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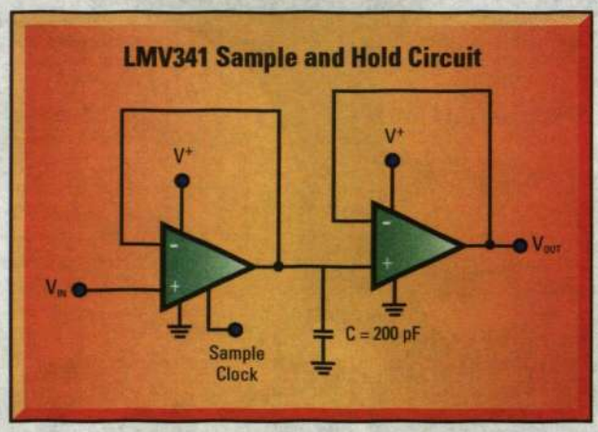

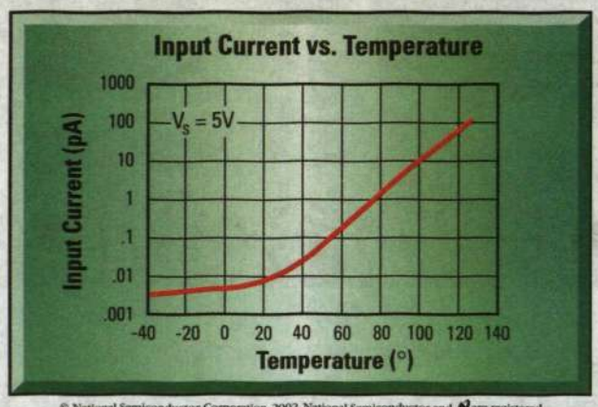

National Semiconductor
The Sight & Sound of Information

Two contracts for network operations

Ericsson is confirming its leading position in network operations and services with two new contracts. The agreement with Hutchison Australia is the most extensive Managed Services agreement in the industry.

An increasing number of telecom operators are outsourcing the operations of their networks. So far Ericsson has a total of 35 contracts to operate parts of or complete networks worldwide. The outsourcing agreements help operators lower their costs, and at the same time increase revenue by concentrating on developing services for subscribers.

The contract with Hutchison runs for seven years and covers build-out and daily operation of the CDMA and WCDMA network as well as the service platforms. Hutchison retains ownership of the equipment and responsibility for strategic decisions such as investments in new equipment.

"The increased technical challenges of 3G called for a new approach to managing service delivery. We already had a strong partnership with Ericsson so it made sense for us to build on that partnership," says Kevin Russell, Hutchison Telecom's chief executive, Australia.

About 240 technical and IT staff will be transferred to Ericsson to complement the existing Ericsson staff currently devoted to Hutchison in Australia.

"The agreement is pushing the frontiers of the concept of Managed Services. Ericsson's unique experience and knowledge reinforces the company's multi-vendor, multi technology services capabilities," says Kurt Hellström, CEO of Ericsson.

The other major contract signed recently is with Brasil Telecom. It is a three-year agreement covering the operator's fixed network in the Rio Grande do Sul region in southern Brazil.

Ericsson has already taken over responsibility of several hundreds of employees as well as operations and maintenance of the network.

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Packed during NY summit

A slim company with a clear strategy and a strengthened position on the market. That was the message presented by Ericsson during the summit held for analysts in New York recently.

More than 150 analysts and media representatives came to get an update on Ericsson's position from the company management. For those with doubts about the take-off for 3G, CEO Kurt Hellström had a clear message:

"3G is here right now – if you want to see it! Looking at the way different standards are distributed throughout the world, we estimate that around 80 percent of the future 3G networks will be WCDMA and the remaining 20 percent CDMA2000."

CFO Sten Fornell presented the company's financial situation after the third quarter, but he also summarized the market development up to this point and gave his view on the current slow market.

"This year we expect a decline in the market with about 20 percent, but we can see that the decline is starting to slow down. We believe the market will start to stabilize during 2003 with a decrease of between zero and ten percent."

Sten Fornell ensured that Ericsson stands well prepared for the future after the recent rights offering. With all foreseeable expenditure included, Ericsson will still have more than SEK 40 billion available. This number can grow with sales of non-core operations and reduction of customer financing.

Regarding Sony Ericsson and the development within the consumer segment, Sten Fornell admitted that Ericsson is ready to contribute with financing early next year. However, he did not want to specify the amount.

During the summit in New York analysts and media representatives got an update on Ericsson's management position.

Ericsson has made it clear that the company wants to establish itself among the top three players in the CDMA market, something of great interest to the American part of the audience. Questions were raised regarding whether this would be possible without making strategic acquisitions. Kurt Hellström then pointed out that there are good growth opportunities outside the US, where American competitors dominate. However, it can not be ruled out that Ericsson will consider buying or teaming up with competitors in order to grow.

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Expansion in China

Ericsson has been awarded a contract by China Telecom to expand the operator's Digital Subscriber Line (DSL) network in the Anhui Province in Southern China.

The order is one of the first commercial contracts for Ericsson's Ethernet DSL Access solution, which features the world's smallest DSL Access Multiplexer (DSLAM).

3G call in the Americas

Ericsson and AT&T Wireless have completed the first WCDMA/UMTS call in a live network environment in the Americas.

The joint effort is part of a trial of the first 1900 MHz UMTS/WCDMA system in the Americas, which will have more than 100 cell sites in the Dallas area by the end of the year. Ericsson is providing the core network, the radio access network and mobile terminals.

SFR orders MMS

France's second largest mobile operator SFR has selected Ericsson as its supplier of MMS technology. The agreement includes supply of the MMS platform as well as installation and integration. SFR is an affiliate of Cegetel and the second largest operator in France.

MINI-LINK to Colombia

Ericsson's MINI-LINK solution has been selected by Flycom Comunicaciones in Colombia for deployment in one of South America's first national Local Multipoint Distribution Service (LMDS) networks. Flycom Comunicaciones is a newly formed subsidiary of Corporate Group ISA in Colombia. In addition to the MINI-LINK system, Ericsson is providing a full complement of services to Flycom, including network design, project management, network roll out and implementation, training and maintenance.

Ericsson is number one

According to a survey from the British consulting and research company Ovum, Ericsson is the world's foremost supplier of the prepaid mobile telephone service (advance payment of telephone subscriptions) and among the leaders in mediation (securing and handling payments).

A total of 117 mobile operators were interviewed and Ericsson was ranked as the industry's number one leading supplier of prepaid solutions. In addition, most operators regard Ericsson's mediation service as the very best.

3G-video call in Finland

Ericsson played a major role when Ari Tolonen, vice president of the Finnish operator, DNA, and Petri Laiho, chairman of the board for Suomen 3G, made the first 3G-video call in Finland last week.

The network is delivered by Ericsson, rolled-out by Suomen 3G and maintained by DNA. The call is described a success by all involved parties.

Systems' business plan is all about being better and more effective than the competitors, and keeping the customers happy. "It is not enough to cut costs, we have to increase market share as well. We are going to strengthen our leading position within GSM and EDGE and give our competitors a rap over the knuckles," says Bert Nordberg.

PHOTO: PELLE HALLERT

Satisfied customers pay their bills

Happy customers are a prerequisite for Systems to help Ericsson reach its goals. Therefore this is one of the main points of Systems' business plan for next year, says business unit Manager Bert Nordberg.

"In some cases, customer satisfaction can be measured in how fast the bills are paid. If the customer is not happy they may postpone payment, and we will have problems with our cash flow."

Systems' new business plan is mainly about having the most cost effective operations in the industry and at the same time the most satisfied customers. Nowadays, leadership in technology is not enough, if it isn't combined with cost efficiency and sensitivity to the customers needs. Bert Nordberg sticks his neck out when he describes the road to success for Systems. Now there are only two choices: win the game or quit, and Ericsson is definitely going for the first one.

"It's not enough just to cut expenses, now we must take market shares. We will strengthen our leading position in GSM and EDGE, and give competitors a rap over the knuckles."

However, GSM and EDGE are not the only areas with high priority.

"We will be first with WCDMA, and have commercial and stable systems. We will be at the forefront when it comes to broadband access. And it's important to show customers that we are not letting go of the fixed networks. We must make sure we keep the PDC and TDMA segments profitable up to the very end of the product cycle," says Bert Nordberg.

Regardless the market development Bert Nordberg promises that Systems will increase market share in all segments next year.

"We will tailor a product portfolio for GSM with the aim of seizing the growing opportunities in developing countries. There we will sell cheap solutions that are easy to start up and can easily be built out as demand increases. We are also going for an even larger market share in these countries."

The sales organization must also become more effective if Systems is to increase their market share. When times are tough it is easy to lose heart and just sit down and wait for customers to return. However, Bert Nordberg thinks that it is more important than ever to cultivate the customer, since the market will not turn around until they start investing again.

"Today our campaigns are focused within certain areas. Intensive sales are prioritized above business management, because if nothing is sold then there is no business to manage."

Systems also has a focused project to ensure shorter payment times, faster delivery and smaller stock.

"We have seen positive results already, which of course will affect the cash flow in the right direction."

Despite incredibly tough times since the business unit was created less than six months ago, Bert Nordberg is grateful for the effective work routines that come out of hardship.

"Many of our competitors are on their way into the changing-room for a half-time rest. But we are on our way out on the field, ready for the second half of the game. Fortunately, the cutbacks we have done have made us in to a better and more powerful company than before.

"We have turned many stones in this process and managed to create a thoroughly competent and cost effective organization. That's why I believe that our business plan is realistic, and that we have what it takes to grow very strong."

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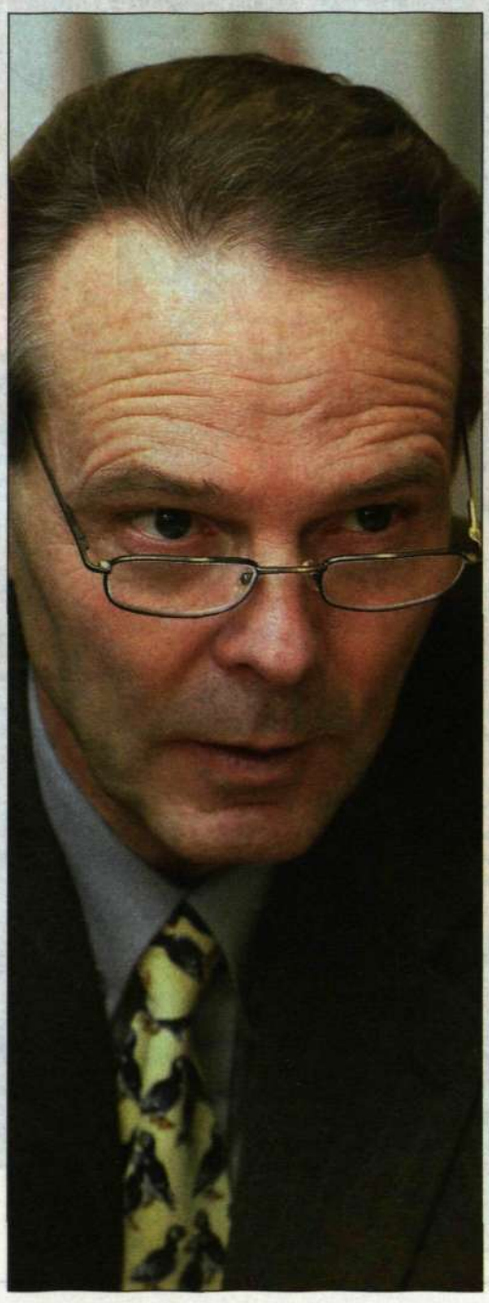
More information on the unit's business plan:

bsys.ericsson.se/strategies

The extreme growth boom is over and a new era has arrived. The telecom industry has become a mature market. Faced with the need to adapt, Ericsson has chosen to drastically cut development costs and concentrate operations to fewer locations. It has been – and still is – a difficult but worthwhile journey.

