Ericsson. The years 1989 and 1990 were record ones. Then the air went completely out of the market.

"We saw signs already during the past year and we lifted a finger to indicate that then, but we had no idea that the downturn would be so steep as it is now," notes Jan Stenberg. "Spain and Britain are two

Jan Stenberg, vice president, warns: The golden age will not return.

shining examples of how steep the downturn has been".

With regard to Spain, the huge investments in recent years have led to a heavy financial burden. Telefónica in Spain has cut its investments in public telecom from 2,150,000 lines in 1991 to 700,000 next year. In Britain, British Telecom is laying off some 40,000 people as a result of the worsening times and steady pressure to streamline operations.

Following in the path of deregulation, competition has increased immensely on the market. Most observers agree that the coming years will see the disappearance of many companies in the branch and still Ericsson must reckon with tougher competition.

"All big companies in our branch are investing now in internationalization. Ericsson is a jump ahead with systems installed in close to 100 countries. But now Canadians, Ame-

ricans and Germans have begun to search out new markets. They have been hit by deregulation on their home turf and now they want to expand their "territory."

The increased competition that deregulation has produced has led to a price scramble on several markets. In the U.S., for example, the pricing level is considerably lower than what has been normally common in many European industrial nations. This also has significant consequences for Ericsson in the future.

## No chance depression

Jan Stenberg believes that volumes in the telecom market will not begin to pick up before 1993 at the earliest. The increase will come then on a market with significantly lower prices, so there is no reason to raise one's hopes for a new golden age in this branch.

"Since Ericsson must continue

to invest enormous sums in technology development, we must also in the future grow accustomed to a lower profit level than during 1989-1990."

That's why Ericsson must now reassess its costs picture. The measures to be taken must tie in with a far-reaching goal for a good economy. TRIM 92 and other activities are not just a winter campaign - they are part and parcel of our long-term survival.

"If we succeed in our ambition to bring down our costs by at least 15 percent, then Ericsson has a good chance of emerging from the fray of the 1990s telemarket as one of the winners. Many of our competitors are envious of our strong starting position with broad knowledge in all systems areas of switching, radio and network construction and our very extensive market presence."

Text: Lars-Göran Hedin



## Pakistan order creates jobs in Hudiksvall

**A late-coming positive market event in 1991 is an order from Pakistan for a large tele project. All material for the project will be supplied from Sweden, where above all Ericsson Cables and Ericsson Telecom got a welcome boost in order bookings.**

Ericsson has signed an agreement covering a large tele project for the Pakistan tele administration (PTC) for a value of 800 million kronor.

The project covers total responsibility for building of 123,000 local tele lines in Lahore

in northern Pakistan. The contract was signed at the beginning of December at the PTC's head office.

The project includes planning, projecting, supply of AXE switches, transmission equipment, cable and network mate-

rial. In addition, there is project management, installation and setting in operation. Material will be supplied from Sweden.

### Complete supplier

"This is yet an example of Ericsson's strength as a complete supplier of everything that comprises a tele system," says Lennart Kalling, market responsible for the Middle East in Ericsson Telecom AB.

In a remarkable way, this order shows how well collaboration

between various Ericsson units can work. A large number of units have been engaged in bringing about the project. Among them are Ericsson Telecom's A region in Stockholm and the technical office in Islamabad, which handled negotiations together with Business Area Cable and Network's network construction company in Singapore, Ericsson Network Engineering (ENO).

ENO is responsible for planning, projecting and installation of the network parts in the project.

Cable will be delivered from Ericsson Cables Telecable division in Hudiksvall. More than half the order value is related to Business Area Cable and Network (BN). Ericsson Legal Services have also made important contributions.

These days a project organization is being set up and during the first quarter of 1992 the work will be in full swing. The entire project should be ready by the end of March 1993.

Thord Andersson

# Power and cooling for France

France Telecom has ordered Ericsson's telecom power and cooling system for a test and training plant in Paris. AXE is already found on the French market, but power and cooling systems have now after three years very tough work found strategically important approval.



From left, Jan Mes, MET, together with Saldi ben Khelil and Robert Löwenberg from Ericsson Components, Stockholm.

In France, the French telecom giant Alcatel has its carved out position. But in the country there is yet another company that makes telephone switches, namely Matra Ericsson Telecommunications, MET, which has 16 percent of the French market with AXE switches. At MET's offices in Massy, a suburb of Paris, since three years now there has been Ericsson

Components' authorized power man, Jan Mes, who oversees operations of ERIPower and ERICOOL. Today, France Telecom has placed an order for power and cooling systems for a testing plant with AXE switches. The plant will, among other things, be a training center for personnel in

the French telecom administration. The French telecom market is marked by strong protectionism. It makes it tough for us to break into the French market. The order is seen as a strategically important step for the systems. The goal is to sell Ericsson power and cooling together with AXE from MET.

## AXE for Venezuela

The state-owned tele operator in Venezuela, Compania Anonima Nacional Telefonos de Venezuela (CANTV) has ordered AXE switches from Ericsson for a value of 135 MSEK. The equipment will be manufactured in Sweden and installed in Caracas and two other large cities during 1992. Ericsson has long been one of the leading suppliers to CANTV. The new order cements Ericsson's standing as collaboration partner in the continued digitalization of Venezuela's tele network. In a separate order, worth 22 MSEK, CANTV also ordered equipment for expansion of the cellular mobile system in the Caracas area. Ericsson installed the first stage of the system in 1988 and has now been given the task of increasing it to doubling the number of subscribers.

## Ericsson shows Dual Mode in U.S.

Ericsson GE has premiered a functioning prototype for its first mobile telephone foreseen for the digital cellular American TDMA standard.

The two models shown were a car phone and a pocket phone, which both function in so-called dual mode, that is in both the existing analog mobile network and the new digital one. These two phones are the first of its kind and they strengthen Ericsson GE's position as a leader in development of mobile phones for TDMA. "The new digital TDMA telephones mean a great step forward, where a whole generation

in technological development has been hooped over," says Olle Ulvenholm, vice president in Ericsson GE Mobile Communications. "We have gone directly to what the branch's experts foresaw for the second generation of digital phones - a hand-held receiver that is equally light, compact and user friendly as today's best analog set. The pocket phone for TDMA weighs 329 grams and measures 203x60x25 mm. Talking time is 2 hours in digital mode and one hour in analog. Standby time is 13 hours. The new car phone weighs 1.27 kilos and measures 225x157x30 mm. It is expected on the market already in January next year, while the pocket phone will begin production on a large scale first during the third quarter of 1992.

## 120 new millions for radar development

Ericsson Radar Electronics in Mölndal has been working some years now with developing a new type of airborne radar, called PS-890. Similar to others of that type the development project for Swedish defense is supported by the defense authorities with development money. ERE has received a further 120 million kronor to continue work with PS-890, as an addition to the 100 million kronor that ERE got in August. The grant assures development work up to October next year. Then ERE expects to get an order for serial manufacture of the radar system. PS-890 is an airborne radar unit which in tests were mounted on a twin motor propeller plane. This works like the American so-called AWACS plane which among other things played a major role in the Gulf war in winter. With PS-890, ERE will be able to present a system that many countries' defense powers are interested in. AWACS, which is a converted four-motor jet, is far too expensive for countries like Sweden.

## Ericsson backs Mexican expansion

TELCEL, the Mexican network for cellular mobile telephony, will be expanded to service 70,000 new subscribers. Installation work for increasing capacity in the network over the entire country has already begun and will be completed in June next year. For Ericsson, which is sole supplier of mobile telephone systems to TELCEL, the expansion amounts to an order that is worth more than 27 million dollars (about 180 MSEK). By recently putting the system in Acapulco, the tourist resort, TELCEL cemented its position as the country's largest and most steadily growing mobile telephone network. TELCEL today has subscribers in 18 large cities, which together make up the greater part of the market for mobile telephony in Mexico. The present expansion will extend in the near future to increasing the number of cities in the network.

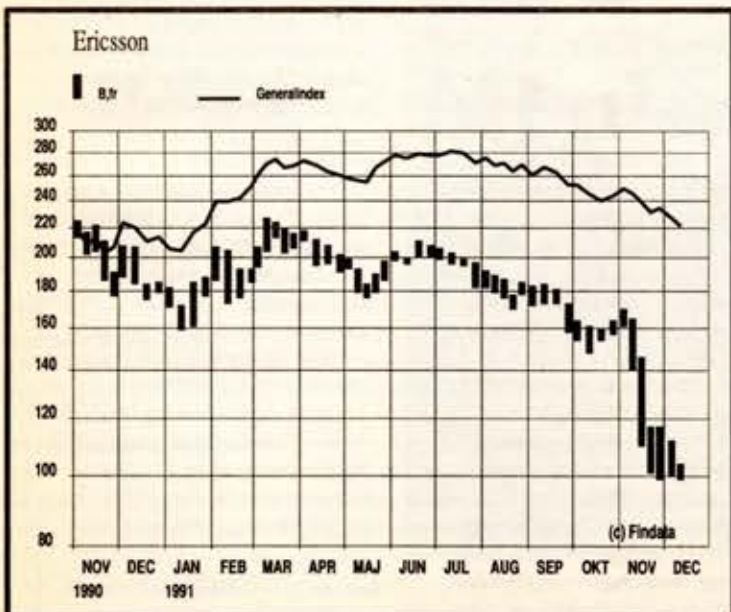
## EBC ready for ISO 9001

Now Ericsson Telecommunications AB, ETX, is no longer alone in being the quality approved business area company in Ericsson. After two and a half months final review, it was also the case for Ericsson Business Communications. Reviewers have recommended the State Standardization Commission to award EBC the prestigious quality certificate ISO 9001. "I would like to emphasize that ISO 9001 is a good base to build on, not an end in itself," says Kjell Stenquist, quality manager at EBC. It is he who led the company's preparations for review and the following up measures that were needed before it was all clear.

## British Telecom becomes even more private

When the state-owned British telecom administration, British Telecom, was privatized the state retained 49 percent of shares, making the state the largest individual investor in BT. Now that share has been reduced to almost half. In a campaign during the fall and winter, BT offered in the first place its subscribers a chance to buy shares in a share block worth more than 25 billion kronor. The majority of these shares will surely be bought by companies and investment houses. Also foreign investors will be offered an option to buy shares in British Telecom. (Elteknik)

# News about shares and convertibles



Ericsson shares continued to fall after the earnings report was presented on November 14. On the 22d shares were trading at 99 kronor, which is the lowest so far this year. One week later the price went in lively trading up to 117 kronor, later to settle at the current level of about 100 kronor. The short rise came, according to brokers, presumably because of short-term investors who saw a possibility for quick profits since often after a heavy fall there is usually some regain. Short-term uncertainty on the market for Ericsson shares is still great and will continue to be so in the next year. Long-term Ericsson is seen by certain analysts as an interesting placement, among other things, depending on the telecommunications branch having a huge growth potential and that costs for research and

## ERICSSONS SHARES

Date	Mutual Fund		Share Savings Fund	
	Share price (SEK)	Assets (MSEK)	Share price (SEK)	Assets (MSEK)
1988-12-31	135	52,2	343	56,0
1989-12-31	304	94,1	825	77,1
1990-12-31	317	86,4	86	65,6
1991-06-30	362	92,5	98	71,2
1991-12-11	194	49,4	50	34,8

Share prices on December 11 are based on a daily share price of 102 kronor and a convertible note of 105 percent.

development that are partly holding down Ericsson's results is a requirement for success in the long term. In general, developments on the Swedish bourse are weak just now as a result of weak markets around the

world and the high Swedish interest rate. The price of Ericsson convertible follows the price of Ericsson shares, but it should be heavily stressed that the value of convertibles continues to lie about twice above the conversion price.

# "ERICSSON SAVED US AT GOAL LINE"

Those were Ulf Jägfors' spontaneous words when on Nov. 15 he took the Ericsson part of the soon to be completed Stjärn (Star) TV network in Sweden.

Ulf Jägfors is technical director of Stjärn TV network and father of the system. It was Bengt Nilsson, project leader at Ericsson Network Engineering AB (ENS), who formally handed over the equipment in Stjärn TV's head office in Skärholmen, Stockholm.

## 190,000 flats ready

Stjärn TV is now ready with cable TV connection to 190,000 of the planned 220,000 apartments in Stockholm. Of these Ericsson has built 21,000 and besides that was responsible for the very extensive base network. Ericsson has been one of the main suppliers of cable.

