

NOKIA

# /insight:

Business Review 2000



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# www.nokia.com/insight

inside: Business Review of Nokia's Annual Report 2000

This document is Nokia's Business Review 2000.  
Together with Nokia's Financial Statements it forms  
Nokia's Annual Report 2000.

Please see the information regarding certain forward  
looking statements on the back cover of this review.

"In last year's Annual Report we said there were 'no limits' to future achievement. We still believe this and want to put our customers and investors firmly in the driving seat for the journey ahead. We believe we have the technological capability to change the way companies and individuals relate to one another.

Read this Report and in addition explore our new corporate reporting section at <http://www.nokia.com> for an insight into how we can fulfil the needs of all our stakeholders both today and tomorrow.

Our key objective is, quite simply, connecting people."

# Nokia in brief

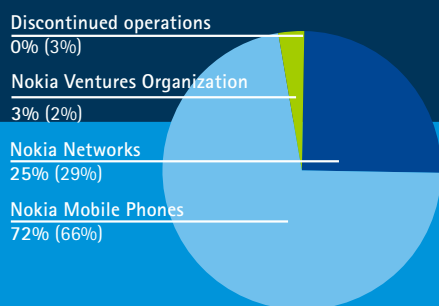
Nokia is the world leader in mobile communications. By adding mobility to the Internet, we are creating new opportunities for businesses and enriching the quality of life for individuals using our products.

Our 60 000 people operate as one team serving customers in 130 countries.

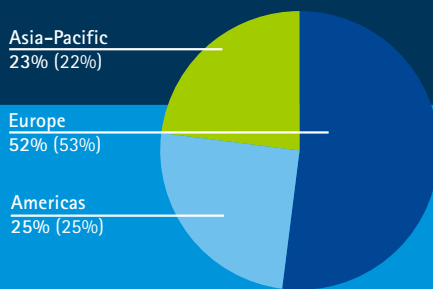
We are a broadly held company with listings on six major exchanges. We have production facilities in 10 countries and carry out research and development in 15 countries.

We have two business groups – Nokia Networks and Nokia Mobile Phones. The company also includes the Nokia Ventures Organization and the Nokia Research Center.

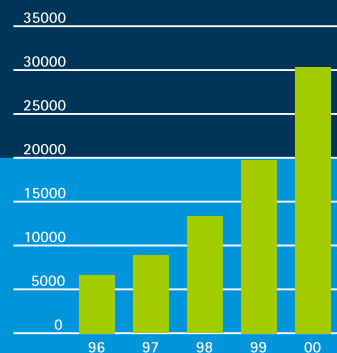
Net sales by business group  
2000 (1999)



Net sales by market area  
2000 (1999)



Nokia Group net sales  
EURm



**Nokia Networks** is a leading supplier of mobile, broadband, IP network infrastructure and related services. It also develops mobile Internet applications and solutions for operators and Internet Service Providers.

**Nokia Mobile Phones** is the world's largest mobile phone manufacturer, with a brand identity instantly recognisable around the globe.

**Nokia Ventures Organization** develops innovative new ideas for the home environment and the corporate world, expanding Nokia's business scope.

**Nokia Research Center** drives Nokia's technological competitiveness and renewal, through cooperation with our business groups and with universities, research institutes and other corporations.

# Highlights 2000

- operating profit up 48% to EUR 5.8 billion
- sales increased by 54% to EUR 30.4 billion
- dividend EUR 0.28, up 40%
- EPS, basic, split adjusted EUR 0.84

Nokia	2000, EURm	1999, EURm	Change, %
Net sales	30 376	19 772	54
Operating profit	5 776	3 908	48
Research and development	2 584	1 755	47

Personnel, Dec. 31	2000	1999	Change, %
Nokia Networks	23 965	23 718	1
Nokia Mobile Phones	28 047	23 775	18
Nokia Ventures Organization	2 570	1 879	37
Common Group Functions	5 707	5 888	-3
Nokia Group	60 289	55 260	9

Business Groups	2000, EURm	1999, EURm	Change, %
Nokia Networks			
Net sales	7 714	5 673	36
Operating profit	1 358	1 082	26
Research and development	1 013	777	30
Nokia Mobile Phones			
Net sales	21 887	13 182	66
Operating profit	4 879	3 099	57
Research and development	1 306	835	56
Nokia Ventures Organization			
Net sales	854	415	106
Operating profit	-387	-175	-121
Research and development	235	110	114

Currency rate at the end of 2000, 1 EUR = USD 0.890

## Strategic intent

Nokia's business objective is to strengthen its position as a leading systems and product supplier in the rapidly evolving global communications industry. Nokia's strategic intent is to take a leading, brand-recognized role in creating the Mobile Information Society by

- Combining mobility and the Internet
- Stimulating the creation of new services.