Contact is embarking on a new series of articles about the new, streamlined R&D organization. Part 1 takes a look at the concentration strategy itself and its effects on operations.

Mature market needs less development



"Ericsson's drastic reduction of the development budget isn't out of panic, but is a carefully thought-out strategic decision that will lead to an even more competitive company," says Sivert Bergman, leading the R&D concentration project.

PHOTO: ECKE KÜLLER

This year, Ericsson has decided to reduce its number of Research and Development centers by more than half. The need for even more savings will lead to further concentration in the organization next year. By that time, Ericsson foresees it will have about 25 development centers. Certain centers will be closed, others outsourced or sold.

According to Sivert Bergman, heading the R&D concentration project, these are not panicked reactions. This is a thoroughly planned strategic decision that will lead to an even more competitive company.

Isn't cutting back on development risky for the company?

"We were simply too many cooks in the kitchen before. But that's not the whole story. The reason we are able to take such drastic cutbacks in development is that we are now entering a mature market. Telecom is not the same booming industry anymore. Our competitors have also understood that and they are taking similar measures. Most products are fully developed, and even if we are well on the way with new development for 4G, we can't go full speed ahead until 3G is firmly established in the market.

"During the 90s, we developed several systems simultaneously, and we started from the beginning with everything. Now as we enter a new phase, we're looking more closely at functional growth, advanced development and maintenance."

Why is Ericsson outsourcing some centers and closing others entirely?

"We outsourced centers where we had mostly development and maintenance, but also had competence we couldn't afford to lose. On the other hand, we're not sure how much of a workload we'll have in the future. With mature products, it's better to share advanced development costs with competitors. The auto industry has done so for many years. External development allows us to share costs with our competitors, and that way the center can survive even if our needs are reduced."

When will the cutbacks end?

"We still don't know. The truth is that the market so far has shrunk more than we could have imagined. It's important that we constantly adjust our development in step with the market's needs."

Some critics say the concentration process is too slow. Is that because of bad management?

"Yes and no. We understand the problem; time is money, literally in this case. Maybe we should be tougher and speed up the process. But we have to do this right. We must constantly check that our measures do not make the customer suffer. Besides, there's a lot of incredibly important competence that we have to take care of when we close centers and move our operations. Sometimes we've taken risks and closed rapidly, but those times have been few and far between."

When Ericsson reduces its R&D operations by more than half, it can't be all for the better?

"Of course not, it would be an insult to our employees to claim that. Much of the competence that we have invested in will be lost. Unfortunately, centers have started competing with each other, because everyone is fighting for survival. That can have a negative effect on our valuable relationships. Anxiety among personnel is another major problem. But I cannot help but admire the loyalty in this company. When decisions to close a center are announced, the fight is over.

"No one has done anything to sabotage a transfer to another center, and employees have worked to the very end in helping to solve problems, despite the fact that they are losing their own jobs."

Have you seen any positive effects from the cutbacks yet?

"Yes, definitely. We have reduced our costs enormously without having delayed our projects. We get more for every invested dollar than before. Putting all development within one area into one place also improves customer relationships. There's a clearer connection between our development and customer needs."

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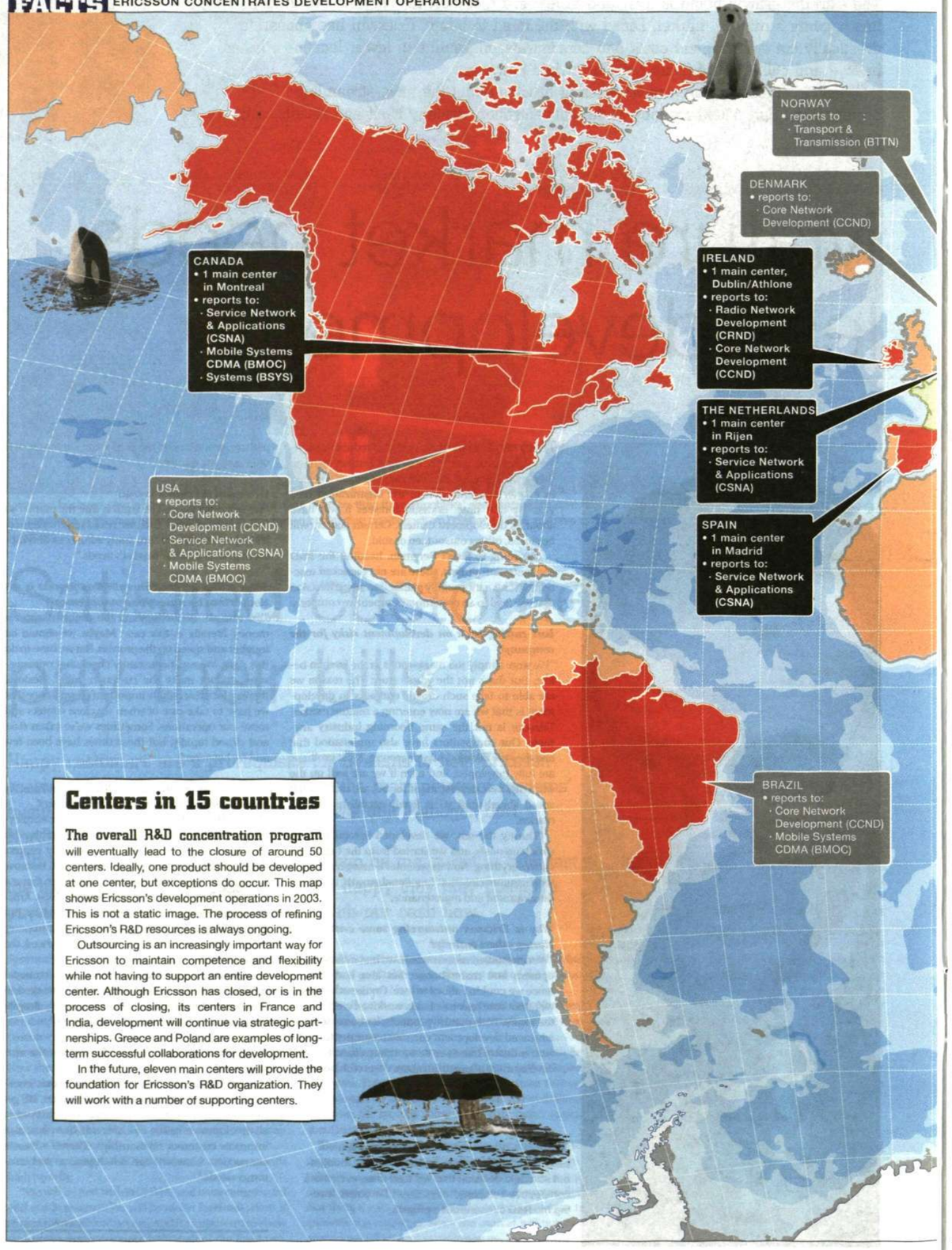
FACTS ERICSSON CONCENTRATES DEVELOPMENT OPERATIONS

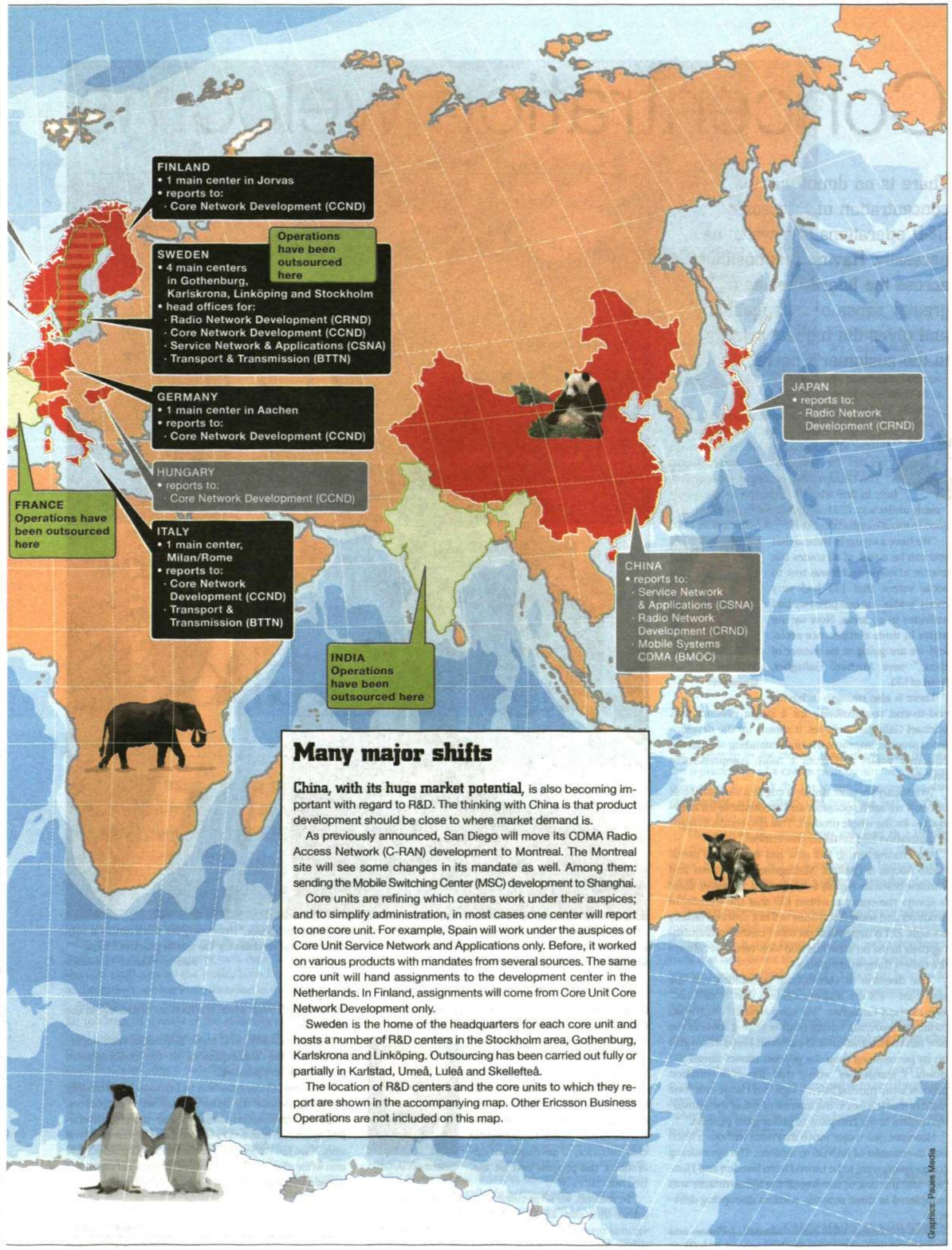


Centers in 15 countries

The overall R&D concentration program will eventually lead to the closure of around 50 centers. Ideally, one product should be developed at one center, but exceptions do occur. This map shows Ericsson's development operations in 2003. This is not a static image. The process of refining Ericsson's R&D resources is always ongoing.