It was in the mid-'80's that the community-owned Stjärn TV began to build up a cable TV network for, in the first place, new public housing. Initially, most of the work was in the suburbs. When it was time to begin with the inner city at the end of 1988, Ericsson came into the picture. Altogether some ten large and as many small entrepreneurs worked with the Stjärn network. Ericsson is one of the largest among the big ones that built up the new cable TV network.

## Ericsson responsibility

"Since Ericsson has such high competence, we let them take total responsibility for the

controlled quality all the way through.

In order to accomplish the interesting and demanding task, Bengt Nilsson leased, along with his trusty colleagues, an office in Södermalm in Stockholm. It was of immense significance to be in the proximity of that part of the city where the network was to be built. Here they had perfect space for both office and additional room, including changing room and showers for the assemblers.

## 75 assemblers

"When we were in the most intensive phase of the job we had 75 assemblers simultaneously," says Bengt Nilsson. "Most of the connections we have built in the Södermalm and Kungsholmen sections of the city." Bengt has been with Ericsson since 1971 and has worked on several large projects abroad, mostly in the Arab world.

The two largest actors in cable TV in Stockholm are Televerket and Stjärn TV network. Besides these there are a handful of other actors in the field. The apartment occupants cannot choose. They are bound to the network that the building owners have chosen. So, for example, was the case with Stefan Lundström, Stjärn TV network's own project leader, in an apartment with Televerket's network.

## Differences exist

"Televerket supplies and is responsible for signals from the building, then it is up to the building's owners to take responsibility for the building's network. When it comes to Stjärn TV network we take responsibility from antenna installation to the setting up of each TV receiver in a house," says Ulf. "We have total responsibility when we take over operations in a house."

Televerket has built a system which is built on the collective principle, that is every resident pays a fixed fee for ten channels. For those who do not want cable TV, the building owner has to insert a filter in the antenna outlet. Stjärn TV network is built on the free will principle, where each resident decides if he wants to use the cable TV network. We have

achieved to date a 70 percent coverage in our Stockholm-based network, says Ulf Jägfors. There is a huge potential for us to expand, which is also now being handled through our sales department.

## Watching and taping

In the Stjärn TV network it is also possible to simultaneously watch one program and tape another from other selections. That cannot be done in Televerket's or other cable operators' systems, since this calls for a decoder if one wants to see something beyond the base selection, and one can only decode one channel at a time. Those who want a new program in the Stjärn TV network has only to call and will have the new program connected within a week. The only thing one has to do is to put in a TV set, and if it is modern there is hardly any problem.

## Future

How does the future appear? What will we have on the Stjärn TV network in four or five years?

"That's an interesting question, but it definitely clear that the network we are building now is first and foremost made for cable TV, but already from the start our network has communications in both directions," says Ulf Jägfors.

"That is a necessity if we eventually have a new qualified pay TV system that is selected. Each subscriber can then choose a desired program or film from the very wide selection and pay separately for that. We will possibly have this possibility very soon."

"We can also envision the possibility of offering services such as building supervision and home alarm via Stjärn TV network. Those that are hooked up can have security alarm, burglar alarm, fire alarm or any other current alarm functions.

In this case the alarm is sent to an alarm center, and this is not technically difficult in any way. The most important thing is to establish collaboration with a security company that can pick up the alarm and react.

## Good infrastructure

"Of the 600 million kronor investment we made, about half is invested in infrastructure in Stockholm," says Ulf. "We have some 350 kilometers of tube system and a powerful glass fiber network lying in the subway system. One possibility is for us to sell space in these tubes to other interested parties. We can also extend a fiber network and offer very advanced services of various kinds to subscribers. We should be able to compete in all areas right down to telephone services," says Ulf.

## Continuation

There are still 20,000 apartments to which Stjärn TV network will extend. Here there is a possibility for new tasks. Ericsson is well positioned, we have both the knowhow and the resources.

"We are in the starting team if we win confidence," says Bengt Nilsson, who at the turn of the year will close down the offices in Södermalm, with a view to new interesting projects in Ericsson Network Engineering AB.

Text and photos:  
Thord Andersson



Ulf Jägfors shows a part of Ericsson's comprehensive documentation.

entire undertaking, says Ulf Jägfors. Thanks to this we could direct our resources to directing some of the less competent entrepreneurs. We were in a tight spot with the time, with an abnormally high building deadline. The higher cost involved in trusting Ericsson was money well spent, says Ulf. "We got a complete and well executed job with



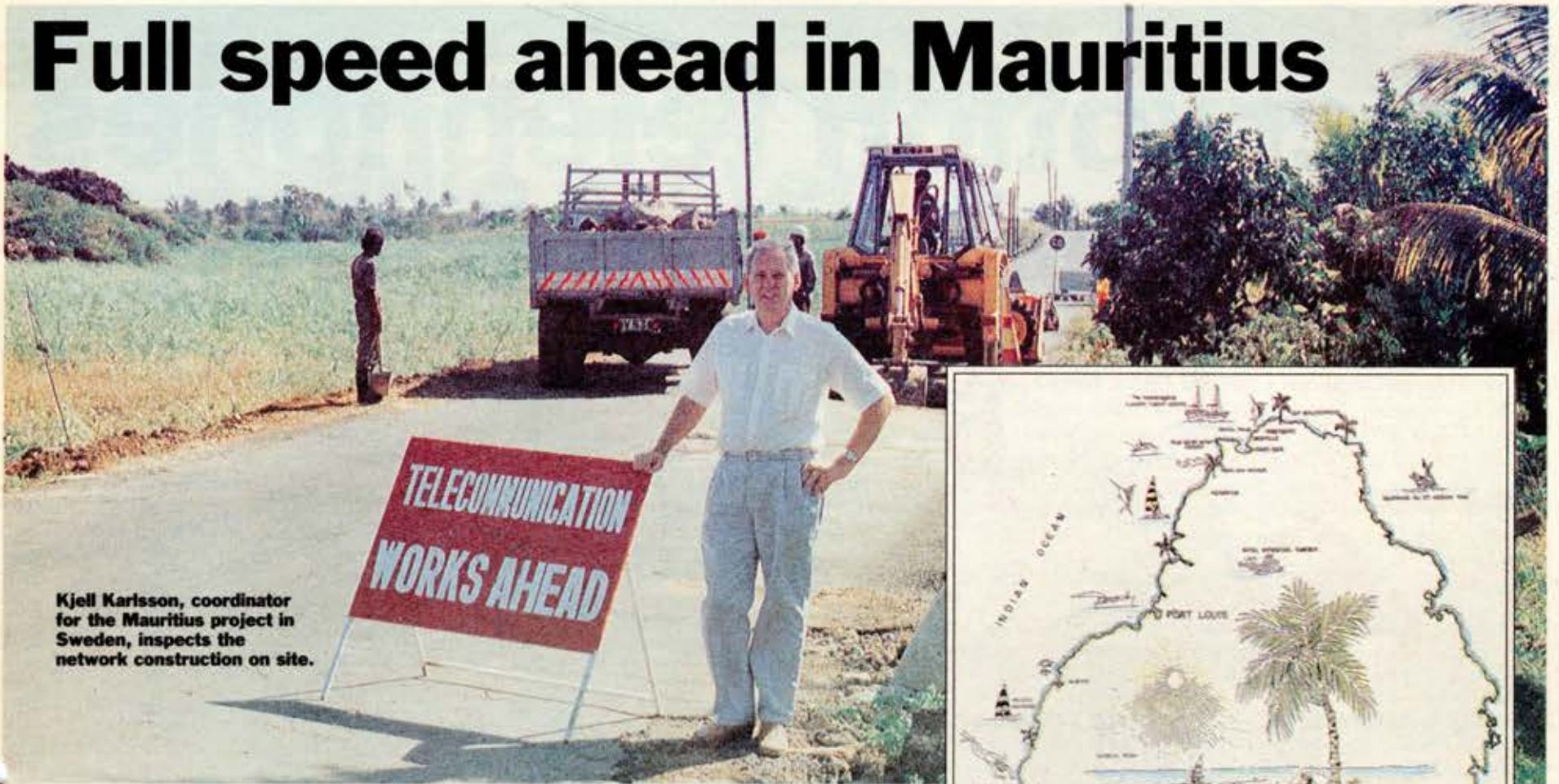
Stjärn TV's Göran Forsellus, left, and project leader Stefan Lundström show a tube type in which cable is laid.



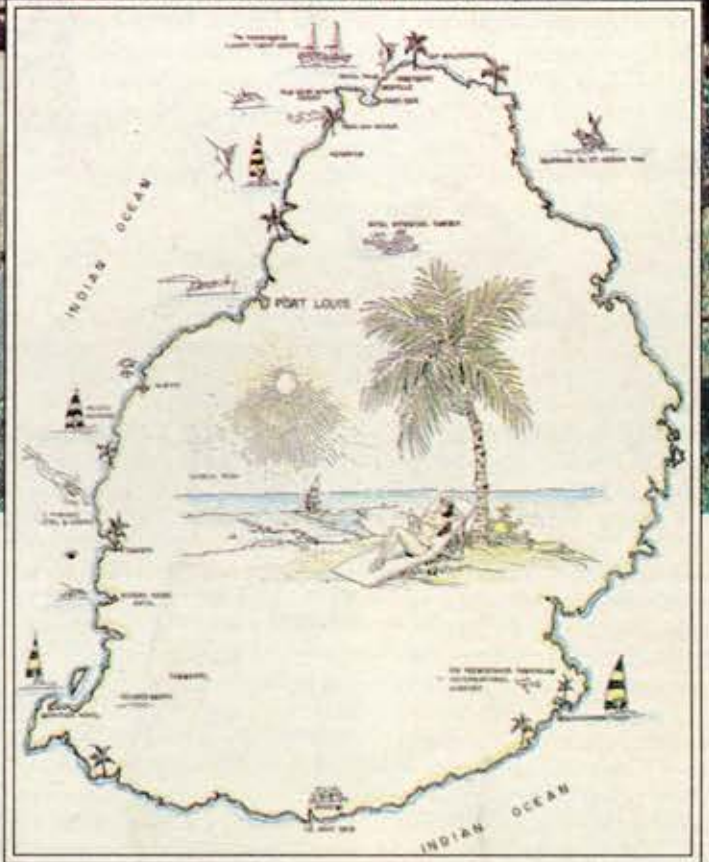
Reidar Backström and project leader Bengt Nilsson, two in Ericsson Network Engineering Star team. In the starting line for new assignments.



# Full speed ahead in Mauritius



Kjell Karlsson, coordinator for the Mauritius project in Sweden, inspects the network construction on site.



Mauritius is situated approximately 8,000 kilometers off the coast of East Africa. The climate is mild, relatively dry with temperatures varying between 20 and 30 degrees Celsius all year round.

In connection with a project meeting we had the chance for a chat with Jan Eckerud, manager of Business Area Cable and Network's (BN) company in Mauritius. He was in Sweden for the first time in four months since he took over operations on the little paradise island in the Indian Ocean.

Enthusiastically he tells about the huge network construction project, which has now reached the height of activity and there are more than 550 persons employed. There is work being done in 11 out of 21 involved towns and districts, including the capital city of Port Louis with its 135,000 inhabitants.

"We have 30 heavy machines and just as many trucks along with 60 vans and pick-ups on the move every day. Our organization functions very well with David Jones as operational manager, Nils Idenfors as installation manager for civil works and Jimmy Ryun as installation manager," says Jan Eckerud.

## Two phases

It was in the beginning of 1990 that we received the order from MTS, the telecommunications administration in the little island nation of Mauritius.

The first phase amounted to 170 million Swedish kronor and included two contracts. During the spring of 1991 we received an order on an additional phase, which resulted in a contract of 65 million Swedish kronor. More than 15,000 telephone poles and a million meters of canalization piping have been shipped to the island, like all required cable.

For the 235 million, the inhabitants of Mauritius get a modern telecommunications network for international traffic. Additional competitors are also participating in the expansion of the telecommunications network on the island, among others French Alcatel, but Ericsson is definitely the largest player.

"Right now we are digging for canalization, laying PVC-pipes, casting manholes - some on location, some prefabricated. Our conduit is 355 kilometers long. In it we lay 800 kilometers cable for local network construction with a capacity for 50,000 lines," says Jan Eckerud. In a first stage, we set up 15,000 new telecommunications lines.

It is a very internationally gathered workforce involved in the Mauritius project. Projectors, work leaders and administrators have been recruited from BN companies, along with others in Sweden, England, Thailand, Malaysia and the Philippines. It involves approximately 110 persons. In addition, 450 Mauritians are employed in the project.

## Finished next year

"We have had some delay, which we have now, with extra effort, caught up with," says Jan Eckerud. We reckon phase one, with the first two contracts, will be ready to be handed over to the customer in March 1992. Detail planning and projecting for phase two is now in full force. That whole part of the project will be handed over to the customer during August 1992.

Kjell Karlsson, who is coordinator of the Mauritius Project in Sweden, says, at the time of writing, that he has been in Finland inspecting cable for the second phase of the Mauritius project. The cable comes from Nokia's plant in Uleåborg, since Ericsson Cable does not manufacture this type of cable.

"We deliver underground cable and aerial cable and both are filled

with vaseline," says Kjell Karlsson. The dimensions vary between 0.4 and 0.8 mm diameter. Everything between ten-pairs and 2400-pairs cable are included in this subcontract, which amounts to a total length of 160,000 meters. Impressive 225 cable drums were shipped from Uleåborg on the November 15. The next stage will be to acquire an additional 5,000 telephone poles and more than 1,300 manhole-covers in cast iron.

Text: Thord Andersson  
Photo: Kjell Karlsson



All material for the project has been shipped to the island. Behind the cable drums is a storeroom with a part of one million meter canalization pipes. Leisure time is preferably spent, like below, on the white and undisturbed sand beaches with the crystal clear water that surrounds the paradise island of Mauritius.



Jan Eckerud, manager of BN's company in Mauritius, waves the flag for the little island country. Photo: K-E Eklund

# Encryption telephones for overall defense

The encryption telephone Codeline Phone from Ericsson Radio Systems has now been sold to Försvarets Materielverk, FMV, the Swedish defense matériel agency, for use within Swedish overall defense. The order, which runs to some 26 million Swedish kronor, concerns the special version of Codeline Phone with guaranteed high encryption security.

The development of the two versions of the encryption telephone, one for civilian use and one for military use, has been going on simultaneously. Both versions of Codeline Phone are manufactured at ERA's plant in Linköping.

The encryption telephones delivered to FMV are equipped with a special algorithm, the T-algorithm. The algorithm is the special calculation norm, which together with a registered encryption key gives the encryption very high and unique security level. This is approved by the commander in chief, overall defense signal protection department, for use in times of both peace and war.

"FMV is the first customer to place an order for the Codeline Phone in this particular version," says Bo Johansson, who works with marketing Codeline Phone to military customers.

The encryption telephones will be used within overall defense, where, among others, the National Telecommunications Administration, the County Government Board's defense organization and civil defense are included. This means that Codeline Phone will be available at many different locations in Sweden.

Codeline Phone was introduced on the market in the summer of 1990. One of the first customers in Sweden was Saab-Scania, which at the turn of 1990-91 bought the

first mass-produced sets. In an interview in this paper in May 1991, Rolf Dolk, security manager at Saab-Scania, emphasized that today's business climate demands monitor-safe telephone calls.

"The company's security is part of the business operation. Through a high risk awareness, credibility increases and that is important for our business contacts, both national and international," he said.

## Export

Communication security is an area that is becoming more and more important and makes Codeline Phone an interesting product. Orders have come from among others Belgium, Finland, Norway, Spain, Turkey, Oman and some South American countries. In most cases it concerns small orders, where the customers with a few sets want to test function and use within their own organization.

"This year the Ericsson Group has started to use Codeline Phone. Approximately a hundred sets are now in use," says Sture Petterson, who is responsible for the Nordic market. Above all it is the international calls that are transmitted encrypted. Codeline Phone presently are in use at Ericsson offices in more than 30 countries.

"In connection with the quarterly earnings reports, I exchange information with my colleague and different controllers at Ericsson in



Stockholm." This is noted by Lars Jonsteg, The Ericsson Corporation, New York, where he works with information and investment contacts.

"The information we give each other cannot be leaked out, so I get a lot of use out of Codeline Phone. Before I used to fly to Stockholm, but now I do not have to do that at every quarterly report." Before the third quarter's report, several people involved gathered around a Codeline Phone at Telefonplan in Stockholm. This way one could have a monitor-free telephone conference with Lars in New York.

Gunilla Tamm

## Codeline Phone in brief

**Codeline does not demand any additional input for connection in the public telecommunications network.**

**All that is necessary for the call to be encrypted is that both the caller and the receiving party have a Codeline Phone.**

**The telephone set is easy to use. You call in the usual manner and when you want to connect the encryption, you press the encryption button and after a few seconds the encrypting equip-**

**ment in both of the telephones is synchronized. When the encryption light is lit it is not possible to monitor the call.**

**The encryption technique is digital. Speech passes through a speech coder where it is encrypted.**

**Afterwards it travels out via a modem to the telecommunications network and at the receiving end the signals are reversed via an opposite process. Anyone trying to monitor an encrypted call only hears a noise.**

# Ericsson system for Helsinki airport



The portable radio P400 is tested by Finnair's Väinö Neiglick at Helsinki airport. Photo: Harri Kosonen.

**The Finnish airline Finnair AB will modernize radio communications equipment at Helsinki's Vanda Airport and has bought an MRS 5000 system from Oy Ericsson Radiopuhelin AB in Finland. MRS 5000 is already in use at airports in Vienna and Rome'**

Finnair AB has bought the system in order to modernize and render more effective different functions at Helsinki Vanda airport.

In order for timetables to be kept and to coordinate all the work routines on, for example, luggage, service, transport, catering and clearing, it is necessary to have quick and secure communication. With MRS 5000 Finnair improves its service and makes the routines more

secure. The new communication system is supposed to be in full use by May next year.

Included in the order is a TC549 radio switch, ten base stations, approximately 200 portable P400s and 150 mobile stations C700. All products except for P400 are manufactured by Ericsson Mobile Communications plant in Kumla. The production of P400 is carried out at the Ericsson GE-plant in Lynchburg, U.S.A.

## Important reference

"Finnair's order is very important for the Finnish subsidiary Oy Ericsson Radiopuhelin AB," says Jari Palin, who is responsible for the project. Finnair is the first large deal in Finland, where the new portable radio P400 is included. This makes this order an important reference.

Kirsi Valkola

# Police equip their radio system

The Swedish police are carrying out a basic equipping of its nationwide radio network, System 70. Everything is included – antennas, masts, cables, station houses, maneuver systems etc. The patrolling police also gets a modern radio, a small handset from Ericsson. Called P402, with better alarm and identification function among the advantages.

## *Ericsson's handset with new alarm and ID function*

The national police have, as a lead in its equipping, ordered 825 hand-held sets from Ericsson Mobile Communications. A business deal worth more than 10 million in the first stage, but additional orders are expected.

The new handset is small and light. It has alarm buttons for so-called "stubborn" alarms that are not heard before one gets an answer, preprogrammed calling number, better sound quality, selective individual and group calls, a window to see with whom you are communicating etc.

The set has been field tested in three police districts – Uppsala, Enköping and Visby. Experiences were overwhelmingly positive even if naturally there are a few details to be adjusted.

The P402 set is manufactured at Ericsson-GE's Lynchburg factory and is already being used in a couple of places in Canada and the U.S.

### 18,000 police

Sweden is divided into 118 police districts, there is a total of 25,000 police employees, of whom 7,000 are administrators.



The Swedish police have chosen Ericsson's small handset P402, inset, which is field tested by among others Jorun Thureson and Timo Gustafsson, from the Uppsala police. Photo: Björn Seger

The police have had two large radio networks. System 70 (so called because it began to be installed in 1970) specially designed for open police services throughout the country.

There is also System 80, a later, modern computer-backed system for the large cities Stockholm, Gothenburg and Malmö, completely designed by Ericsson. In addition there is a smaller system, like field radios etc.

"But we have needed for a long time a new nationwide system for open police operations," says Rolf Andersson, manager for the technical bureau in the police administration. "That's why we have modified our system 70, but so thoroughly that can almost say that it has become an entirely new system.

The police are changing everything between heaven and earth. It's a giant task that must be finished by next year. One-third is ready today, one-third is in progress and the final third will be done in 1992.

They are trying to keep the fixed base network as far as possible.

But overall they are doing everything to improve quality. Even the work environment is being studied.

Radio coverage will also be improved, among other ways by tightening the network and setting up several so-called diversity receivers which replace the old remote receivers. (By diversity is meant that the signal is taken from the receiver which senses the signal strongest). Handsets have previously had some problems reaching the base, a problem that is partly

related to the fact that the network was originally built for car-borne, so-called vehicle sets.

Ericsson is there in many places. For example when all the old vehicle sets were changed for the Ericsson C600 sets.

Then in 1989 all the new police cars got Ericsson sets, but the old ones were still equipped with AGA RU, as it is known. Now they will all have modern equipment.

Handsets, described above, are another example. That all the police are equipped with the same handset, which in principle is designed as a vehicle set, is seen as a clear advantage.

This means that each policeman without training can handle any radioterminal. Televerket supplies

the maneuver system for the modified System 70.

### Built out

The big city System 80 will also be expanded. The system was installed at the beginning of the '80s but it was still considered modern. Now it will extend to the communes in the big cities.

In Stockholm, where Arlanda just got the System 80, it will also be used in the communes outside Norrtälje and Södertälje.

In Malmö the system will extend in the first place to Lund and Trelleborg and in Gothenburg to Mölndal and Kungälv.

"We have by tradition had very good collaboration with Ericsson," says Rolf Andersson of the National Police Board.

## Sensational little base station

Ericsson's new base station for nationwide paging systems created a lot of interest when it was recently shown at an exhibition in Los Angeles.

It weighs 30 kilos, which can be compared with the competition's cabinet of 200 kilos.

That it is small has many advantages. It is easy to install and it takes up little room (space costs for operators).

It can easily be taken out for repairs, it costs less to manufacture, it uses little current and has a lower cooling need etc.

The base station was developed by Ericsson Radio's subsidiary Magnetic. It has been around for a short time and the first deliveries are expected around March-April '92.

The Americans were very impressed and several operators now want to have a test system going.

This could mean an entry into the American market where up to now Ericsson has not had any nationwide paging system.

Lars Cederquist

## Poor man's toy total failure

In England two years ago a Telepoint system was launched. A cheap mobile telephone system for "one and all." The phones themselves were small but they could only call from certain points (close to the transmitter which were centrally located) and above all one could only call FROM the phone, never receive calls. Hence the phones were likened to telephone booths.

The operators had hoped to have a million subscribers in 1991, but the truth is they stood at 10,000 and that was not enough. The project was scrapped.

(Ny Teknik)

## Introduction of ERMES delayed

Introduction of the pan-European paging system ERMES, which was previously scheduled for January 1993, is now expected to be a few months late. Difficulties have cropped up in developing a product that can handle sending messages according to determined standards.

Britain along with several European nations reckon on being able to offer ERMES services first in 1994, while the Scandinavian countries are talking about launching in early 1993.

(Fintech Mobile Communications)



# The cost of the environment.

**A modern environment friendly industry land – can this be a reality? What will happen at the U.N.'s environmental conference in Brazil next summer and what is environment economy? We put these questions to Lars Bergman, who is professor in what one calls environment economy at the Stockholm School of Economics.**

In the midst of the city's worst carbon monoxide concentration at the Stockholm School of Economics we met one of Sweden's professors in national economy, specifically energy and environment economy, Lars Bergman.

"Environment economy deals to a great extent with finding direct means for reducing environmental pollutants. Fees are one of the direct means," says Lars.

Environment economy also goes into analyzing why we have an environment problem in the first place. It has very much to do with defining proprietary rights to the environment, and that is difficult.

"When I drive my car and create noise and exhaust emissions nothing happens. But if I go into a shop and want to have a tube of

toothpaste I have to pay for it. This symbolizes the base for a market and proprietary rights," says Lars.

## Owning a bit of air

"The difficulty with proprietary rights and environmental resources is that they have a collective character. One cannot split up air into different parts and say that one owns pieces of it. The direct means is hard to find."

"Environment politics also has to do with analyzing how environment policies function. The Swedish environment political system is built to its greatest extent on regulations," says Lars.