Outsourcing is an increasingly important way for Ericsson to maintain competence and flexibility while not having to support an entire development center. Although Ericsson has closed, or is in the process of closing, its centers in France and India, development will continue via strategic partnerships. Greece and Poland are examples of long-term successful collaborations for development.

In the future, eleven main centers will provide the foundation for Ericsson's R&D organization. They will work with a number of supporting centers.



Many major shifts

China, with its huge market potential, is also becoming important with regard to R&D. The thinking with China is that product development should be close to where market demand is.

As previously announced, San Diego will move its CDMA Radio Access Network (C-RAN) development to Montreal. The Montreal site will see some changes in its mandate as well. Among them: sending the Mobile Switching Center (MSC) development to Shanghai.

Core units are refining which centers work under their auspices; and to simplify administration, in most cases one center will report to one core unit. For example, Spain will work under the auspices of Core Unit Service Network and Applications only. Before, it worked on various products with mandates from several sources. The same core unit will hand assignments to the development center in the Netherlands. In Finland, assignments will come from Core Unit Core Network Development only.

Sweden is the home of the headquarters for each core unit and hosts a number of R&D centers in the Stockholm area, Gothenburg, Karlskrona and Linköping. Outsourcing has been carried out fully or partially in Karlstad, Umeå, Luleå and Skellefteå.

The location of R&D centers and the core units to which they report are shown in the accompanying map. Other Ericsson Business Operations are not included on this map.

Graphics: Paues Media

Concentration welcome

There is no doubt that the concentration of Ericsson's R&D operations is a welcome necessity. Having responsibility across the board creates a greater sense of manageability and gives the highest priority to the customer's needs.

As a result of the concentration process, Ericsson Systems Expertise (EEI), in Athlone and Dublin, in Ireland, is one of Ericsson's main centers for research and development. The Group's concentration strategy was fully in line with the focusing measures already under way. EEI had decided at the beginning of 2000 to focus its efforts exclusively on what it does best.


Michael Gallagher

"We have a saying in Ireland that you can be a jack of all trades but master of none. And it was true to some extent that EEI had very many 'trades' – at one point we had activities in 30 areas. Now we are active in three competence areas, and we are going to be master of those," says Michael Gallagher, head of EEI.

There is also strength in having end-to-end responsibility for a single product line, Michael Gallagher believes. It speeds up the development process, improves the understanding of what the customer wants and gives a more comprehensive overview.

"Previously we were simply a cog in a vast machine, but now we are responsible and accountable for deliverables for the whole product. This also results in higher motivation and better empowerment."

After restructuring, EEI now has three main areas: Radio Access & Control, Management Solutions and Wireline Software Supply & Integration. However, there is always the concern within EEI that the transfer of products and related activities will not proceed rapidly enough. EEI is dependent on other centers relinquishing their items on schedule and vice-versa, not always the easiest thing to bring about.

"The decision to concentrate operations was the easy part – it's the implementation that is difficult," says Michael Gallagher. "We have cleaned out the 2G room, but we're still having trouble getting some of the new furniture transferred. If each unit keeps a firm grip on its possessions then the process moves ahead too slowly. I sometimes worry that the concentration process is not moving fast enough, but I hope everyone realizes that it is not in the interest of either the individual centers or the company to prolong the process."

However, one major move that went without a hitch was the transfer of RANOS to Athlone. The operational components were to be moved from Sweden and Hungary and the task of moving all the infrastructure was completed in three months, without disrupting deliveries.

"The customers were never affected. J-Phone was very surprised to hear that we had moved RANOS to Ireland – they hadn't noticed anything," relates Seamus Glynn, head of Management Solutions in Athlone.


Seamus Glynn

The reason the move proceeded so smoothly was that all the parties involved realized the importance of completing it quickly. Seamus Glynn feels that if everyone accepts the necessity of the decisions that have been made regarding the concentration of development operations, the process can be carried out this easy.

"In the end, we all become losers if units simply prioritize their own affairs and desperately cling to their various operations. We have constantly tried to focus on the idea that what is good for Ericsson is also good for us at EEI, even when it affects us negatively in the short run."

Despite cutbacks and some difficulties with implementation the consequences of the concentration process are very positive.

"EEI's overall contribution to Ericsson has probably increased despite the reduced number of employees. We have transformed ourselves from a highly diversified operation into a very focused and business-driven unit. If we fail we jeopardize the whole 3G product line and while that may keep many of us awake at night, it is a true challenge," Michael Gallagher concludes.


At the Athlone office, concentration efforts have made considerable progress. "Previously we were simply a cog in a vast machine, but now we are responsible and accountable for deliverables for the whole product," says Michael Gallagher, head of EEI. PHOTO: PADRAIC DEVANNEY

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Ann-Louise Lax and Britt-Inger Karlsson are responsible for cross-selling in Kumla. By purchasing components from each other, they and the other manufacturing units in the network are saving hundreds of millions of SEK.

PHOTO: SCOTT LAKEY

Shared information empties stock

To reduce inventory costs and thereby improve cash flow, core unit Supply has introduced a procedure whereby production units buy components from each other's inventories. The target for 2002 – inventory reductions of SEK 1 billion – was achieved a long time ago.

The project is called Inventory X-selling (reads "cross selling") and involves inventory sales across organization and company boundaries. The project was initiated in 2001 with the goal of rapidly reducing component inventories to help improve cash flow. Some 40 production units around the world, both Ericsson plants and suppliers, are currently included in the network.

In recent years, component inventories have grown far too large as a result of the extensive optimism behind the forecasts at the end of the 1990s. When instead the market dipped, the entire industry was left with overfilled warehouses, resulting in considerable inventory costs.

The cross-selling project was initiated to alleviate this situation. The basic idea is that production units purchase components from one another rather than buying new components from the market.

The results far outstripped expectations. The original goal of reducing Ericsson and its suppliers' inventories by the equivalent of SEK 1 billion by the close of 2002, has been exceeded by a generous margin. In October, assets worth SEK 1,5 billion had already been capitalized.

"The benefits of working like this include improved cash flow, freeing up capital, and avoiding scrapping outdated components. My estimation is that, at least half the sales made represent pure profit," says Sonny Rosén, who is responsible for contract manufacturers (EMS) in the sourcing organization.

In addition, the project has been extremely cost-effective.

"Apart from the cost of a couple of salaries, the only expenses have been for a PC, Web site development, and a few trips between Stockholm and Borås, in western Sweden. Who would argue that the little we've used to turn over inventory and avoid tying up another SEK 1 billion isn't time and money well spent?" comments Pär Nyberg, project manager at the Borås plant.

All production units participating in the network submit a weekly report on the value of current buy and sell transactions, and inventory levels are updated regularly on an internal Web site, where the various plants can study what is available in the others' warehouses.

Britt-Inger Karlsson and Ann-Louise Lax are responsible for cross-selling in Kumla.

"There is always a surplus of components. For example, a change in the circuit-board design can involve the replacement of a component by another. It's then convenient to check the list to see if anyone has this component, while others can purchase our surplus," explains Britt-Inger Karlsson.

"The scarcity of components can lead to a halt in production. We have sent components to the Gävle plant, in Sweden, SCI in Scotland and Hungary, and Flextronics in China, among others," says Ann-Louise Lax.

"In Katrineholm we monitor inventory management initiatives, as well as potential returns on our sourcing decisions, on a daily basis. Recently, we've developed tools that help us see the total savings potential of the way we handle individual orders. This really helps us to see the concrete effects of our job as factory buyers," says Petra Sjögren.

The coordination of production units' inventories will continue at least during 2003 and probably after that.

"Inventories are still large, but if the market improves, it would probably be possible to end the project next year. But even after that, there will be a need to continue balancing inventories between our units and suppliers," says Sonny Rosén.

SUE ANNE MOODY

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Kurt Hellström and other top executives will see no increase in their fixed salary next year. If the company does not perform well, they will not even receive full compensation. For top management to receive their target salaries, Ericsson must generate a profit and a positive cash flow.

Variable pay boosts earnings

The fixed portion of executive salaries has remained unchanged this year and will not change next year either. According to Britt Reigo, senior vice president, People and Culture, at Ericsson, this is not a result of the current economic downturn.

"No, we take a long-term approach to our salary policy and do not allow it to be influenced by economic fluctuations. The reason we are not raising the fixed component of most of the executive salaries is that our fixed salaries are well positioned relative to other companies. Regarding the variable component, however, there is room for adjustment. We want to adjust the balance between the fixed and variable salary components, which is why we have chosen to only increase the variable portion next year."

Executives and key contributors at Ericsson participate in the global Short Term Incentive (STI) program. Their salary consists of a fixed component and a variable component. The fixed component is based on their duties, qualifications and personal performance. The variable component, on the other hand, should be proportionate to the extent to which the company and the unit achieve their targets. The difference between top executives and other management is that the former have even greater responsibility. For them to receive a single penny above and beyond their fixed salary, Ericsson must reach its target profit threshold.

Ericsson employees in Sweden who are not part of any incentive program are eligible for the Broad Base Incentive (BBI). Under this program, employees may receive a maximum of one extra month's salary, if all targets are exceeded. The BBI targets are derived from the STI targets and they are at least as difficult to achieve.

The company's target areas for 2003 are profit as soon as possible and improved cash flow. The concrete targets are established by the Board before year-end. The STI targets based on them are primarily financial. As for the company-wide targets, everyone must help in the effort to achieve them. It is then up to the individual units to establish partial targets to ensure that the company-wide targets are achieved.

Britt Reigo, why has Ericsson chosen a salary model based on a fixed component and a variable component?

"Variable compensation provides flexibility and spotlights targets. We want to place greater emphasis on results in employee compensation. In the long term, our incentive programs should improve Ericsson's earnings, which should eventually bring shareholder satisfaction.

"Performance-based salaries create a clearer connection between employees' own compensation and the company's performance. It's also a matter of wanting to retain and attract the very best without incurring excessively high fixed payroll costs, which could be a burden when times are tough. On the other hand, should things go well for Ericsson, we could afford to pay higher compensation."

Why does Ericsson not call the variable salary component a bonus?

"The variable component is not a bonus, since the word bonus is understood as something unexpected, above and beyond the usual. The fixed salary plus half of the outcome of the variable portion should be considered the target salary – the salary management may expect if targets are reached. The targets are set so that excellent performance is required to fulfill them. If targets are in fact exceeded, it implies extraordinary performance, which ought to result in compensation that exceeds the target salary."

How do Ericsson's salaries compare with those of other companies?

"For top executives, our policy is that the fixed portion of their salary should be in a median position relative to what corresponding executives earn in other companies in the country in which they are employed. The variable portion should provide an opportunity to achieve a total compensation level that is highly attractive in the market if the company exceeds expectations. For the salary to be competitive, half of the variable portion must be achieved.

"For other management and staff, salaries must be competitive in the country in which they are employed. Each country establishes its own salary policy based on the level required to attract the right expertise in that particular country."