Regulations on company waste discharge come in the form of concessions from concession agents. Environmental protection laws are a departure point and in compliance

with these companies take measures that are technically possible, economically viable and ecologically motivated.

## Environment fees

"Environment economists' standard argument is to have fees and no regulations as a direct means for waste emissions. If we had fees it would suddenly become economically profitable for companies to influence waste discharge. On the other hand, a regulation can be compelling for negotiation and can be skirted."

Regulations make it so that companies that are profitable have heavy demands placed on them. Companies that are less profitable or that are located in activity weak regions have lesser demands. Moreover, discharge is sorted out in different damage levels. In the future, the environment professor feels, environment economy will be integrated into the national economy and not be a speciality as it is today.

• Next year in Brazil there will be a major U.N. conference on the en-

vironment. What do you think will happen there?

"The international environmental issues that deals with our problem with sulfur, nitrogen, hydrocarbons and the ozone layer and heavy metals require some form of international coordination. Then the question arises, who will bear the costs and how should the costs be divided up."

"What will come of this environmental conference, I believe, will be a very definite demand from the developing countries that the industrialized nations should bear the costs."

• Do you feel that's right?

"Always when it involves sharing between people and generations there is never really a right answer. The rich countries have unknowingly started the environmental destruction. These are moral and ethical issues, but also negotiation issues. Despite everything it remains with the rich nations to take on the costs and come up with solutions."

• The international environmental economic issues require an in-

ternational coordination for sharing costs. Each country must agree and the coordination must be on a voluntary basis."

"There are huge gains to be made by coordinating environmental issues. Coordinating is absolutely important. A disagreement on coordination could result in measures in a particular country being completely worthless. Each country must feel that it is in their interest to share costs."

But there are many underlying problems. Environmental issues exist in countries and societies that already have it good. Where starvation and disease exist, environmental issues have no priority.

## People's opinion

Public awareness about the environment has increased in Sweden and in the rest of the world. Conferences, articles and books on the subject reflect this. Company leaders face demands from customers and employees.

Environmental issues have taken on another character. It is no longer a game between the com-



"There are huge gains to be made by coordinating environmental issues," says Lars Bergman, economics professor at the Stockholm School of Economics.

pany and the authorities – it involves everyone. When the people's opinion is voiced that is the best battle for the environment. Today there is a lot of intent on the part of companies to show that they take environmental issues seriously, not least for their own goodwill.

• Is it possible to have a modern environment friendly country?

"Yes, I believe if one limits the perspective to Sweden then it is possible. What is the very serious problem is clearly border transgressions."

• How far has the world come with the environment problem?

"Fighting environmental pollution is a steady ongoing process that never ends. How far we can come and how threatening the environmental problems will be in relation to other problems in the world I do not know. Nobody knows."

Inger Bengtsson



FOTO: TORFOTO/AN HALASKA

## UN congress set for Brazil in '92

In summer there will be a UN Conference, United Nations Conference on Environment and Development, UNCED, in Rio de Janeiro, Brazil. It will take place from June 1-12 and will have an official section to which all the world's heads of state will be invited, as well as an unofficial section for, among others, environmental movements.



FOTO: TORFOTO/STURE AMALSSON

This is how Per Mattsson in Class 4b at Central School in Lilla Sköfde, Sweden, feels about the environment. He participated in a "Voice of the Children" international campaign and sent a card to the powers that be, industry leaders and politicians in various countries.

The first environmental conference sponsored by the UN was held in Stockholm in 1972 and was a purely environment session. In the coming one, "development" is the hot issue.

Work is aimed at setting up two conventions, one on climate, the other on biological aspects (to protect and preserve the earth's species of plant and animal life) as well as eventually a forest convention. Forests is a difficult subject.

Three preparatory meetings have been held with delegates from all over the world, the latest and third in Geneva. The fourth and last preparatory meeting will take place in New York beginning March 9. It will last five weeks and during that time all the decision texts will be drawn up.

## Right direction

Environment and Development 92 stands for the Swedish movement's common engagement at the UN conference. The Swedish movement monitors the entire UNCED process up to the conference so as to influence it in the right direction.

Before the conference there will

also be an international campaign, "Voice of the Children," in 30 countries around the world. It is aimed at children and youths and will attempt to get children to express their thoughts and ideas and to present their demands to heads of state, industry leaders and politicians in their respective countries. They will be encouraged by their teachers to send postcards with their fears and hopes.

## Postcards from children

A number of postcards have come in to the campaign group in Stockholm. They show how children see the link between war, water and health care. Often, war presents itself as the biggest threat and the biggest destruction of the environment. On March 4 a number of selected children will gather at a "hearing" with industry leaders and politicians where they will be able to voice their opinions. A corresponding "hearing" will be held in Rio before world heads of state, industry leaders and politicians.

Expectations from the conference are great. Hopefully, decisions will be taken that lead us to a better world.

# Internal mobility increases competence

"Well, you have changed jobs. What was the problem at the old one then?" It is attitudes of this type that makes it difficult to be part of internal mobility. Just at a time when it behoves the company to have employees with knowledge in several areas, it is difficult to move oneself internally.

The major change process that began in Ericsson Telecom will, among other things, mean increased demands on employees as far as entirety and flexibility. One way of

achieving this is that with some interval change jobs and test out new job assignments in new spots in the organization.

But tell me of one manager who does not find it difficult to part with an industrious employee. And tell me of an employee who joyfully goes to a manager and says that he or she would like to change jobs. The first thought is that there must be some problem with the old job.

"Unfortunately it happens so often today that many times the desire to move is seen as negative," says Kerstin Ljungkvist, personnel responsible at the TM sect in Mölndal, Gothenburg.

"One often takes it for granted that he who wants to change does so because he wants to leave a boring job. Instead, one should look at the positive side, that it is a matter of developing."

"Many have misgivings about changing job assignments today. But if the company is to be as flexible as we all want, personnel must have a broader knowledge base to stand on. It is that we shall live on in the future."

Managers who think that they "do away" with personnel must also change their attitude. There is nothing that says that an employee who leaves a department will not come back later, and with more overall knowledge than before.

Helena Lidén



Stefan Edström shifts from section manager in line to a job in personnel.

## A risk worth taking

"I had reached 40 years. Suddenly, I no longer had anything to look forward to in life. 'Later' does not exist for all eternity. I began to think about what I wanted to do with the rest of my life.

my decision, it became clear that there were many on the same track of "I want to do something different but I don't know what." I felt like that too.

### Surprise and respect

Stefan was met with lack of understanding from his colleagues and they spoke about him behind his back.

"One has to reckon with that. It is not so common to do what I have done," he says.

But if at the beginning he was met with surprise from his managers, he was also met with respect. He had made a decision and was prepared to see it through.

"I was also met with respect from my colleagues in personnel. They spoke a lot about changing jobs to expand their competence, but it is equally important to remember that everyone has a competence with him in his baggage when they come there."

Stefan knows how the employees in line reacted at the idea from personnel function. He shared this knowledge with us. It makes personnel function appear more creditworthy out there in reality.

"I have gained a lot by changing jobs. Here I can use what I am good at, being creative and

getting away from routine administrative tasks.

"Every day is bewildering. It is a whole new world that has opened up," says Stefan, enthusiastically.

Helena Lidén

### Milestone for DCC in Germany

The DCC project has with immense success passed EMP 2C, one of the tests demanded by customers. The tests showed that Ericsson has really come as far in development as it promised.

In April next year the first DCC exchange will be installed in Germany. Before that, equipment will be tested and customers will be there to inspect.

The latest, so very successful test where the entire equipment was driven together, took place in Rome on December 3-4. In the DCC project there are 700 people. They work with different parts of equipment at 19 units in five countries. This calls for good coordination.

## Break-after

When travelling restrictions were imposed during the days of the Gulf crisis the rescuer was video conferencing. What had previously been a possibility now became an absolute necessity. Along with the outbreak of war, the negative attitude toward video conferencing changed.

Roland Hamtörp at Ericsson Telecom started to build a video studio in the late fall of 1989. The equipment was put into use during 1990 and functioned terrifically. But the reception among managers in the organization was somewhat cool. On the one hand it seemed somewhat frightening to "be on TV," on the other hand they wanted to maintain their travel.

Before the war's outbreak, the video studio at the Tellus plant was booked at most once a week. When the war was at its height, an average of three conferences per day was held. When the war storm in the desert had calmed down, the skepticism toward video conferences was blown away.

Those who were forced to confer via video discovered that this form of meeting saved a lot of time. And time is money.

Travel costs for Ericsson Telecom decreased by nearly ten percent compared to the same period last year.

### More effective meetings

According to Roland Hamtörp, video meetings are more effective than traditional meetings. It has been shown that meeting participants prepare themselves better for a video conference than for an upcoming business trip.

"Well, if one is going to take a trip, it is easy to plan on preparing oneself on the plane, but things don't always turn out as they were planned. On the contrary, before a video conference preparation is done at the desk. Obviously, the preparation is more effective."

Roland Hamtörp assures that one does not have to be the least bit technically skilled in order to use the studio.

"No, it is actually easier to confer by video with Australia than to use the remote control to the TV at home!

Today there are eight rooms equipped for video conferences within Ericsson. Ro-

## Possible

Video conference equipment will be connected to both private and public networks. Ericsson offers both alternatives.

Choice of network solution, public or private alternative, depending on factors like need for transmission speed and available budget. Higher speed gives better image but is more expensive.

A third factor is how the video equipment of the receiving party is connected. According to the market consultants BIS, video conference within the company will reach 75 percent of total use by 1995. The remaining 25 percent will go to conferences among various companies.

### Video in private network

Customers in the area of business communications ask about the possibility of video conference in the private commu-

# through for conferencing outbreak of war in Gulf



If you can manage a TV remote control, you can manage vide conferencing, says Roland Hamtörp, responsible for videostudio at the Tellus plant.

land Hamtörp emphasizes however that it is demand that determines the building of new studios. It is even possible to rent rooms at Televerket, the telecommunications administration.

"It is only your own imagination that limits the possibilities," says Roland Hamtörp enthusiastically.

At the next breath he tells about the heart specialist who was of great help at a complicated heart operation several thousands of kilometers away. The doctor could follow exactly what was happening on his monitor and therefore could give good advice and instructions during the operation. However, a little "but" still exists. It is the matter of security. Today there is no secure code system that prevents unauthorized persons from

sharing in the information. Therefore one should not video confer about too secret subjects. Roland Hamtörp assures though that it is only a matter of time before one finds a reliable system that makes it possible to talk about delicate subjects on the air.

Text: Anette Bodinger  
Photo: Lars Åström

To confer by video over the entire world is a good way of saving time and thereby money. Video conferences really took off during the Gulf war, when travel restrictions were imposed.



## Airlines don't worry about competition

At SAS and Linjeflyg they are aware that video conferences exist. SAS has used this form of meeting on several occasions. But they do not really see video conferences as a direct threat to business travel.

"Personally I find it difficult to see video conferences as a way of acquiring personal relations with a business partner," says Lennart Löf, marketing manager at SAS Business Travel.

"This is not a new phenomenon. Within SAS we have used video as a meeting form for some years. However, the market is expanding now, but this does not mean that the one takes from the other.

Roland Svanberg is regional manager for Linjeflyg's group travels. He is somewhat more careful in his judgement.

"We have not as yet noticed how video conferences influence business travel. But, of course everything that can take travellers away from us are competitors to our type of business."

"Along with everybody becoming more familiar with the transmission technology, obviously competition is increasing. It is not yet a matter of just sitting down and pressing a button. But at the same time that the pace of familiarization with technology progresses, I can imagine that video conferences in the future can become a marginal threat to travelling by air.

## Saves time - and time is money

Today an hour's video conference with a country in Europe costs approximately 8,000 Swedish kronor. That's almost as much as a roundtrip ticket to Geneva. If there are seven persons seated at Telefonplan having a meeting with their colleagues in Switzerland, one can understand that time - and therefore cost - savings are enormous.

Anders Enström at Ericsson Telecom's financial department confirms that the amount of trips have somewhat decreased compared to last year. However, the level of total costs is practically unchanged. This is a consequence of the major price increases on air fares during the spring.

According to Roland Hamtörp, the automobile empire Ford has decreased traveling costs by as much as fifty percent thanks to frequent video conferences. That number cannot be applied to Ericsson.