Is there not a risk that targets are set so low that Ericsson will have to pay out a lot of extra compensation, even when the company does not generate adequate earnings?

"Let me first say that the targets for 2002 are hardly too easy. The targets for the first half of the year were not achieved, so the top executives were only paid their fixed salary. Whether the targets for the second half of the year will be achieved remains to be seen, but they are no less challenging. Top executives' salaries and targets are established by the Board. Their targets for 2002 are expressed as full-year targets, and are also extremely difficult to meet.

"Individual unit targets must be based on company-wide targets, which are established by the Board. If there is an upswing in the market, the targets may be raised, and vice versa. However, while they are not unreasonable, the targets are always set so that outstanding effort is required to achieve them."

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"In the long term, our incentive programs should improve Ericsson's earnings, which should eventually bring shareholder satisfaction. Performance-based salaries create a clearer connection between employees' own compensation and the company's performance," says Britt Reigo, Ericsson's senior vice president, People and Culture. PHOTO: GUNNAR ASK

FACTS PAYOUT

- There was no STI payout for the first half of 2002.
- About 55,200 employees participated in some variable-salary program in 2001.
- Of this group, about 47,700 received a payout for their variable salary.
- Variable salaries paid by Ericsson in 2001 amounted to 4.1 percent of total payroll expenses.
- In 2002, Ericsson has distributed nearly 54 million options to slightly more than 12,700 employees.
- Kurt Hellström was allocated 400,000 options in 2000. Last year, his allotment was reduced to 150,000 options, which is also what he has received this year.

Options effective incentive for key personnel

Ericsson and its owners believe that share price performance is an important basis for rewarding employees. Therefore, a new round of options was recently distributed. The program involves all units at Ericsson and each unit manager decides which employees are to be rewarded.

Marcus Sheard, Ericsson's vice president, Compensation and Benefits, explains the advantages of options.

"This is a way for a manager to say to an employee, 'I have confidence in you and I want you to contribute to the company's future success. Despite the current difficulties'," he says.

The Ericsson approach has long been one of sharing rewards widely amongst employees. This is still a good approach but needs to be balanced with reward for the highest performing individuals. Stock options are an efficient way of doing just that, according to Marcus Sheard.

An option is a security that gives the holder an entitlement, such as the right to buy a share at a certain price within a certain time, the "lifetime." An employee stock option is an option awarded by an employer to its employees to acquire stock (shares) in the employer company, provided that he or she still is employed by the company.

Ericsson's employee stock options have a lifetime of seven years.

Ericsson distributed options for the first time four years ago, and then mainly to top management.

At the 2001 Annual General Meeting, Ericsson's owners authorized the company to distribute employee stock options during 2001 and 2002.

The November grant is the final part of that program. The program includes all Ericsson units and each unit manager must decide which employees are to be allotted options – normally about 15 to 20 percent of employees.

Managers are asked to look for three criteria in their decision. Firstly, employees who have achieved extraordinary results. This means it could be a part-time salesperson who sells a large amount. The second criterion is professional potential, a judgment of how far can they go in Ericsson, which is rather difficult because the result will emerge in the long term. The third criterion is critical competence for the company. This competence varies over time, depending on Ericsson's core operations. For example, it could currently be development of 3G systems or skills relating to network operations.

This year, 54 million options are being distributed to more than 12,700 employees.

Marcus Sheard is in charge of Compensation and Benefits at Ericsson. He regards options as a good way of rewarding high-performing employees.

Some employees might wonder whether managers really always know who performs best.

"An advantage of this search for key contributors to receive options is that it requires that every manager really monitors who is achieving what and who has the potential to develop favorably – and of course every employee is a candidate. Options themselves may or may not prove to be valuable in the future. It depends on whether the share price rises. And that depends on positive results. But right now anyone who gets some options should see it as a very positive message about their performance."

But what message does the option program send to those who don't receive any?

"This doesn't mean you have not performed well. It simply means that you were not among the absolute best. And we will continue with this key contributor selection process for extra reward. It has the advantage of considering the entire Ericsson population afresh each year. Just because someone didn't make it this time doesn't mean that they won't next time.

"It also means that someone chosen now can't just sit back and relax if they want to receive an extra reward again. My advice is to keep working hard. Everyone can be best if they want," encourages Marcus Sheard.

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FACTS FINANCIAL TERMS

- Share: A share represents ownership in a company. Share-ownership in a company carries entitlement to vote at General Meetings and to dividends.
- Stock Option: An option is a security that provides the holder a right to buy a share at a certain price (the exercise price) within a certain time (the "lifetime").
- Ericsson's employee stock options program: Employees receive a number of options with a lifetime of seven years. The options holder is entitled to exercise the options – that is, buy shares at a predetermined price – during the lifetime, as long as he or she is employed by Ericsson.
- Option exercise: When the option holder exercises the right to buy the underlying security.

Read more on Inside:

inside.ericsson.se/human_resources/stock_option_plans.html

More financial terms:

biz.yahoo.com/f/g/g.html

Dubai's own IT oasis

Dubai is becoming a hub for the Internet, media and the financial sector in the Middle East. Within just a couple of years, one of the world's largest IT campuses has been created – and there is more to come.

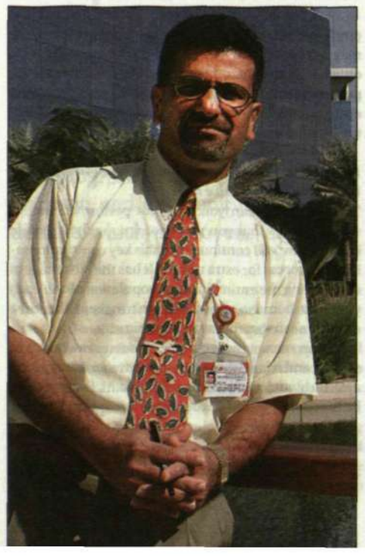
Dubai is well on the way to creating its own Silicon Valley and the Middle East's answer to Hollywood – at a single site.

Many countries feel impelled to create their own Silicon Valleys but few have succeeded. However, the tiny emirate of Dubai in the United Arab Emirates has made fair progress.

A glance at some Dubai-related websites leaves the visitor dazzled by all the great plans and projects under way in the region – Dubai Internet City, Dubai Media City, Dubai Financial City – and a number of gigantic construction projects focused on tourism.

What is interesting is that these projects are actually being realized and at a dizzying rate.

"When I arrived three years ago, it was just desert out here," says Mats Paulson, head of Sony Ericsson in the Middle East and Africa. "Two and a half years ago, construction began and we moved in six months ago."



One of the world's largest IT campuses is emerging. Mahmood Eskandari is the marketing manager for Dubai Internet City.

Major investments

To date, Dubai Internet City can provide workplaces for 15,000.

"But in five years, we will have joined Internet City with Dubai Media City and a facility that will be the Hollywood of the Middle East. By then, 100,000 people will live and work here," explains Mahmood Eskandari, marketing manager for Dubai Internet City.

The country's ability to invest on this scale is naturally due to its economy. The United Arab Emirates is one of the world's wealthiest countries, with oil as its primary source of income.

"Actually, the oil is found in the principal emirate of Abu Dhabi," says Mahmood Eskandari. "Of course Abu Dhabi does share, but the government of Dubai has decided not to become dependent on oil. Only 10 percent of Dubai's economy is built on oil income, the remainder comes from trade and tourism.

But money is not sufficient to ensure the country's welfare and dynamic business.

"Dubai has many advantages," explains Mahmood Eskandari. "We are well situated amidst major growth markets such as India, the Indian subcontinent, the former Soviet republics and North Africa.

"In addition, we have enjoyed political stability for more than 20 years, which is important in the Middle East. We could also afford to respond quickly and plan for the future."

And the future has already begun to move to Dubai. Dubai Internet City currently houses 800 IT companies, most of which are small or medium sized.

"Although large players have also transferred their headquarters here from places such as Cairo and Beirut, or they have established completely new regional offices here. Dell, Canon, Oracle, Microsoft, Lucent, Cisco – all of these are either here or on the way," says Mahmood Eskandari with satisfaction.

Siemens, Cisco and Lucent were involved in constructing the IT village.

"With the exception of Cisco's own internal system, the company installed its largest system ever here. So we receive fantastic support and are always able to try out their latest solutions," says Mahmood Eskandari.

Normally in Dubai, foreign companies must have a local "sponsor," who owns 51 percent of the local company. That is not the case in Dubai Internet City, which has been designated a free-trade zone.

"Companies need no sponsor and pay no tax – at least not in this country," explains Mahmood Eskandari. "It is our ambition that it should take no longer than three weeks from the initial application before an office is up and running."

Within the area, law firms, accountants and staffing companies will also open offices to support the IT companies.

"And naturally we provide the best possible IT support for our customers. We provide both telecom and Internet services within the area with two-megabit and IP telephony throughout."

No censorship

One of the United Arab Emirates' closest neighbors is Saudi Arabia where Internet censorship is so severe that material considered normal political discussion in the West, such as articles on women's rights, is filtered out. But, to date, Dubai Internet City has suffered no neighborhood feuds regarding freedom of speech.

"In our country, we draw the line at pornography and sensitive religious material," says Mahmood Eskandari. "But within the IT village there is no censorship. We haven't even installed filtering equipment and we are our own operator."

Nonetheless, all customers are discouraged from working with pornographic or religious material.

"Should anyone do so, it would likely be brought to our attention and we would then discuss the matter with the customer," says Mahmood Eskandari.

15 people are employed at Sony Ericsson's bright and fashionable office in the IT village. This is the headquarters for the Middle East and North Africa area, comprising the company's markets in 67 countries.

"Previously, we were located in the city center. Since Internet City is a free-trade zone, and we avoid the cost of the local sponsor, we will save the cost of the move in just one year. So the change was well motivated," Mats Paulson points out.

Mats Paulson

So far, he feels that the greatest benefits of having the office in the IT village are the well-planned premises, the pleasant surroundings that provide a calm working atmosphere and the right environment for visits by customers.

"Of course being so close to a number of content providers is helpful. This suits us well with Sony Ericsson focused so strongly on integrating attractive contents into its mobile phones. I'm sure the synergies will grow even more evident further on."

Positive mood

An aspect of Dubai Internet City that should not be underestimated is the mood, not only in the IT village but also throughout the country. There is a confidence in the future and an enthusiasm that is so tangible it infects everyone.

"Everything is done highly professionally here," adds Mats Paulson. "Everything from equestrian activities and golf to construction and modern technology – when the emirates go for something, they rapidly become among the best in the world at it."

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FACTS OTHER IT CLUSTERS

Silicon Valley in California, USA, Kista in Stockholm, Sweden, and the Bangalore-Chennai (Madras)-Hyderabad triangle in India are places where IT-related companies have clustered, some emerging independently and then attracting an increasing number of similar enterprises. Dubai Internet City is the largest example of an IT campus that has been built from scratch. Dubai, in turn, borrowed the idea from Jordan's IT zone in Aqaba, which, due to poor finances, has not developed nearly as quickly.

EU critical of Chinese 3G standard

Recently, an EU official publicly criticized Chinese plans to introduce the TD-SCDMA 3G standard. According to Franz Jessen, who works with the EU delegation in Beijing, China should scrap its plans to introduce this standard.

The TD-SCDMA technology has strong support within the Chinese government, whose principal argument is that it is the most effective technology in densely populated cities.

But Franz Jessen feels that yet another standard will further delay 3G and that global standards would reduce costs and make life easier for traveling consumers.

At the same time, he praises China's telecom industry for proceeding with caution and with more consideration than has been the case in the European industry.

More than 400 million mobile phones this year

Total sales of mobile phones are expected to exceed 400 million this year. This is largely due to substantially increased sales in China.

During the third quarter of 2002, 104.3 million mobile phones were sold, an increase of 7.8 percent over the year-earlier period, according to analysis company Gartner Dataquest.

"This is the second time ever that more than 100 million mobile phones have been sold during the third quarter of a year," says Bryan Prohm at Gartner Dataquest.

Nokia further increased its lead to 35.9 percent of the total world market and was even able to boast having passed 50 percent in Western Europe and the EMEA area. In China and the US, on the other hand, it was Motorola that achieved more than half of all sales.

EU invests major sums in 4G

The EU will be contributing as much as approximately USD 1.8 billion to research projects on the fourth generation of mobile telecommunications. The application period ends in April 2003 but, according to Swedish technology magazine, Ny Teknik, it is already evident that the major telecom companies, with Ericsson, Nokia, Siemens and Alcatel at the forefront, will be awarded the grants.

"It is important for the EU to involve major companies in the 4G projects, since this gives the results greater credibility and is viewed as a guarantee that someone will take care of the overall structure," says Karl-Einar Sjödin, Swedish delegate in the EU's program committee for IT research, to Ny Teknik.

To ensure the participation of the telecom giants, the funds will primarily be awarded to a few, really large projects, since major companies are unwilling to commit to many small projects.

High hopes for MMS earnings

According to Juniper Research, which interviewed some 40 senior executives in the industry, MMS could earn more than USD 8.3 billion a year by 2004.

However, this is conditional on operators hurrying to prepare for a mass market, with handsets and networks.

"MMS is so much more than just sending pictures. It opens the door to a number of different information and entertainment services, which will generate earnings more than double those of normal person-to-person messages. MMS can succeed where WAP failed," says Charles Lafage at Juniper Research to the Internet magazine Cellular News.

The prototype workshop in Kista consists of three units. Hans Östling, on the left, is responsible for mechanics, Magnus Laurell for electronics, and Carl-Johan Torstenson, on the right, manages the filter unit.

PHOTO: GUNNAR ASK

Independent mini-plant thrives

A plant in miniature format, where designers often look in to talk to the employees and see how design proposals are turned into reality. This mini-plant, Ericsson's only complete prototype workshop, is located in Kista and serves both internal and external customers, providing prototypes, models and small series.

The prototype workshop, which is part of Core Unit Supply, consists of three units: mechanics, electronics and filters. Each unit has about 20 employees.

"We function as an independent unit and have our own purchasing process, project management and suppliers. Our work approach also differs to a certain extent from that of Ericsson's plants," says Carl-Johan Torstenson, head of the filter unit.

"We have extremely close cooperation with the designers and regard ourselves as a service unit for the various design departments," he explains.

"Flexibility and speed are key elements for all of our assignments. We are quick to change production as the design is adapted and improved," says Magnus Laurell, head of the electronics section.

An important part of the prototype workshop's assignment is to fulfill the role as the first stop for New Product Implementation (NPI).

"NPI means that we start the industrialization of new products here and then continue with the 'normal' NPI production," says Carl-Johan Torstenson and explains:

"The work to adapt the product is continued there to enable production in larger volumes. Afterwards, production can possibly be shifted to an external producer, such as Flextronics, clearing the way for Ericsson's production of the next product generation."

At the same time, he mentions equipment for "co-siting" as another significant area. This is a matter of filter and combiner products enabling the use of a single site for both 2G and 3G base stations. This is important equipment now that the 3G systems are being installed.

"This is Ericsson's only complete mechanical workshop. We work in sheet metal and some plastic," says Hans Östling, who is responsible for this part of the prototype workshop.

"Our machine park includes high-speed milling machines, welding and soldering sets and bending machines," he says, pointing to the equipment. "Here we can rapidly make the mechanical alterations requested by the designers. The blueprints generally arrive as computer files, but occasionally a designer comes up with an idea on his lunch break and comes in with a drawing on a napkin."

"Having a prototype workshop close to the designers enables them to quickly check their drawings and design ideas. I believe this possibility stimulates creativity among the designers and makes it possible for them to quickly correct any errors," says Urban Fagerstedt, head of Core Unit Radio Network Development.

At a desk in the filter unit, Mathias Nordin and Klas-Rune Sundberg are sitting discussing various measurements displayed on a screen. Mathias Nordin is a filter designer and Klas-Rune Sundberg works with such processes as trimming, testing and preparation.

"I visit the workshop regularly to check how my construction works and to make improvements. The proximity of the workshop is a requirement for my ability to do a good job. Those who work here know the products and provide valuable opinions," says Mathias Nordin.

He is one of many internal customers at the mini plant in Kista. Examples of other operations are production feasibility analyses and designing electrical prototypes, models and mock-ups, as well as creating testing and production equipment. Sometimes, there is also small-scale series production.

"We can do everything that a conventional plant does and a little more, but not in such large volumes," concludes Magnus Laurell.

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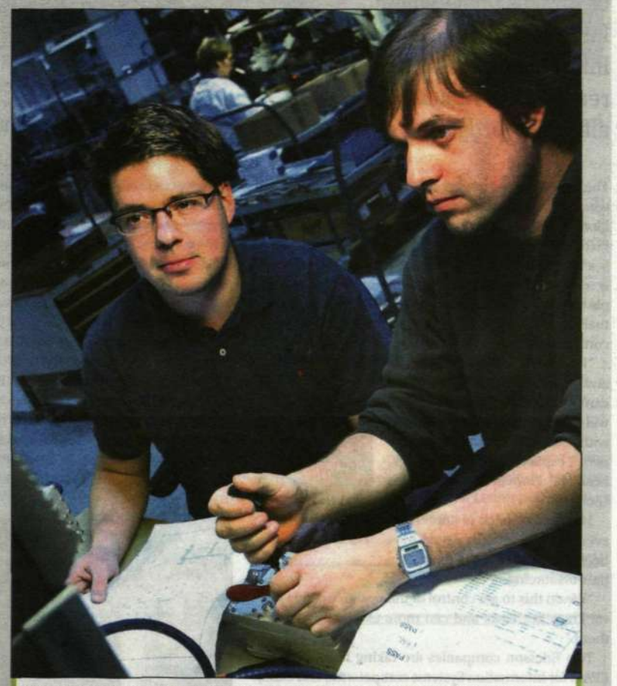
In the model and prototype workshop for electronics, there are Mydata SMD machines, which assemble components. Maya Öhlin is an operator.



Mathias Nordin is a filter designer and is visiting the prototype workshop to check a filter test. He is pictured in discussion with Klas-Rune Sundberg, whose work includes trimming, testing and preparation.

In this complete mechanical workshop, changes that designers want to make can be implemented quickly. Ove Berg works with an NC milling machine.

Insourcing before outsourcing

About 700 Ericsson employees have been re-labeled within the past month, to comprise an "Ericsson community" consisting of professionals within Information Systems and Information Technology. The reason is the Global IS/IT efficiency program.

The so-called insourcing project started in August, when Human Resource managers were tasked with identifying people who work 30 percent or more on IS/IT in different Ericsson companies or units. The idea is a bit controversial, since Ericsson announced that it is seeking to outsource its IS/IT operations. Some people have feared losing their jobs, but the intention is actually to anchor employment with an employer whose core business is IS/IT.

Mattias Forsbäck

"It can be scary with changes and an unknown future, but we can't tell people what the future will be because of negotiations with potential outsourcing partners," explains Mattias Forsbäck, head of Human Resources for Global IS/IT.

Mattias Forsbäck is sure, however, that the process would have been done regardless of the potential outsourcing.

"We do this to get control of the resources. This way we know our costs and can more efficiently manage them."

Two Ericsson companies are taking in employees: EPAC, for Information Systems competence, and EGIS, for Information Technology competence. Additionally, there are procedural differences depending on location. There are EPAC and EGIS project leaders in Ericsson's market areas to manage insourcing outside Sweden.

Anders Stenström oversees the insourcing to EPAC. The organization has created 'coaches' to welcome the employees to EPAC, help fill information gaps and get them accustomed to new routines. The coaches are managers who have been in the EPAC organization for a while. They helped find the appropriate assignments and assure employees of the advantages of insourcing.

Now, Anders Stenström says, people are gaining confidence and beginning to feel at home in the new organization.

"I think it opens possibilities for employees to be close to people who are working on the same kinds of things they are."

Anders Stenström is in close contact with his counterpart at EGIS, Roger Karlsson, who says IT operations around Ericsson should continue as normal during the insourcing process.

About 130 employees in Sweden have been insourced to EGIS and 320 outside Sweden are now registered on the EGIS global headcount list.

"We have had introduction meetings for employees as well as an information website (internal-itservices.ericsson.se). All new employees have been introduced to the EGIS way of working by the receiving manager, and the whole process has worked smoothly and even better than I expected."

Communication with employees and unions has been an important focus.

"We're working in a shop window," says EPAC's Anders Stenström. "There shouldn't be any secrets."

Employees can ask questions on EPAC's Web page as well (epac.ericsson.se).

Whereas employees in Sweden might move physically, those in other locations will stay put for the time being. Anders Karlsson, head of EPAC in Market Area Europe, Middle East and Africa, EMEA, says the insourcing project out in the market units is handled 'virtually.'

Doug Lockwood looks forward to working at a company who's core operation is IS/IT, but he's going to miss Ericsson.

"People are really customer service-minded here. They tend to have a local focus rather than regard themselves as part of a larger Ericsson IS/IT group. But we try to explain that the advantage is that they belong to an organization that is focused on IS/IT questions in particular. They'll have colleagues who have the same competence. It will be a better environment for them to develop their own competences." Anders Karlsson adds that if the outsourcing is realized, Ericsson can concentrate on what it needs, rather than how it solves its IS/IT issues.

That benefit is echoed by Doug Lockwood, leading the insourcing project for EPAC in the Americas.

"Ericsson stands to gain in terms of IS/IT service. If I were an external provider, I would want to continue to provide the best support I could," he says.

"It will be weird not to have Ericsson on my badge after 11 years here, but I look forward to being in a company whose core business is IS/IT."

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EPAC's former premises are now empty. EPAC is now located in a different building at Telefonplan in Stockholm and in a number of the locations in Sweden and throughout the world.

Shared technical perspective

"Our visit to Kista was rewarding, with the possibility to exchange experiences, study the future outlook and conduct technical discussions," says Peter van Wijngaarden of Vodafone Libertel in the Netherlands.

He was one of 20 participants at a technology meeting that Ericsson arranges in Sweden each year in November. It was held this year for the fifth time.

Johan de Jonge from Ericsson in the Netherlands demonstrates his phone with the Vodafone Live portal to Peter van Wijngaarden, Michael Lenoir and Leo Verstraeten, all from Vodafone in the Netherlands.