"No, we do not have as yet any idea about either the extension of video conferences or how large the savings potential is," informs Anders Enström.

## to connect in both public and private network

communications network. They see the possibility that by achieving this they will save money, increase quality and service level.

"In the U.S. it is more the rule than the exception that large companies have video conferencing in their business networks," says Jan-Olof Hedman, who works with strategic planning in Ericsson Business Communications. In Europe development is still in its infancy, but it is quite clear that it is on its way. Video conferencing is nothing that we can sit and wait for, surveys show.

### Already supports video

Therefore it is already with the latest release of the business switch MD110 possible to build a private communication network which takes in video. In coming releases network functions that support video will be further developed.

Several interfaces will be developed that gives broader support to video conferencing

equipment. Surely there are standards in the area, but they are a few years old. With this new situation many of the small innovative companies that specialize in video communications have come up with technology that is better than these. Further changes are expected before the turbulence dies down.

Ericsson will not be developing its own conferencing equipment. For the moment it is neither planning to have any sales agreement with any supplier.

"We do not want to impose on our customers what equipment they should choose," says Jan-Olof.

The objective is instead to support all the big suppliers' video equipment.

### Ericsson in the lead

Ericsson is well ahead in the competition when it comes to offering possibilities for videoconferencing in the private network.

"No supplier has done so very much," says Jan-Olof.

The exception is possibly the American AT&T and the Canadian Northern Telecom. In five years it is expected that the time will be ripe for desktop video equipment, video telephony in volume.

"We are working to be there, also with terminal equipment," says Jan-Olof.

Presumably, Ericsson will choose to collaborate with specialized suppliers.

### Video in public network

In Ericsson Telecom video conferencing is seen as an ever common application in the public network and it is expected to increase in coming years. Until now video conferencing in the public network has as a rule been driven by high transfer speeds like 2 Mbit/s. In recent years the technology in video equipment has improved tremendously so that lower and cheaper speeds can be used

to achieve acceptable image quality. At the same time the price for such equipment has also fallen considerably.

"This will stimulate use," says Håkan Engman, product manager for DIAX Switched Wideband.

DIAX Switched Wideband is a system that ETX today sells to public network operators, for among other things video conference applications. It makes it possible for subscribers to hook up a connection to the broadband as desired from 64 kbit/s to 2 Mbit/s and pay based on usage. The system also makes it possible for the subscriber to book connections in advance for video conferences or to arrange multi-part conferences.

"ISDN and ordinary connected 64 kbit/s connections will also be common for videoconferencing in the public network. Håkan points out.

Text: Maria Rudell



With the multifunction model the technology department, marketing department, service and production work as a connected four-in-hand with a uniting total project leader, instead of running the relay race with more or less insufficient handovers, which is usually the case when developing new products. Photo: Bengt af Geijerstam/Bildhuset.

# Common control helps Ericsson win the race

**Just about two years ago the traditional walls started to be torn down between technology departments, production units, marketing departments and service departments within Ericsson Business Communications. Multifunction project was introduced as a work model. It came to stay. What at that time was new and in all its simplicity revolutionary is today obvious.**

The best way to do it, is to do it correctly from the very beginning. A statement that probably everybody could agree on.

How is this achieved? One way is to let all involved speak up before one starts to work with something and thereafter maintain contact during the project's progress.

This is what multifunction project is all about. The four important functions – technology, production, marketing and service – work parallel with a uniting total project leader all the way from the idea stage to the start of sales, for example, when developing a new product.

An obvious, simple theory that can be more difficult to accomplish in practice. It puts large demands on ability to cooperate, adaptation and understanding of another's work. In four of the divisions within

EBC – the division for MD110, BusinessPhone, telephones and the production division – one has succeeded in implementing and maintaining this way of working.

One reason why it has succeeded is probably that there actually exists a documented model for cooperation with meetings and checkpoints where decisions are made. It is easy to get started if there is some form of routine. One does not dare as yet to claim that the work functions perfectly, but it functions very well. Departments within Ericsson Telecom have observed the development and shown great interest.

## The race to market

The overall purpose of working in a multifunction project is to shorten the time from getting the idea for a product till it is actually

ready for sale on the market with everything necessary, like sales material, brochures, offerings etc.

And time is money – by now this is a fact within almost all trades. The product's life span is decreasing. Market forces decide without mercy when a product is dead. For every day the introduction of a product is delayed, the company loses the equivalent of a day's sales when the product is at its top.

## Won the race

The divisions that work according to the multifunction model conclude today that product introductions are quicker and smoother. The previous chorus of complaints in the local companies is now silent.

"It is difficult to measure improvements by numbers, since there are normally large differences between various development projects," says Stefan Lindwall, product manager for BusinessPhone 150 within the division of Small Systems. He has experience in multifunction projects.

"But from experience we have found definite improvements, above all in product introductions.

Earlier it could take six months to introduce a product, now we can manage it in one to two."

Thanks to good relations with the local companies they are ready to start selling when the product arrives.

The time for technical development is principally the same whether the project is carried out traditionally or multifunctionally, since each technology department's current work model is included in the overall cross-functional model. However, indirectly the development time becomes shorter in cross-functional projects, since one of the cornerstones in the new model is to put a lot of work and time into the project's introduction in order to get definite specifications.

Based on this, the designers can work methodically without having the conditions changed too frequently during the project's development. In dialogue with the production people, designers can find the best and most inexpensive ways to solve the problems.

A major part of a company's expenses for a product during its life span is in service. The service department has important know-

ledge on how the product should be designed in order to decrease costs. Earlier, the service department's knowledge has often been overlooked, due to missing routines for cooperation.

## Time is saved

The marketing department has a need to continuously get information about the product and situation in order to be able to work parallel with producing sales support and plan product introduction together with the local companies. A lot of time is saved and gaps in the production are avoided since the sales work can start earlier.

Another important advantage of the new work model is that the determined checkpoints give management good conditions for control and command of the projects.

That the multifunction projects have come to stay, is something that everybody, who has been in contact with it, agrees on.

"Once one has experienced the advantages from working this way, time can not be turned back", says Stefan.

Maria Rudell

# Ericsson makes its own transistor

The heart of a radio base station is a transistor, which amplifies radio signals so they can be transmitted via an antenna to the mobile telephone. This product has become a more and more important part of the base station, both strategically and functionally. Ericsson Radio and Ericsson Components have solved a research and development problem. The result – a new Ericsson product.

Ericsson Radio's expansion within mobile telephony led to an acute need for transmitter transistors. Until now these were bought from a competitor.

The demands on transistors have also increased. They should be able to be used in both analog and digital transmitters and handle higher effects and thereby high temperatures. The amounts of data in modern telephony is constantly increasing and hence higher frequencies have to be used.

ERA was now looking for ways to fill the need. The type of components that were needed were very special and one had started to cooperate with a company in the U.S., which had experts in the area of high-frequency/high-power transistors or as they are also called, Radio Frequency, RF-transistors.

"Around the same time ERA and Ericsson Components had started a basic technology project in order to create possibilities for self-manufactured components," says Bengt Ahl, responsible for RF Power Amplifier Design at ERA in Gävle.

"A coincidence arose when the company in the U.S. had financial difficulties and had to be closed down. The technicians who were laid off offered to work for us," Bengt says. Among them, were some of the few engineers in the world who had knowledge in the area.

Development went quickly. The preliminary study in basic technology at EKA was

## Transistor ever more important part of radio base stations

linked with the experiences of the engineers in the U.S. and one saw great possibilities in a cooperation.

On the first of July in 1990 a research center was established in Morgan Hill in the extension of Silicon Valley, California, U.S.. "A group of 11 persons from the American company were employed at Ericsson Components," says Arne Rydin, EKA, who handled the initiation in Morgan Hill. The Opto- and Microwave division at EKA took over responsibility for the operation and design of the components.

### Basic concept

The complete RF-transistor includes, besides several transistors made of silicon, both capacitors and coils. From U.S. a basic concept for the silicon process (900 MHz) was used by EKA in Kista. Here there was better equipment and greater possibilities to refine the process. The demands on the transistor chip are the greatest, which are made at the Kista plant



Ivar Hamberg and Hong Sam-Hyo, Ericsson Components, show the layout on a transistor chip – very much enlarged. Photo: Lars Åström

today. Encapsulating and connection to the capsule, bonding, is carried out in Morgan Hill.

### Strategically important

The main purpose with the effort has been to transfer knowledge in the area to Ericsson in Sweden. To have your own manufacturing is of great strategical importance, not least to be able to secure access to the

components. The product was finished last spring and ERA has put an order on half of its yearly consumption. "It has become the best of its kind," says Peter Lidberg, Radio-system AB. "It has even proven to be energy saving and requires less current in the radio base station." The heart of the base station – is now an Ericsson product.

Inger Bengtsson

# Mystery behind mobile telephony

## The shortest route between two telephones

"But how can the signals from this little telephone reach all the way to Australia," questions the puzzled public, looking suspiciously at the mobile telephone he is holding in his hand. A common misunderstanding. There are actually no radio waves transmitted from the mobile telephone to Australia or any other distant country. Not even from Stockholm to Södertälje.

At the telecom exhibition in Geneva an episode occurred that can serve as an example of how a wireless call can take place. Per Bengtsson at Ericsson had received a visit from an analyst who was interested in microwave links. Ericsson had an expert on location in Geneva, but one did not know where he was for the moment. The only thing one

knew was his mobile telephone number, which was consequently a Swedish number.

Pelle called on his DCT telephone, that is a wireless "office telephone," which was connected with a temporarily installed wireless PABX-switch (an MD 110) in the exhibition hall. He dialed 00 etc. and a radio signal travelled from the pocket telephone to the base station which has approximately 50 meters range. From there via wire to the local switch and further out on the line to the public network in Switzerland.

The call was connected in a transit station in Switzerland to the international network, the numbers 46 indicated the country Sweden, 10 a mobile telephone number. Consequently it was transferred to Sweden and connected to the mobile switch there. The switch found out where the subscriber was located.

When the Swedish subscriber in Switzerland dialed on his telephone and hit the country number in Switzerland the mobile switch knew that the subscriber was registered in Sweden but was situated in Switzerland. Information that was transferred to the mobile switch in Sweden.

Thanks to this knowledge, the Swedish mobile switch now tossed back the call through the international network down to Switzerland where it was transferred to

the mobile telephone network, NMT, which also found out in which network, that is in what cell the subscriber was found.

A radio signal from the nearest radio base station reached the missing expert, who – to Pelle's and the analyst's great surprise – turned out to be standing just a couple of meters away in the crowd.

And notice! The whole connection had taken an unnoticeably longer time than if it had been transmitted directly. (In the future's "intelligent network," for example in the Pan-European GSM-network, the switches will search out where everybody is situated and no calls will need to be connected the roundabout route via "the home country.")

Lars Cederquist



Cordless communication is fantastic. In a fraction of a second, a mobile subscriber is located wherever he is.

# Project management

**"When marketing sells a system it is we who take over"**

"When the marketing side gets an order their work is done and then we take over. We carry out the task and hands it over later to the customer. We are O/P, project management, a young department that was formed when O division was born more than a year ago. So recalls Ulf Malmerberg, who is responsible for the department at Ericsson Radio.

O/P consists of 38 employees. Besides the project leader, there are economists, administrators and secretaries. Right now they have projects in no fewer than 35 countries all over the world. The biggest project in terms of money is in Italy.

"Ericsson's subsidiaries around the world will take care of projects in their own country. We will help in building up their resources," says Ulf. Already today the big subsidiaries in Australia, the U.S., Canada and Mexico are driving

their own projects. To say that the work for O/P department begins when the marketing department takes home an order is not entirely right. Already with the offer work the departments offer reviewer does a risk profile of the assignment. Then one goes through the offer from a technical, financial and legal point of view. This job has become all the more important in line with the fact that customers are making tougher demands. At the same time the offer is reviewed so that it satisfies the quality



Left, Thore Thoreson is offer and contract reviewer, here together with Ulf Malmerberg.

demands according to international ISO standards.

Project leaders have varied backgrounds. Some are technicians while others have worked in marketing.

"It is important to have administrative assets and to be able to motivate employees," says Ulf. Being a project leader is a broad

job. It can be a cross between small routine issues and large economic problems.

At the same time it can sometimes be a very routine job with report writing and budgeting work. A project leader must know a little about a lot and must be prepared to be able to improvise.

At the start of a project there can be a lot of traveling to the country and the customer involved but later contacts are handled from a desk in Kista.

"With help of modern technology like fax and Memo it works fine to sit here and drive the project on the other side of the world," Ulf concludes.



From left, Bengt Rolander and Sture Nilsson work with the DAL project.

## Time-pressed project in east Germany

On October 25 Ericsson received a letter of intent for mobile telephony equipment for east Germany. For project leader Sture Nilsson it was the starting shot for what is known as the DAL project. Already in the middle of March the first of nine sites was ready to go into operation. Talking about time pressure is no exaggeration.

"In this project we have close contact with Ericsson Telecom in Frankfurt and their local office in Berlin," says Sture.

DAL (Dratlose Anslus Leitungen) is a strategically important project. It is the first time that Deutsche Telekom has ordered AXE switches from Ericsson. DAL is the big project which the German tele administration began in order to improve telecommunications in eastern Germany. By using mobile telephony the number of connections to the public network in east Germany can be rapidly increased since there is no need for work with cable laying.

In all some 30 persons from Ericsson are working with the DAL project, about 20 at ERA and 12 at ETX. The project groups are organized in the same way at ERA and ETX but overall project responsibility lies with ERA. Sture, who worked previously with ETX, came to ERA in September this year.

### Turnkey

The job in east Germany is a so-called turnkey affair, which means that Ericsson takes care of all the work right up to until the system is ready to go into operation. For the local organization this means a lot of bureaucratic work concerning, among other things, building permission for the sites.

ETX's part in the project comes early on and thus they started work in the DAL project earlier than at ERA.

"The switch side must have done its part before we can begin with base stations," says Sture.

The DAL project is a big assignment for Radio System Sweden

which must now develop a special version of base stations for NMT 900, a special variant for east Germany.

At the start of a project, where all the work is mapped out and planned, there are close meetings, and that also applies to the DAL project. Each day there is some group in the project that is meeting. So too at the start there is a lot of traveling to Germany and to the project office there.

Bengt Rolander is project administrator and works with building up an economic system that could be used in the entire project organization. Making up detailed time schedules is another important task at the start of the project.

Down in Germany cell planning is currently being done. That means that one radiotechnically plans where the various sites would be located.

The sites for the most part will consist of containers in which base stations and other equipment will be mounted. This mounting job will be done by the Linköping factory.

## Project for effective working

Bo Risbergs develop systems that can make it easier to plan customer projects as far as job input, materials and time are concerned. With good economic direction of customer projects money can be saved.



Bo Risberg works with developing systems for more effective working methods.

"When we get inquiries about a customer project we begin by breaking it down into work packets. These packets are split up between ERA and the customer and an agreement is drawn up," Bosse explains. As the job progresses payment is made for the different portions that are completed.

This demands though that one can audit precisely what is done and relate it to the specific job packet.

### Smaller parts

Ericsson's job packet is also broken down into smaller parts which all demand resources, material and time.

All these tasks must be documented in a budget and several

partial budgets. Among other things, it is needed if one has to assess the need for different products and services.

### Fewer errors

At O division Bosse is currently driving a project known as RIS (Resource Information System).

It will develop methods and support systems so that one can more effectively and with fewer errors offer and put in orders in ERA's own order system, GOLF.

This RIS system will be very easy to work with in that it uses a mouse and window display. At the beginning of spring, Bosse reckons RIS will begin to be used.

Text: Gunilla Tamm  
Photo: Björn Seger





Above, some members of the Docware department, CS/E at EXU in the U.S. . They are working with Docware documentation for both the U.S. market and worldwide usage. Docware is also produced in Stockholm (TS/DA) and in Karlstad (TS/DL), Sweden.

# Docware – a new competition tool

Ericsson will be best at customer documentation by 1994. The concentration on customer documentation accentuates a new way of thinking within Ericsson. Traditionally it was thought that a product consisted of hardware and software, while the documentation was a side issue. The goal is now that customer documentation will be a sales argument of its own.

The new customer documentation is called Docware to emphasize its equivalence to hardware and software.

Ericsson's AXE switches are world-beaters, but customer documentation is not on the same level. Swedish Telecom has developed its own technology to make it possible to find all the documents needed: you put all documents required on the floor, then draw a string from the references to the documents referred to; you can thus always find your way back. A comment from a customer in the U.S. is: "We love your switch, but we cannot live with your documentation."

The quality of customer documentation is as important as the quality of the switch. Without good documentation the switch cannot be fully utilized and faults cannot be taken care of.

Clearly expressed: If Ericsson is to have a chance on the US market, the customer documentation must be rewritten. Wishes concerning this have been expressed in the U.S. and internationally via the AXE User Club. As to the operation and maintenance manual the following main requirements were specified:

### New Manual

The operation and maintenance manual is now divided into Job Procedures, one for each operation. The work with a Job Procedure, or JP, begins with collecting all

documents. The documents mainly used are Operational Instructions (OPI), Command Descriptions (COD) and Printout Descriptions (POD). The number of source documents may vary from about 10 to more than 60. This is thus the number of documents an operator previously might need to be able to carry out an individual operation.

When all the source documents have been collected, the work of preparing a reasonable flow for the operation starts and then the work with the very document can begin.

Chapter 1 describes the purpose of the document and what is needed to carry through the operation.

The flow is described in two ways in chapter 2: First as a flow diagram to give a survey of the operation, and then in detail step-by-step. In the latter, all information required for commands and parameters is to be included, supplementing the printouts the system may give during the operation.

When a first draft is ready, a technical and a linguistic review is made. Responsible for the technical review is a so-called SME or Subject Matter Expert. An editor checks the language and makes sure that the document follows the standard for docware. All editors have English as their mother tongue.

Modifications are made, and if the document now passes technical inspection, it is

sent to be carefully tested in a test station. After the test only minor modifications remain. Before the document can be released, the SME and editor make a final inspection.

Product Descriptions and Feature Descriptions are also included in the new documentation project and follow, on the whole, the procedure described above.

Customer documentation is written for a source system, and, therefore, all documents are written in British-English. The documentation can then be adapted to an application system and may also be translated. The pilot market for the new documentation is the U.S..

### International cooperation

Work with the Docware project is now in progress at EXU in Dallas, ETX in Stockholm and ETX in Karlstad. ETX/TS/D is responsible for this work.

TS/D was established to develop customer documentation. Later on the department was also made responsible for product information and the ETX Language Center now also belongs to this department.

The long-term goals for TS/D are global

availability of product information; customer documentation is a competitive means in its own right; correct customer documentation.

The goal to be attained is that Ericsson is best at customer documentation within the area of telecommunications. This applies to contents as well as the structure of the documents, and how the documents are presented. There is a project in progress to develop the possibility of delivering

the exchange library on CD-ROM. CD-ROM requires, of course, considerably less space than paper copies. A CD can hold 250,000 A4-pages.

### Somewhat delayed

"According to schedule, the first complete operation and maintenance manual will be ready by July 1, 1991" says Bengt Nilsson, project manager. "Then other source systems follow". He says also that the project is somewhat delayed. The reasons for this delay are several.

Within Ericsson, and generally in Sweden, technical writing is a new profession. Therefore, at the same time as producing documents, new methods must be found within Ericsson.

In the long run, the Docware project should increase the quality of Ericsson's customer documentation. The documents must be tested, and it has sometimes been difficult to book test times because of the fact that the test stations have been occupied by more short-term projects with a more immediate delivery to customer.

This has contributed to the fact that certain documents have not been finished according to the time schedule.

By making a real effort within EXU as well as ETX, the main part of the delay will be made up for and the manual delivered in time.

*"We love your switch, but we can't live with your documentation"*

## Customer wishes

- All information required for an operation should be contained in one and the same document.
  - The documents shall contain step-by-step instructions.
  - No superfluous information.
  - As few references to other documents as possible.
  - The language must be improved.
  - The layout must be improved.
  - The document head must be changed.
  - The documents must be better checked.
- Furthermore, a more overall product description was desired as well as function descriptions for AXE.

# Dealing with sick benefits

**From Jan. 1 sick pay will be paid directly by the company for the first 14 days**

From January 1, 1992, a new law will go into effect in Sweden, with major changes in paying out sick benefits. The so-called "employer period" will begin, which means that companies will pay out sick pay for the first 14 days of illness. The Health Insurance will only pay for the illness period over the two weeks.

"The employer entry," as the change is being called, does not mean however any major changes for the employee. Benefits are largely unchanged and the rules for sick leave are not affected.

The present law on sick benefits came into force on March 1 and will apply until the end of the year. It meant that 75 percent of salary could be paid out for illness during the first three workdays. After that the amount is 90 percent. The law sets a ceiling with this percentage, which meant a reduction for groups which in agreements were previously insured for higher benefits.

Of the 75 and 90 percent respectively, the Health Insurance pays out 65 and 80 percent in sick benefits and the remaining 10 percent is paid as sick pay by the company as such that the sick deduction from salary is limited to 90 percent.

## Same sum

Now that the employer is taking over payment responsibility for all sick benefits during the first 14 days of illness, they will be compensated with a reduction in employer charges of 2.3 percent. One of the key ideas behind this reform has been that the company gets a more direct link between sick leave and costs. It can be more beneficial, for example, to take measures in a bad job situation, invest in health care in the company, etc.

For the individual employee the new law does not imply any major changes. The extent of sick benefits is not affected. Routines for sick notification, which differs with different companies and units within Ericsson, do not significantly change.

In Southwest Stockholm, for example, it is with certain exceptions that earlier the employee had an obligation to notify the workplace about illness as well as the Health Insurance and that on returning to work he had to fill in a red card which hopefully was waiting for him at the workplace and report his return along the same lines.

## Notification dispense

Notification will as previously be done on the day of illness or the closest subsequent workday if illness falls on a Friday. Now that the company is taking over the same strict rules apply.

"For example those who are victims of an accident and cannot call in the first day should do so as soon as he or she can. The insurance rules on this are very strict. The law

says companies should apply the same rules," says Sixten Thunedal at LME, responsible for these issues in the company.

"At the same time we want from the company's side to put the responsibility on the immediate manager to find out why an employee

is not at work, if nothing is heard from him or her. It is precisely this that is one of the points in the new arrangement - that the company has a greater involvement in the worker's absence.

*"For the employee the new law does not imply major change"*

"If the absence is more than 14 days, we want the employee to notify the medical department or equivalent on the 15th day. We feel that it is important with communication between the employee in this situation," says Sixten Thunedal. It is then the company that will send on this notification to the Health Insurance."

## From the eighth day

Another rule that is unchanged applies to medical work stop orders. As previously, these must be sent in from the eighth calendar day. The new work stop order is so formatted that it contains a copy where the reason for illness is not noted.

The thinking behind this is that only the Health Insurance will have access to medical diagnosis, so it is the other without such information that should be given to the employer.