PHOTO: ECKE KÜLLER

"At home in the Netherlands, we hold technical review meetings with Vodafone every second month. Once a year, we come to Sweden, where the agenda is somewhat different," says Johan de Jonge from Ericsson in the Netherlands, where he is technical manager in the customer organization for Vodafone.

He says that there are three purposes for the visit to Sweden. It offers Ericsson the opportunity to present and demonstrate the latest developments and its newest products. Vodafone can convey its suggestions directly to the product-development units. The third – and equally important – purpose is caring for and improving relations with Vodafone Libertel.

Michel Lenoir, who is manager for High Level Design, participated in the Kista meeting for the fourth time.

"During our time here, we've acquired a broader perspective of the future than is usual during the normal meetings. I found it particularly interesting to listen to what the Ericsson Consumer Lab had to say. This was information that is useful for us as engineers," he says.

Leo Verstraeten, who is Team Manager for Network Development Strategies & Support, was also satisfied with the meeting in Kista.

"The discussions we had on strategy were positive – it's important to know that Ericsson and Vodafone are pulling in the same direction. In the smaller workshops we had, there were interesting discussions, during which we could focus on technical details. These also gave us the opportunity to meet Ericsson employees with special knowledge," he explains.

"The telecom market is currently in a difficult period and I think it's necessary for Ericsson and Vodafone to cooperate in conquering the adversities. I believe there is a positive future that is not too far away," says Peter van Wijngaarden, head of Network Development. He believes that Vodafone's launch of Vodafone Live with MMS is a favorable sign and that these services can increase network traffic. Vodafone Live was launched in the Netherlands a few weeks ago and it created a great amount of interest. When network traffic finally starts to increase, more capacity will be needed, opening the way for 3G.

FACTS **VODAFONE**

In March 1995, Libertel, which is now Vodafone, acquired its GSM license and its network was taken into operation six months later. Today, it has 3.2 million subscribers and is the Netherlands' second-largest GSM system.

Ericsson is principal supplier to Vodafone in the Netherlands and, in addition to infrastructure for the GSM system, it has supplied GPRS equipment. Deliveries and installation of WCDMA equipment from Ericsson are currently under way.

The technology meeting in Kista is an excellent example of the long and close cooperation between Vodafone and Ericsson. As Michel Lenoir puts it:

"We need you and you need us."

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High motivation in Central America

The telecom crisis is only a distant notion in Central America. Growth is already guaranteed this year in Ericsson's perhaps most fast-footed market, and next year looks promising.


Urban Gillström

"Sure we felt the crisis, growth dipped considerably last year, but then it took off again," says Urban Gillström, head of Market Unit Central America.

Urban Gillström has worked in Central America for nearly two years, and has enjoyed the diversity of the region.

"Central America is an incredibly dynamic region. We manage several small projects at once and at the same time the major international operators expect the same from us here as in their more developed markets. We're always on your toes," he says.

That flexibility was achieved as the entire market unit was reorganized in 2001. The main office was moved out of Mexico and local competence was prioritized. The main office is now split between Costa Rica and Panama.

There were many positive effects to the reorganization. The smaller number of employees lowered costs, work became more efficient as the customers came closer, and last but certainly not least – the Central American employees show some of the highest motivation numbers in the entire Ericsson organization.

"We saw record results in Dialogue. Motivation is incredibly high even in countries that have been hit hard with cost-cutting and instability in the workplace, such as El Salvador and Guatemala," says Urban Gillström.

There is positive business news on the Central American market as well. In Nicaragua, Ericsson is currently installing two GSM networks and an Engine network, granting the Nicaraguans access to the latest wireless and wireline technology simultaneously. According to Urban Gillström, there are also compelling reasons to use mobile phones when introducing GPRS and the mobile Internet.

"Far more Nicaraguans can afford spending 100 dollars on an Internet-compliant phone than thousands on a PC," he says.

The largest single market in Central America is Jamaica, where Ericsson customer Digicel has had great GSM success. In Panama, and several other Central American nations the entire mobile market is Ericsson's. Urban Gillström is particularly humbled by this fact.

"In a market that has only Ericsson technology it is our responsibility to develop and drive the market," he says.

The market development has been promising this year, and a number of important business opportunities are at the horizon. The Costa Rican government is about to purchase the nation's second GSM network, which could mean 1,5 million subscribers and could push penetration to nearly 50 percent by the end of 2004.

"Even our worst-case scenario is growth. Our perhaps greatest challenge is to balance the local success with the global crisis, and not let the one overshadow the other," says Urban Gillström.

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Faith in northern Latin America

Northern Latin America has so far handled the recession further south rather well. Fierce competition combined with great demand creates an exciting work environment for the Ericsson employees.


Lars Lindén

Head of Market Unit Latin America North, Lars Lindén, emphasizes that his situation is somewhat more comfortable than in the southernmost parts of the continent.

"Even countries that are truly struggling, for example Venezuela, are still making basic investments," he says, "so as long as there is a need and there is money, we should be able to keep the recession at arm's length."

But the situation is not free of care. The effects of the political and financial instability in South America are evident, and the traces of consolidation and efficiency measures are seen everywhere.

"Of course we feel a certain decrease in business. There aren't new players and licenses to be found around every corner anymore," says Lars Lindén.

Much like in Central America, the market in northern Latin America is flexible and varied, with very small actors competing with the very large. Even the geography offers unique challenges: large countries like Venezuela and Colombia have different needs and demands than little Guyana or the Caribbean islands.

"Both the business climate and the languages vary from country to country, from French and Spanish to Dutch and English. And we are expected to measure up," adds Lars Lindén.

And there is more that makes the region interesting for Ericsson. As the development is a few years behind Europe, basic 2G service is rolled out literally at the same time as GPRS and in some cases 3G, allowing the operators to get state-of-the-art technology right from the get-go.

According to Lars Lindén, the outcome of the year will largely be determined by the development in Colombia, a country on its way back after a few years of financial difficulties.

"New PCS licenses are to be released and new competitors have woken up the existing customers," he says. "A population of 45 million says something about the business potential."

Deregulation and new licenses are on their way in several countries. The perhaps greatest challenge for Lars Lindén and his market unit is to as far as possible avoid spillover from the recession in Latin America. But they must also find the ideal size of their own organization, making it possible to manage a downturn and at the same time take every business opportunity on a very competitive market.

"The situation is really incredibly dynamic. One single deal can determine the results, and facing price pressure and competition our customer relations are always put to the test," says Lars Lindén. "But we increase our market share every year, and Ericsson's tradition here is solid. I guess you could say this is really our back yard."

ELIN AHLDÉN


A MINI-LINK contract was recently announced in Colombia, covering the capital, Bogotá, and several other major cities. PHOTO: JEREMY HORNER/SCANPIX

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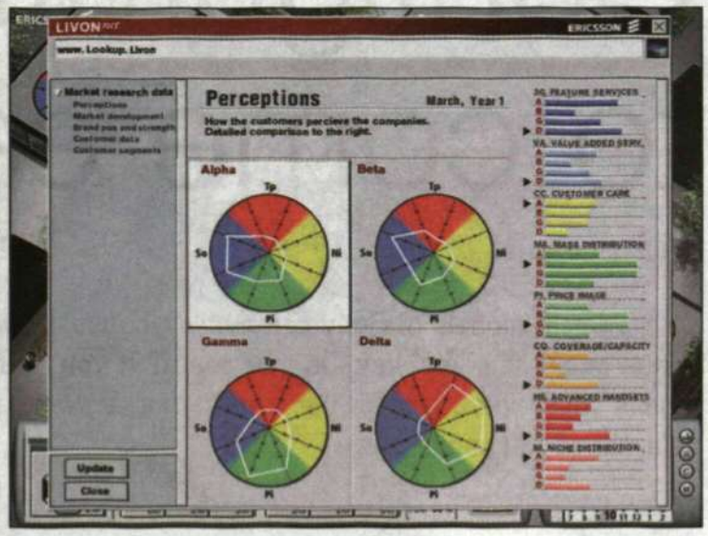

Market Reality is a simulation, a virtual marketplace, that is loaded with data from reality. A good, inexpensive way to test market strategies.

Simulate reality and stimulate market

Swedish operator Telia and Ericsson Consumer Lab have signed a three-year cooperation agreement that will increase both parties' knowledge of consumer behavior and preferences. The agreement involves the Market Reality system of market simulation and customer segmentation models.

"We have enjoyed excellent cooperation for quite a while, but there has never been any formal agreement. This agreement is a sign that we are on the right track and that we are recognized as a strategic business partner," says Henrik Pålsson, head of Ericsson Consumer & Enterprise Lab.

Consumer Lab is a unit of Ericsson that gathers and analyzes data on the end-users of telecom services and products. Data is gathered from markets worldwide using quantitative and qualitative methods. The knowledge is applied in various ways – internally, for example, as an indicator of direction for Ericsson's product development, and externally, as valuable consulting support in Ericsson's cooperation with operators.


Henrik Pålsson

"Our operator customers expect Ericsson to know what end-users want. As an international player, we are expected to know the customer's customers," says Henrik Pålsson.

To enable target groups and partners to absorb the information, Consumer Lab has developed a data-simulation system in the form of a virtual marketplace called Market Reality. The simulation, which is based on real data, can be loaded with information from the customer's target market. This helps internal and external target groups in their application of a customer focus approach.

"The players compete with each other in computer networks, the goal being to dominate the market for mobile services. Telia has a version of Market Reality based on data from the Nordic countries," says Henrik Pålsson.


Bernt Åkerström

Bernt Åkerström, who is in charge of business intelligence at Telia Corporate CRM Group, views the agreement as a major step forward, and points out that both Telia and Ericsson can offer each other knowledge that they could not obtain themselves.

"We have extensive knowledge of our market that Ericsson could never obtain through its own surveys. Consumer Lab can give us models and international comparisons that we could never obtain. This is what true partnership is all about," says Bernt Åkerström.

"Market Reality and our joint knowledge refinement form the basis of our cooperation. We will use the simulation system for both the consumer market and for the portion of our operations that targets business," he adds.

In Henrik Pålsson's view, extensive knowledge of end-users' preferences is crucial to success in the market.

"To date, the operators have competed on the basis of coverage, capacity and price. In the future, the key will be to offer the right range of services. Consumer Lab has the puzzle pieces that the customers want."

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FACTS ERICSSON CONSUMER & ENTERPRISE LAB

Ericsson Consumer & Enterprise Lab is headed by a steering group consisting of representatives of the Business Units Systems and Global Services, Core Unit Service Network and Applications, and Ericsson Research and Ericsson Enterprise.

Operations are organized in three units:

- Consumer Lab Research and Consulting manages surveys and sells market research services via Ericsson's sales organization.
- The Consumer Advisory Group serves Ericsson's internal requirements in product and service development.
- The Enterprise Lab is a unit that gathers knowledge about business users to enable better understanding of companies' requirements.

Configuration to come easily

With Peter Bleckert's invention, called Automatic Device Configuration (ADC), new mobile phone users get two SMS messages, and then they're ready to use the mobile Internet.

On the latest models of Sony Ericsson's phones, there's an extra little button below the 'Yes' key. Do you use it? If you're like 70 percent of mobile subscribers around the world, your answer is No. Ericsson is determined to change that.

A majority of callers do not use new mobile phones to their full mobile Internet potential. Undoubtedly that's due to the complicated process of configuration. But a team within Ericsson has already filed a patent for automatic device configuration, and hopes to get it on the market early next year.