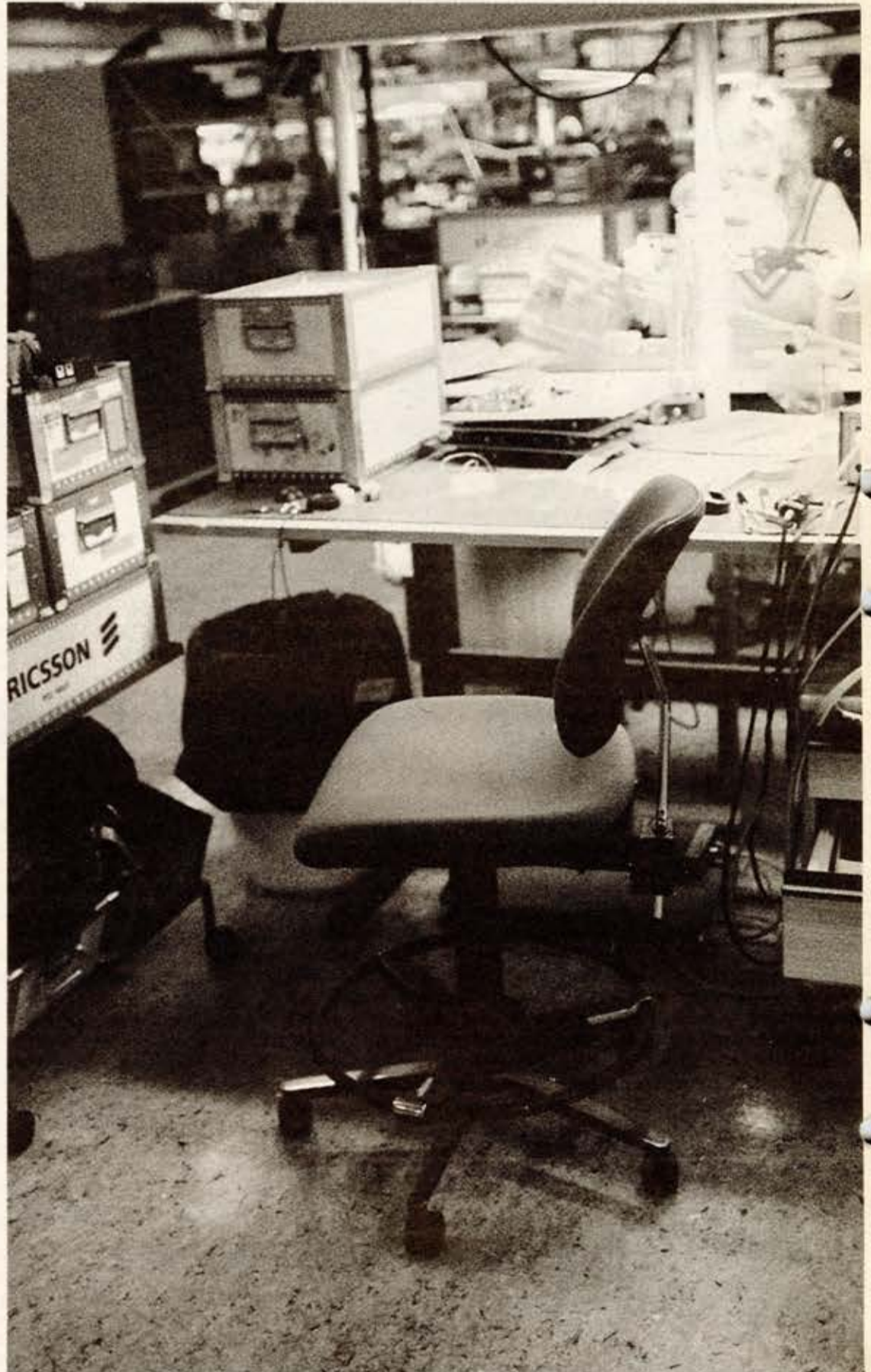
If the period of illness extends beyond two weeks, as earlier a form from the Health Insurance will be sent home to the employee requesting information about the absence, work stop order etc. Then it is the copy of this that should be sent in.

"As before, a work stop order could be requested earlier than from the eighth day in special cases.

## Benefits for many

Sick pay goes out to employees that are employed at least a month. From January 1 those with shorter employment periods can also receive sick pay. It has to do with working during a fourteen day period before illness.

The law includes improvements for example for holiday workers and "summer replacements." But it is only staff that qualifies for sick benefits - they do not apply to consultants and others.



## How sick benefits and deductions work

**For monthly paid employees during the first fourteen days sick pay deduction is based on a work hour. The calculation is based on a monthly loan.**

For hourly paid employees sick pay is based on an average hourly service on time pay and accord - or hourly pay for those who only have such - during the latest quarter.

In the latter calculation certain

benefits are also included, for example for inconvenient hours that would have been worked during absence.

The result is the same for staff and collective employees. During the 1-3 days of the sick period one gets 75 percent of the ordinary pay in the pay packet and for the 4-14 day one gets 90 percent.

From day 15 a deduction of 90 percent of the hourly pay is taken. This is compensated for staff with an input of 80 percent from Health Insurance and the remain-

ing 10 percent of the salary as sick pay from the company. Higher paid employees get no benefit from Health Insurance for salaries over the 7.5 base sum (252,750 kronor 1992) but on the other hand a sickpay from the company of 90 percent, which amounts to the same thing as for others.

Collective employees with longer illness absence get 80 percent of sick pay from Health Insurance and an additional 10 percent through the so-called group insurance accord.

# Save money and time and raise quality

It saves time, raises quality, respect guarantee times, maintains order in the warehouse and monitors deliveries. It, in this case, refers to Ericsson Maintenance System, EMS, an entirely new PC based system for repair reporting. EMS is run by the Radio Communications business area but is interesting for all companies that are working in the electronics field.



All the products that should be repaired are sent to ERA's goods receiving in Kista, which serves as a "repair yard" for the entire Radio Communications Business Area. From left, Jan Lidmar and Anders Broman with the PC that EMS uses. Photo: Björn Seger

## EMS traces products from start to finish

The whole thing began with two projects two years ago. Jan Lidmar and Anders Broman at Ericsson Radio Systems, ERA, both had the task of developing a new reparations reporting system. Anders for ERA and Jan for Ericsson Mobile Communications, ECS' billing.

"Most of the time we had contact with each other," they recall. "At the same time they received a challenge from the business area's quality manager, Anders Toller, that the new reparation reporting system be linked up with the factory's own quality follow-up system.

A project in the business area was started in 1990 and in November this year the new system can be distributed.

Behind EMS lies a lot of work from industrious computer consultants and a clever programmer. Many users have been brought into the system and they have introduced their own wishes, which are now being fulfilled.

Despite the immense job, the

development cost for EMS is still low, only 2.3 Mkr. The savings that one can make thanks to the system are significant. Only at ERA they can save annually about 20 MKr by having control over guarantee time and stopping leakage of guarantee money.

"EMS is a vital link in the overall quality follow-up in our business area," Anders Toller explains. "Here we have the possibility of hooking up arrival control, production follow-up, test data follow-up and post market follow-up."

### Paperless

At manufacturing all products are marked partly with a bar code and partly in text. This data is fed into EMS and later follows the product during installation and in operation right through until it is ready to be scrapped. Everything that happens to the product is registered in the system.

"Since all the information is collected in the one system, this facilitates, for example, goods handling, invoicing and reparation costing," says Anders Broman.

Here we have a possibility to maintain order on reparations without having to write on a single piece of paper. This ought to be something of a dream wish for all of those who work in this area. Naturally, all documentation can be printed out and even get labels in suitable sizes. All information to be distributed is stored on a diskette.

### Flexible

EMS is a very flexible system, which among other things can serve as a base for different economic systems in Ericsson both here and abroad. One advantage is that the foreign subsidiary can use the Swedish basic prices but only receive the price in the country's currency by putting in its own currency code. You can also write in a warning that certain customers are "bad payers."

It is easy to get statistics from EMS. It is simple to locate certain system faults, which designers can rapidly use to make changes. Here there are also many huge savings to be made with the help of EMS. From the menu it is easy to "tailor

make" a system for particular area use.

How user friendly is a system that can do all these things?

"It is very easy to use and there is no need for any special training. One hardly needs a manual but nevertheless there is one," Anders explains.

### Gävle and Scunthorpe

EMS will be installed in 500 workplaces within Ericsson Mobile Communications. Also in ERA it will be used more and more in, among other places, Gävle and Kista. Ericsson Telecom's company in England, ETL in Scunthorpe, is very happy with EMS. In Canada, Ericsson customer Cantel is interested and will be buying it. In Taiwan, Malaysia and Singapore tests are being conducted at Ericsson companies.

Possibilities of hooking up EMS with the bar code project that is being done in Ericsson Telecom give Ericsson Maintenance System immense areas of usability.

Gunilla Tamm

## Teaming up EDS and ERA

ERA, Ericsson Radio Systems, will team up its data processing with EDS, Ericsson Data Service. By doing so one reckons with major operational advantages with higher efficiency and lower costs.

The collaboration means that ERA's Z operation will be merged with EDS. This covers communications, VAX operation, system development, telephony and PC/LAN support.

The operations will also continue to be in Kista and the organization will be manned by personnel from both ERA and EDS. ERA customers will have the same contact people as before.

Merging of the two companies' VAX operations means above all that the companies will reduce their costs for data processing, explains Sten Fornell, economy director at ERA.

## People paging linked together

People paging for those who work in different offices in the southwest suburbs of Stockholm are being linked together.

Ericsson Paging Systems and Ericsson Data Service have gotten a common system with a side pager, five MD110 switches and six transmitters.

Everything is connected to a Memo computer."

This is a lead in the improvement and simplifying of communications in Southwest Stockholm. Ericsson Data Service sells subscriptions and it is reckoned that many Ericsson employees need a people pager.

# Ericsson on show at Telocator '91

Four North American Business Areas – and one from Sweden – demonstrated strength in numbers as they joined forces and co-exhibited at Telocator '91, America's largest trade show for cellular, paging and personal communication services.

At the Anaheim (California) Convention Center 50 kilometers Ericsson's Southern California facility, nine Ericsson product lines were displayed by U.S.-based Ericsson Business Communications, Ericsson/GE Mobile Communications, Ericsson Paging Systems and Spectrum Ericsson, as well as Sweden-based Magnetic Ericsson.

Marketing Communications Managers Ingrid Chopping (ECU), Nancy Lemaire (ESU), Virginia Murphy (EBU) and Roger Reinhart (ERG) coordinated the project. Hans Persson, technical director for Magnetic Ericsson, used his technical expertise to ensure his base station, marketed by Spectrum Ericsson, was operating in time for the show.

### Breakfast briefing

On the first day of the show, Ericsson staff attended a breakfast meeting, where they familiarized one another with the booth's product displays.

Brief presentations of each Business Area and their product lines were provided by Dick Donovan, managing director of Wide Area Paging; Edward Mulvey, president of Spectrum Ericsson; Peter Murray, market director, Wireless Systems,

for Ericsson Business Communications; and Raoul Fontanez, national sales manager for Ericsson GE Mobile Communications.

At the show, the stunning 14 by 17 meter booth, affordable only as a result of the participants' pooled finances, made Ericsson's exhibit the second largest.

The booth's hottest product display was a prototype of Ericsson GE Mobile Communications' TDMA Digital Dual Mode Cellular Telephone. Also on display were the DCT 900 Wireless Business Phone, Hot Line cellular phones, Access numeric and alphanumeric pagers, PX series of radio paging and voice messaging systems.

### Digital base station showed

Also shown was Ericsson Magnetic's compact digital base station. This product will be sold in the U.S. exclusively through

Spectrum Ericsson, a newly acquired company based in Woodbury, New York.

The "co-exhibiting" concept reflects the efforts of Ericsson's North American Marketing Communications Committee (NAMCC). It's their objective to promote Ericsson as one strong global company, rather than several small, fragmented North American divisions.

NAMCC believes the best way to accomplish their goal is to emphasize continuity and demonstrate a wide variety of products, conveying an image of "one Ericsson" in North America.

With this in mind, creative talent and financial resources are pooled from the various Business Areas' Marketing Communications departments. The outcome is optimal public exposure with maximum cost-effectiveness.

Virginia Murphy

# EC program promotes cooperation

A year ago the second phase of an EC program started. Its purpose is to promote cooperation between university and industry in high technology. Ericsson participates on a relatively moderate scale, but hopefully there will be expansion.

COMETT, the name of the program, stands for COMmunity Programme for Education and Training in Technology, and is run today with subsidies from EC.

The program is divided into three parts. The first part is a network being built between different schools and companies. The second is an exchange of mainly students who will have the opportunity to be trainees at companies in different European countries. The third is joint projects like development of courses and programs for education and competence development.

In order to build networks there are several economic associations connected to universities and institutes.

"Ericsson financially supports the two that exist in Sweden, but on a moderate scale," says Per-Olof Nerbrant at ETX personnel and organization development. He is the one who works with COMETT at Ericsson.

## Three students

"Instead we have tried to focus on the student exchange. Today there are three students at Ericsson. That is not so many considering the company's size," Per-Olof concludes.

There is no Swedish student abroad as yet, despite the great interest in several subsidiaries, among others Intelsa in Spain and ETM in Holland.

"It has been easier to cooperate with the subsidiaries," says Per-Olof. In Sweden it



Per-Olof Nerbrant together with the three students who are in Sweden this year: Antje Peters and Uwe Scheuneman from Germany and Arnoud Uons from Holland.

has been very difficult to find places, but we hope that it will be easier next year.

The three foreign students who have stayed at Ericsson in Sweden this year have done very well and reactions, both from themselves and from personnel in the departments where they have trained, are very positive.