Gunnar Nilsson with Core Unit Service Network and Applications poses the rhetorical question: "How many people bother to configure their mobile phones?" As it works now, the average caller has to go through a manual process or register information on a website about the mobile phone model, service provider and more on a site before the mobile Internet is activated.

But a major improvement is on the way. A cooperation between Business Unit Systems, Core Unit Service Network and Applications, and Core Unit Core Network Development is developing Peter Bleckert's invention, called Automatic Device Configuration (ADC). The invention enhances existing device configuration tools, making everything automatic for the end user.

With ADC, new mobile phone owners receive two SMS messages shortly after the phone is first turned on, then they're ready to use the mobile Internet.

"It can even be done right away at the point of purchase," explains Peter Bleckert. "Since the configuration messages come automatically, it's easy enough for the sales representative to hand over a configured phone within a minute, even if the store is crowded."

Peter Bleckert says when GPRS was new, early adopters were using and configuring the phones, because they are active and interested in the technology. As it becomes more common, the average user doesn't want a lot of hassle. Anders A Larsson, technical coordinator, says:

"As an end user, you don't care about the WAP gateway, the IP address or the MMS center URL. You just want to receive an MMS from someone. You should not have to take the initiative to use the mobile Internet," he says.

What happens internally is that the core network automatically discovers the new phone and the Over-The-Air configuration tool sends out the configuration SMS immediately. This works with most phones on the market.

"When you put a SIM card into a new phone," says Gunnar Nilsson, "you'll get an SMS asking if you'll accept the new settings. A few minutes later, you'll be asked if you want to install the settings."

Gunnar Nilsson adds that the solution is network-based, not telephone based, so if a user updates to a later model of terminal, the settings will follow. Right now, Ericsson's solution will work only on Ericsson networks, but interoperability is on the agenda.

"We can't change people," says Anders A Larsson, "so we need to change the technology to make it work with people!"

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Gunnar Nilsson and Anders A Larsson are making sure that it won't be uphill anymore to configure a new mobile phone.

PHOTO: GUNNAR ASK

Sven Lindmark believes that mobile data communications is an area with major growth potential. "The market is growing by about 40 percent per year," he states. But a retrospective look at the area reveals several pitfalls that can be avoided. Talking too much about the next technological step, such as 3G or 4G, before it arrives, is one such danger, according to Sven Lindmark.

PHOTO: ANNA REHNBERG/KAMERAREPORTAGE

'Don't talk 3G to death'

It is possible to talk a market with major potential to death. "If we start talking now about how cool 4G will be, there is a risk that interest in the 3G market will die." These are the words of Sven Lindmark, who has a PhD on the mobile Internet. He recently defended his thesis – a historical analysis of the mobile data communications area.

Sven Lindmark claims that one of the reasons GPRS and other 2.5 services have not been the fairytale success that was anticipated is that telecom suppliers have talked too much and too early about how good 3G will be.

"There is an obvious danger in beating the drum for the next stage too early. Already a couple of years ago, everybody was talking about how many cool services there would be when 3G was built out. This can lead to disastrous results in a dawning market. The risk is that both operators and consumers wait for the next stage instead of using the services that exist today or developing more new services for the existing technology," he summarizes.

The thesis is a historical analysis of the mobile data communication area and was written at the Department of Industrial Management and Economics at Chalmers University of Technology in Gothenburg. Today, Sven Lindmark is working on several projects within Chalmers. One of these involves cooperation with Ericsson, in which the market for mobile Internet services is being investigated and attempts are being made to identify barriers in the area.

Although, in his conclusions, Sven Lindmark directed some strong criticism at both telecom suppliers and operators, he believes that the data communications market has major growth potential in the future. However, changes are required in several areas before the market can gather momentum. For example, telecom suppliers and operators must improve marketing the technology that already exists. More interesting services must be developed for the 2.5G as welll as the 3G networks. Distribution also needs improvement, one example being that the expertise of personnel involved in selling mobile phones must increase. Another idea is that mobile phones should perhaps also be sold by other retailers who do not currently sell electronic products of this kind.

Long time to emerge

Those who read Sven Lindmark's thesis are quickly reminded that it takes a long time for a new technology area to emerge. A new market must be built from its foundations. Everything must be in place at the same time: the networks, the terminals, distribution and the basis for a need among users. Many examples of successful mobile Internet activities come from Asia and, especially, Japan. But Sven Lindmark also highlights a Swedish example:

"In Sweden, the choice was made in the 1970s to launch the simple MTD mobile system, prior to the launch of NMT. In this way, a need was established among the consumers and the distribution channel was already developed before the improved version of the technology was in place. This is a favorable example of the importance of launching simple services early."

Don't jump too far

He also has some thoughts on the subject of consumer behavior and what lies behind "killer applications" or mobile services that become major sales successes.

"The technology leap mustn't be too large for the user. For anyone who has never sent an SMS, it is too large a step to go in and book a train ticket on a mobile. The services must be easy to use and both the usefulness and entertainment aspects are important. And the services mustn't be too expensive."

Sven Lindmark's dream for the future is to continue researching the mobile data communications area and perhaps even take a closer look at how the work and standards could be improved.

"I have felt that there is rather high demand for more knowledge in these areas," he says.

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Footnote: Sven Lindmark's thesis is entitled "Evolution of Techno-economic Systems: an investigation of the evolution of mobile communications."

It costs SEK 300 and can be ordered from:

svelin@mot.chalmers.se

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TSP – a company within the company

After several years of development, TSP, Ericsson's Telecom Server Platform, has been designated as the base for all control servers in Ericsson systems.

"We had high ambitions from the start and now, after the most recent upgrades, we have a first-class platform on which to build products," says Michael Arnsten from product management.

From the prototype stage in 1997, TSP has been developed to the point where it delivers performance that is unmatched, except perhaps by Ericsson's own AXE from which TSP has borrowed many ideas. Now in its fourth generation, TSP serves about 30 million subscribers worldwide in mobile systems. Most often it is used in the HLR (Home Location Register), which is the subscriber database in TDMA and CDMA networks.

More recently, TSP has been used in Service Capability Servers that provide extra services and as a node for charging and authorization in 2G networks, as well as in 3G and IP networks.

"The fact that we have succeeded in developing so many good products in such a short time is primarily due to choosing the right mix from the start between proprietary and third-party components," says Michael Arnsten. "Developing a platform for this type of system entirely in-house is too slow and too costly, while using third-party products eats into profits and can easily result in becoming too dependent on a single supplier."

For TSP, ready-made technology, hardware and software is purchased both externally and within Ericsson and then combined with proprietary components. This combination means that designers can always keep up with advances in technology and stay on the leading edge.

Thanks to Canada

"This approach allows us to function as a company within the company. We use limited resources and can work in short projects with cross-functional groups," explains Michael Arnsten.

Bo Andrén

Bo Andrén, who heads TSP product management, also wishes to thank employees at the local company LMC in Montreal, Canada, who were the driving force behind the first TSP products. As they now hand over responsibility to their colleagues in Älvsjö, Sweden and take on new challenges (such as MMS), they can look back on an outstanding effort in which they boldly and with great optimism attacked and conquered the difficult US market.

Without going into historical details, it is clear that the Canadians understood that the key to the North American market was to use open systems and technology that instilled confidence. This sensitivity for what was the right choice of technology in an open market allowed them to quickly develop a functional prototype for an HLR using open technology for a leading customer, AT&T Wireless. After the ice was broken, the Canadians worked with Swedish telecom experts to create an unbeatable combination.

The five nines

"The In-Service Performance (ISP) measurements, continuously carried out to test operational reliability, show that TSP is now up to what is commonly called the five nines, meaning 99.999 percent operational reliability without interruption. This corresponds to about five minutes of downtime, planned and unplanned, per year," notes Michael Arnsten.

This is an excellent figure that meets the requirements of what is commonly called telecom grade.

An additional TSP strength is its high scalability, which makes it possible to build both small and medium-size systems, thus allowing operators to build out their networks at the pace they desire. TSP is based on a cluster of interconnected processors. To achieve scalability and robustness, TSP's own database is distributed among processors, meaning that neither hardware nor software faults will bring down the system.

The latest 4.0 version of TSP places the emphasis on operations and maintenance and on IP signaling. In the forthcoming 5.0 version, the emphasis will be on methods and tools to reduce installation time and on improving user-friendliness. The TSP concept is also being expanded in the 4.0 and 5.0 versions to allow existing *UNIX* applications to use TSP without extensive modifications.

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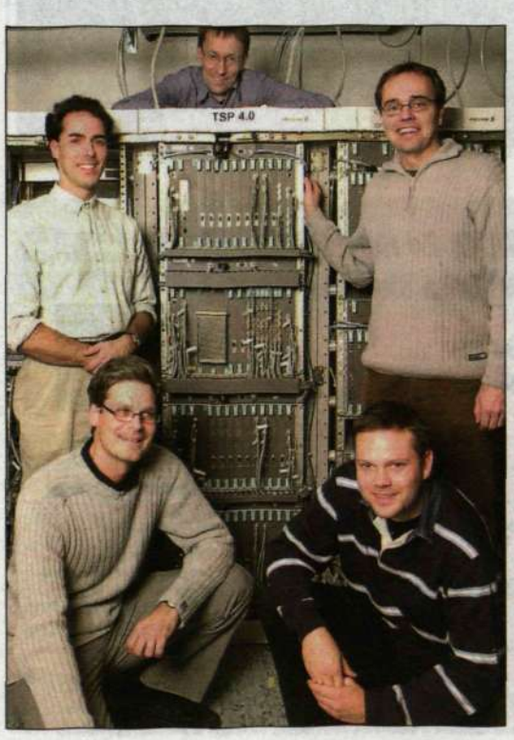

For each version of the TSP server platform, the bar is raised higher with respect to products and work methods. Shown here are several TSP designers gathered around the latest version, TSP 4.0: Michael Arnsten, Michel Sundin, Hans Meisner, Ulf Markström and Magnus Engberg.

PHOTO: ECKE KÜLLER

Base stations speed up launch

It is increasingly important for operators to be able to launch new networks and services quickly. This requires systems with fewer base stations and simple management. Ericsson's GSM base stations 2106 and 2206 (outdoor and indoor) have several technical features that make this possible.

A key component is dTRU, the double transceiver unit which improves the link budget in a unique manner. An operator can start a network with fewer sites that provide full coverage thanks to improved (3 dB) transmitter output and amplification (TMA) on the uplink.

Another feature that facilitates rapid deployment is that the PSU (Power Supply Unit), which converts AC to DC, is integrated in the cabinet and does not have to be installed separately.

A third factor is that the 2X06 base stations are easy to configure. The programmable CXU (Configuration and Switch Unit) allows a site to be configured in just minutes and eliminates the human factor. An ASU (Antenna Sharing Unit) makes it easy to let GSM and TDMA share the same site (co-siting) without complicated cabling. The ASU is also built into the cabinet. There is also a DXU (Distribution and Switching Unit) that can be loaded with the correct software for the configuration by replacing a flash memory card, thus saving the hours that it would take to download software to the site.

Teaching computers to play living music

Man digress from the score to create life in the music. The computer doesn't – yet.

Why is it that computer-generated music does not have the same vibrancy as when a human plays an instrument? This is the question posed by Professor Johan Sundberg, Doctor Anders Friberg, Doctor Roberto Breson and their colleagues at the Royal Institute of Technology in Stockholm and that they have tried to answer by developing a grammar that shows how humans depart from the score to put life into the music. In mid-November, they presented their thoughts at Electrum in Kista.

Something essential is lacking in computer music. Part of it is timing, meaning tempo, time intervals, note length and stress. Because a machine does not understand what it is playing, it cannot group notes that belong together using micro-pauses and changes of tempo. The analysis also shows that staccato, legato and other techniques can be used to create different moods, such as joy, sorrow and tenderness. Much of what musicians use to make music of notes is similar to what we do when turning text into speech.

How can these results be used to improve mobile phones? Because the mobile phone is the world's most sold synthesizer (although it is not used as such) we can start by creating more expressive ring signals that indicate whether the caller is in a good mood or angry.

www.speech.kth.se/music/performance

tips

Free instruction on the Internet. Ericsson University is offering more than 250 web-based courses free of charge until December 31. You can participate in the courses from home, if you wish. All you need is an Internet connection and an email account. More information is available at:

University.ericsson.se/netbased/smartforce.asp

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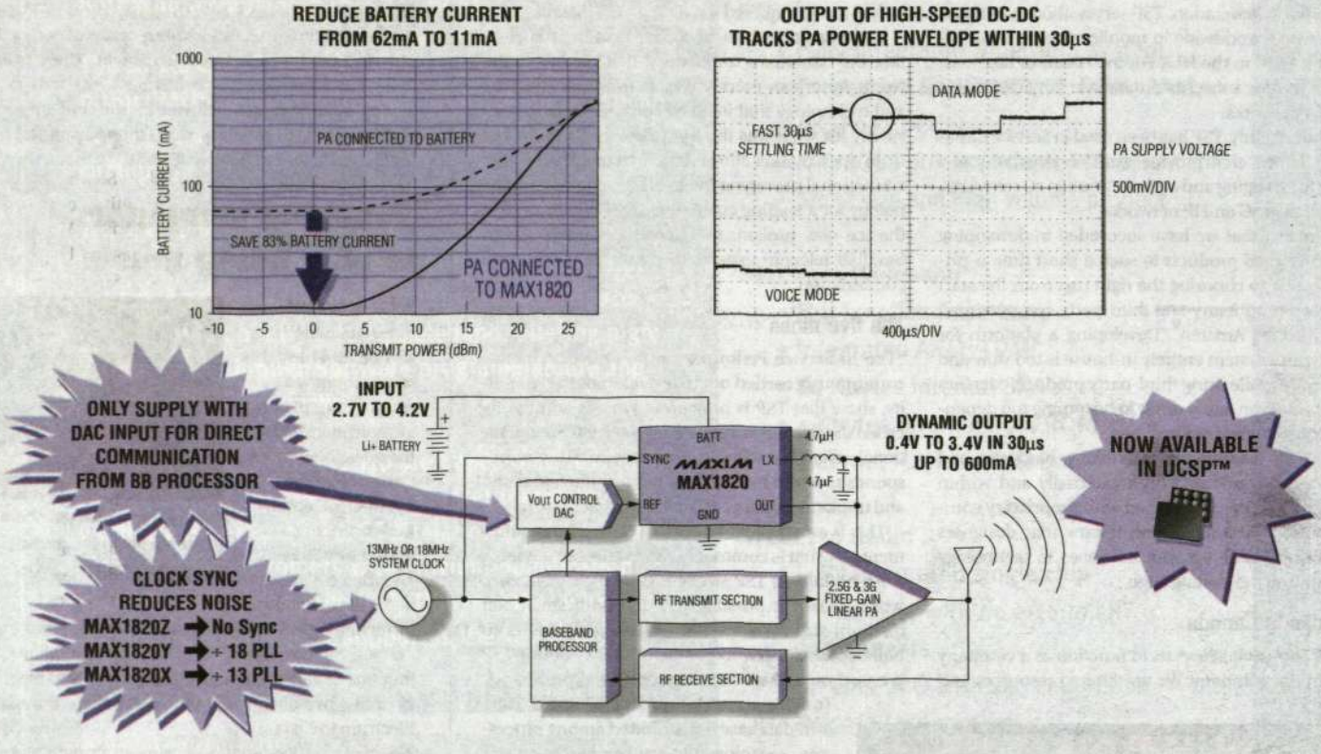

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Janne Peisa, Martin Stümpert and Johan Torsner rewarded by Jan Uddenfeldt and Kurt Hellström.

PHOTO: ANDERS ANJOU

Rewarded for patents

3G was in focus when CEO Kurt Hellström handed out the Inventor of the Year Awards at Ericsson's headquarters in Stockholm. Janne Peisa, Johan Torsner and Martin Stümpert were honored with a crystal dish and EUR 5,000 worth of Ericsson shares for their patented inventions related to the next generation telecommunications technology.

"Thanks to these inventors, among others, Ericsson has one of the worlds best 3G portfolios," says Director of IPR and Licensing, Tage Lövgren, who sat in the jury with Jan Uddenfeldt, Torbjörn Nilsson and Måns Ekelöf.

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from the archives

A fulfilling hobby is important to be happy at work. During the spring of 1946, *Contact* magazine surveyed what Ericsson employees did with their spare time. Toolmaker Albin Essing declared that his favorite thing was mending clocks and watches.

Response rewarded

Ericsson Response has received this year's Telecom Marketing Award, in the category Community Relations. The award is handed out by the Telecom Network and recognizes the best telecom marketing campaigns and programs. Companies of all sizes within the IT- and telecoms industry competed for the prestigious awards in a total of 15 categories. The Community Relations award is granted to the best "company-backed initiative aimed at supporting diverse and sustainable programs that enhance quality of life and opportunity within the community."

Nickolaos Varsakis and Christos Verelis completed the first 3G-call in Greece.

3G now also in Greece

The first public UMTS-call in South-East Europe was made in Greece as the Greek minister of Transportations and Telecommunications, Christos Verelis, called the CEO of Stet Hellas, Nickolaos Varsakis. Technical personnel from Ericsson participated as the call was made on an Ericsson UMTS trial system. Various UMTS applications, such as video calls and Web browsing, were also demonstrated.

new assignments

Johan Lallerstedt will assume the position as head of Market Unit North Africa and country manager of Egypt. He was previously head of Ericsson in Tunisia.

Staffan Svensson is the new head of System Business Area (SBA) Mature Products within Business Unit Systems. He will also continue as vice president of Special Products at Business Unit Global Services.

Victoria Strand has been appointed president of Ericsson Test Environments. She was previously head of System Business Area Mature Products at Business Unit Systems.

Susanne Lithander will be the new vice president of Finance at Business Unit Global Services. She was previously the president of Ericsson Test Environments.

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This group can tell you most everything that's happening at Ericsson right now. Front row: Johan Martin, Saphire Mann, Joakim Kedbrant. Back row: Lars Liljedahl, Mary Growdon, Joakim Forssell, Caryn Lewis, Eric Morrow, Annalisa Gordon and B.J. Mitchell. PHOTO: JOAKIM KEDBRANT

What is Contact Jeopardy?

In San Diego, the Strategic Supply Planning staff of business unit Mobile Systems CDMA decided to kill two birds with one stone: increase Ericsson knowledge and keep motivation up in tough times through group activities.

"I wanted to get to know more about Ericsson outside my own unit, and I realized others felt the same way," says Lars Liljedahl, senior program manager at Ericsson in San Diego.

With no money to spend, Lars Liljedahl soon realized that *Contact* was the ideal source of learning, not least as every employee already had access to it.

It has not taken long to make *Contact Jeopardy* a tradition, and it is now played before the staff meeting once a month. The appointed game leader composes questions using the most recent issue of *Contact*.

Some of the questions are general, while the bonus question is more obscure.

"Some, myself included, tend to stay more on the geographical side of things, and might ask in what country a certain contract with a certain operator was announced. Others," explains Lars Liljedahl, "are more numeric, and might ask how many new CDMA subscribers there were in China in the past month."

Preparing for the game premiere, a certain nervousness spread among the co-workers, and there were even elaborate attempts to get hold of the questions in advance. But all joking aside, Lars Liljedahl emphasizes that getting a break from work routines and having fun together is the most important thing, especially considering the current tough situation.

"It also gives everyone a reason to really sit down and read *Contact* carefully. During the days leading up to the staff meetings," he says laughingly, "it's not rare to see people grab an issue of *Contact* and disappear into their offices, armed with a highlighter."

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Play *Contact Jeopardy* here:

web.sd.us.am.ericsson.se/EWUO/EWUON/docs/EWUON%20Contact%20Jeopardy.ppt

column

LARS-GÖRAN HEDIN
corporate editor

Five minutes in the freezer

For a year and a half now, my colleagues at the Editorial Office and I have had the pure pleasure of learning to work with a completely new medium. Our weekly newscast, 5minutes, has allowed us to work with both the written word and moving pictures as modes of communication. 5minutes has given us 18 months of intense competence development, and many great moments in the editing room and in front of the camera. Gradually, we have come to realize how powerfully TV can convey a message. Perhaps most importantly for Ericsson, it also has the unbeatable ability to make management visible to the employees. All who have used 5minutes to keep an eye on what's happening at Ericsson can now put a face and a voice on Kurt Hellström and the rest of the corporate management.

Television has a lot to offer as a complement and "appetizer" to the more in-depth reporting in *Contact* and the faster daily news flow on Inside. On the downside, it is an expensive way of communicating. The high cost made the appetizer roughly twice as expensive as the main course, *Contact*.

Having said this, I hope that all 5minutes fans around the organization will understand why 5minutes won't join us into the New Year. The show that we record the week before Christmas will be the last for quite some time. The decision comes with the realization that in these difficult times, we all have to do our share of cost-cutting. Nonetheless, I remain convinced that we will be back, especially as we will need news based on sounds and moving pictures the day we are ready to begin distributing news to 3G terminals. As an industry leader within mobile communications, Ericsson simply has to be at the front line of this technology.

Until that day, we maintain our competence by producing video interviews with the management on a more ad-hoc basis, when the need arises. These will be published on Inside. We will also continue to produce TV for a number of customers within the company. Our extensive Ericsson video library is an enormous asset, making us a cost-efficient alternative for all who wish to use television in internal or external communication.

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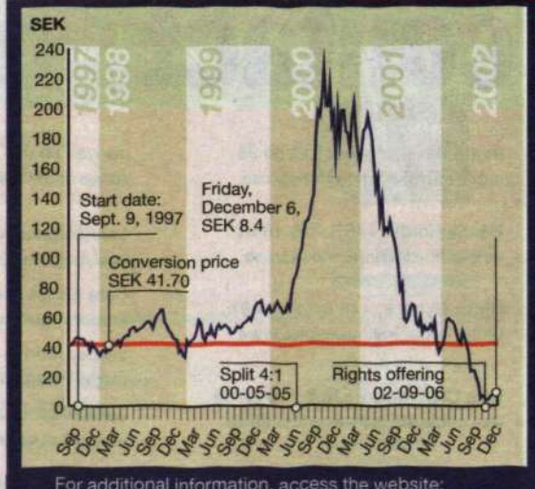

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