## Definite contribution

Besides finding more places for foreign students, it is important to follow up the students who have already been trainees. The value of the exchange can be seen from

several perspectives. Many of the students are very skillful and they can definitely contribute to the operation.

The students are like ambassadors for Ericsson when they return to their schools and can thereby strengthen our links to them.

Finally a mutual interest can develop for employment at Ericsson. This effect from the student exchange has to be valued from an Ericsson perspective, since employment in this case will probably take place at a local company.

Helena Lidén

## Take the opportunity before January 15

January 15 is application deadline to be a part of COMETT. Those who are interested in participating or those who can offer trainee vacancies for foreign students can contact Per-Olof Nerbrant, ETX, Stockholm.

"To accept foreign students should not be looked upon as a burden. The students who participate in the COMETT program are very qualified. They have passed several selection procedures and are definitely specialists within their respective areas. The experiences we have from the departments who have accepted foreign students are very positive," says Lars Wiklund, personnel manager at Ericsson.

"For Ericsson Telecom it is a major advantage to participate in the COMETT program. In this way we can find the absolute elite among high technology skilled students in the whole of Europe. In addition, if we can make them stay within the company, we really have succeeded."

The student's training period in the companies range between a minimum of 3 months and a maximum of one year. They receive a subsidy from COMETT of approximately 3,000 Swedish kronor per month. Ericsson pays for housing and one meal per day.

From 1992 there will also be a possibility for Ericsson employees at laboratory and research centers to participate in the COMETT program's personnel exchange. During a period of two months up to one year employees can complete their previous contacts within the research area by working at a university within EC.

Those who are interested should first contact the current university and establish personal contacts and thereafter contact Per-Olof Nerbrant.

The COMETT subsidy in these cases is maximized to 5,000 Ecu per month (1 Ecu is approximately 7.50 Swedish kronor).

Helena Lidén

# Gold medal awards set new attendance record

The year's festive highpoint in Ericsson, the gold medal ceremonies, hit a new record this year. A total of 329 gold medals were awarded for 30 years' long and dedicated service in the company. The number was so large that this year we were obliged to reduce invitations to the so-called five-years, that is those who received their medals five years ago.

Björn Svedberg, Ericsson's chairman of the board, made the traditional speech to medalists around the theme of "perseverance" and around the vast changes that have taken place around the world in 1991 - the year the superpower Soviet Union went under. "The vast changes in the world mean enormous challenges for us all and for Ericsson," he said.

"Continue to work extraordinarily with perseverance," he encouraged the gold medalists and all the other Ericsson employees in the hall, with the thought of the difficult period the company is undergoing right now. He encouraged everyone to give their full support to Lars Ramqvist and the group lead-

ership at this time. Sven Brunander, from Ericsson Radar Electronics in Mölndal, gave the keynote speech for the medalists. He gave a resounding speech about how the technical revolution has proceeded during the years that the medalists were with the company.

"At the beginning of the '60s a technical milestone in development was passed," he noted. Then patents were filed for aircraft technology, which made it possible to make transistors from surface crystals - a prerequisite for the entire computer revolution, which we have now lived through. Innovations then followed one after the other.

"Reorganization, new economic

systems with stages leading to artificial intelligence - which knows that one has done something quite other than what one thought, have taken place. It has meant staying in there and everyone is aware that today we live in a world that is very different from 30 years ago. Old LM is a different company today."

"Looking 30 years ahead, one can well note that much is starting to be finished. It is not a matter of doing things so much smaller. Who wants to have a microscopic phone."

"Surely, certain things will disappear, for example when circuits provide a shorter interruption and light distortion when you speak into a car phone. It will not be a sales argument in 30 years that one can notice that he is sitting in his car," Sven speculated.

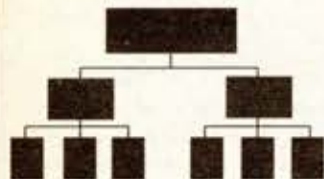
Lars-Göran Hedin

The dinner that ended the gold medal ceremony was held in the Blue Room at City Hall, in Stockholm.

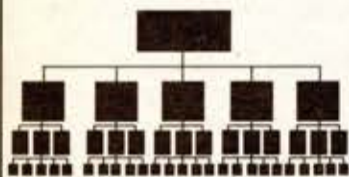


### Tips for new organization...

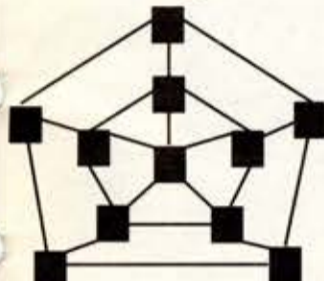
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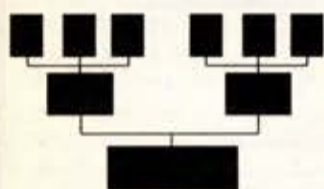
#### Chinese



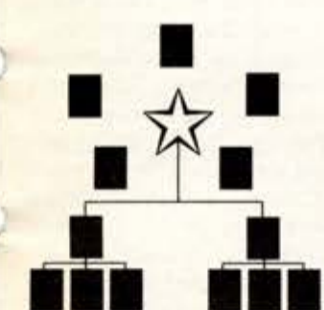
#### Pentagon



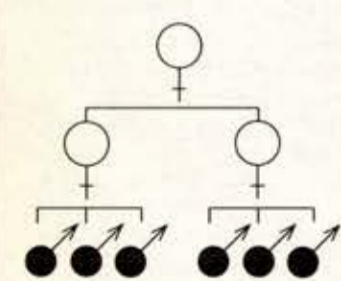
#### Polish



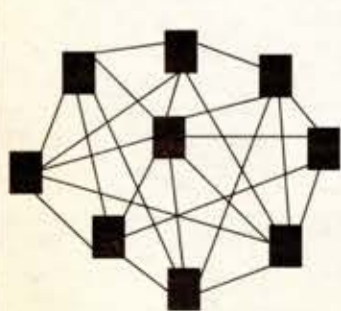
#### Russian



#### Women's lib



#### Ericsson?



# "I am tempted by Mexico"

"I enjoy not being in a job for almost a year and a half now since we moved here," says Lena Skärudin, married to Ericsson's plant manager in Mexico and previously a secretary at ERA's factory in Gävle.

In more than two years, from fall 1987 to spring 1990, Lena Skärudin drove 90 kilometers from her home in Söderhamn, where her husband was site manager, to her job in Gävle. And 90 kilometers back to her home in the evening. Day after day. Hopeless, almost alone on the road, through long dark forests.

She was working then at Ericsson's factory in Gävle. The ERA factory where they made radio base stations for mobile telephony systems over the entire world. During that time, the mobile telephony market grew explosively and naturally the factory expanded in accordance. There was no unhappiness on the job or unpleasant work that made Lena long for more exotic places.

#### Impressed

But she had something with which to compare. Four years in Colombia, 1981-85, had left its impression. Olof was manager of the Ericsson plant there and Lena got a taste of Latin America. She even learned Spanish.

Now the circle is complete. They live in Mexico City together with about fifty other contracted Ericsson employees in some villa area a little more than ten kilometers from the city center (but still within the city which is widely spread out). Most of the wives are housewives.

Lena and Olof live in a 20-year-old house, original, built on several floors with a roof terrace. Every Monday



Running the home, shopping for food and arranging company dinners is a large part of life for the wife of a plant manager in Mexico, says Lena Skärudin.

Lena does folk dancing, together with other Ericsson women. Mexico consists of 31 states and every state has its own dance and its own folk dress. The teacher makes the dresses as the students learn the dance.

Lena has also taken extension courses in Spanish, but she does not play golf.

#### Singing home help

A central figure in the Skärudin family's Mexico life is Leon Salvador. The home's jack of all trades, "dishwasher," butler etc., but above all, singer. When company dinners draw to a close he reaches for his guitar and sings for the guests. Preferably dressed in mariachi gear.

Running the home, shopping for and preparing meals, receiving guests etc. is a major part of Lena's life. But

there is also beautiful relaxation outside Mexico City's chaotic traffic where it takes at least two hours to get the slightest thing done.

Ericsson owns an estate, a Quinta, as it is called, or the Oasis. An undisturbed paradise 140 kilometers south of the capital. Newly renovated with all that one can wish for and where Ericsson employees spend their summer.

On weekends they move out to the Quinta. It serves as a hotel, as well as for courses, where there are 24 rooms, a large kitchen, a dining room, and has its own cook etc. The room costs nothing, the food is at cost.

There is a lot of room at the Quinta. It is never full except at big festive occasions. And those they have, for example at midsummer, with herring, salmon, eggs, schnapps etc. And a

maypole decorated with 24 dozen gladiolis and roses bought for 10 kronor. Mexico is a cheap country. For example, gas costs 2 kronor a liter. But for meat and other goods prices can vary.

"Mexico is wonderful," says Lena. If you go beyond Mexico City with 20 million inhabitants and more than 3 million cars.

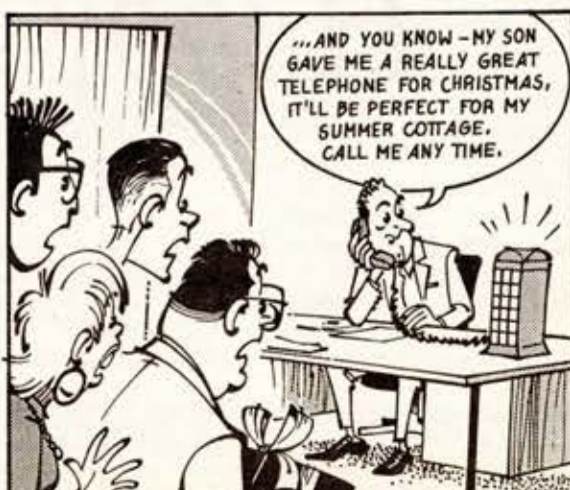
Naturally, Indian history leaves a lasting impression. The ancient pyramids, the Aztec and Mayan cultures. But also the nature. Monarch butterflies resembling hummingbirds during the fall migrate in millions from North America to spend winter in the Mexican forests.

"I am tempted by Latin America," Lena Skärudin concludes.

Lars Cederquist

## TIMELY AND TASTEFUL

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*Merry Christmas  
and a  
Happy New Year!*

## What a challenge!

**H**ave you ever been out sailing? If you have, then surely you agree with me that a real headwind is among the best one can hope for. To tack in a good wind with good slope of the boat and a surging sea all around is truly a fascination. It is then that one really feels that one has moved on, although the course is not straight cut but on the contrary is zigzag. It is then that the sailor and his crew are really put to the test and life on board with just enough elbow room turns more or less up and down when the skipper lets the shoot go and head into the wind to quickly speed off again on the other crossturn.

Compare that feeling with a good tailwind, or "free wind" as sailors say.

**STOP  
PRESS**  
BY LARS-  
GORAN HEDIN



Then one can in the best of cases hoist the spinnaker and marvel at the color display and be happy that things are rolling – but more exciting than that it is not. It is so noticeably quiet all around and one scarcely has the feeling that things are moving, even though it actually is the case.

**N**ow that Ericsson finds itself in an economic headwind, all of us who work in the company are facing an exciting challenge – to bring our contribution to the fore and join in reducing company costs. Since the hunt for reduction begins at a level where over time a lot has been spent and is being spent on a great deal of unnecessary matters, there is no direct starvation cure that needs be prescribed. Instead, I feel that one should see the ever closer signals for savings as a stimulating new aspect of our daily work. Now it is not a matter of doing a damn good job but rather also of doing the job in a more effective manner.

I have heard of companies in the group where employees met proposals for cost cutting and high effectiveness very positively. As if finally something is being done now with the economic readjustment which earlier was only mumbled about in the corridors.

When Ericsson's vice president C.W. Ros recently held a session on the savings and cuts in the parent company he was thanked with applause. Despite the fact that in the gathering there were a number of people who most certainly will no longer be on the payroll in a few months, the reception was nevertheless positive.

This must be taken as evidence that there is definitely a positive spirit as we move into 1992, tightening our belts a few holes and with all our senses open for opportunities to save.

To return to the sailing comparison, it is so too with Ericsson that if it must move forward then it must be ready to sail against the headwind.

The time is long past when the ship can lie days, weeks, maybe even months, in port waiting for the "right wind" to continue its course. Those who take that course today do not have a chance of making it.