# Letter to our shareholders

## Making best execution an asset

In what can only be described as a challenging environment, Nokia's financial figures for 2000 were nothing short of extraordinary. Operating profit increased by 48% to almost EUR 5.8 billion, another historical high, and the operating margin was notably above the industry average. Net sales were up 54% to about EUR 30.4 billion and earnings per share showed another healthy increase, rising 50% to EUR 0.84 on an undiluted basis.

The year 2000 was characterized by the relentless pace of change, as the whole industry fought to adapt quickly to the changing requirements of customers, emerging technologies and high expectations. We feel confident and challenged by this environment and have set ourselves the highest ambitions for success.

The numbers we were able to achieve speak very strongly for the group of people we have at Nokia. It is a special kind of team that can produce four consecutive years of stellar results with the same kind of growth, and the same kind of commitment that you find here. For us, this was not just another year of good results. It was a year when we were able to outshine the industry. And this would not have been possible without the team we have.

### Not just what we do but the way we do it

So with a good team in place and another very encouraging set of results on the books, one might ask what else is there? We think execution matters. Good people and a strong balance sheet are only half our story.

Our experienced and unique way of operating is what we see as increasingly putting us ahead of the competition. As we move forward in this complex industry, winning will be less about what we do and more about the way we do it. This is what we firmly believe and this is also very much visible in our daily work.

Managing the flow of the 250 million components used daily in our mobile phone manufacturing means strict attention to logistics and scrutiny of every detail. In the networks business, it is our skill in timing parallel technology programs, from the development phase right through to manufacturing and implementation, that allows us to provide customers with a competitive edge. And in developing new businesses, the most efficient processes are imperative in identifying which new trees will make up the future forest.

Over the year, continuous increase in productivity has been a focal area in our organization. The priority has not been to grow the company in head count but rather to look inward for even better results, focusing on how we can increase the added value created by each Nokia person. If we look at the numbers, a 9% increase in personnel against a 54% surge in revenues, we clearly made progress in increasing efficiency.

Adding new people will not be a priority and certainly not something we will seek to do as a matter of course. Instead, we will work to maintain

an efficient network of top-quality people, each able to bring something extra to the table. We treasure the organization that we have now and the culture that together we have been able to create.

### Strengthening leadership in a profitable way

We are in a unique position to build on our long-established success. Our strong brand value combined with the volume advantages of our leading market share position, winning technologies, and proven excellence in execution can continue to translate well into profitable future growth.

Over the last three years, Nokia's mobile phone sales volume growth has consistently exceeded market growth. In 2000, we grew faster than the market during every quarter and in every region. In the network business we advanced our leading market share position.

As part of our strategy for sustaining leadership, we will work to broaden further the gap between us and the rest of the industry, in a profitable way, not only in volumes but also in the way we handle logistics and the way we manage our capital. It is in these efforts that our experience becomes a much-valued commodity.

### Getting the little things right

The ever-evolving technologies that have become the trademark of this industry continue to redefine our operating environment. Yet even as the variables change, our core competencies do not.

We have learnt to balance new ideas with the necessary experience to deliver them, and our experience counts for a great deal when it comes to timing and getting the right products to market in the right volumes to meet the right demand.

Nokia has been in this industry from the beginning. We understand the details and the importance of getting the little things right. In short, we strive to satisfy our customer needs in a cost-efficient way.

### Going the e-way

Our efficiency in execution is swiftly moving to the next level with Nokia's transformation into a global e-business that will support huge volumes in a faster, more flexible and customer-centric way. Here, we are not just creating a duplicate electronic organization alongside the old, we are re-inventing and re-skilling ourselves in preparation for a totally new way.

As part of the transformation we are moving from a static value chain towards what we call a value net. This cuts out unnecessary steps, and allows for a seamless customer experience through one Nokia window. The process of corporate-wide e-enablement is well underway with visible results already, and we are expecting e-business as usual by 2003, with substantially all of our revenues generated via e-mode.



The numbers we were able to achieve speak very strongly for the group of people we have at Nokia. It is a special kind of team that can produce four consecutive years of stellar results with the same kind of growth, and the same kind of commitment that you find here. For us, this was not just another year of good results. It was a year when we were able to outshine the industry. And this would not have been possible without the team we have.

Extracts from the letter read by Jorma Ollila and Pekka Ala-Pietilä can be accessed at [www.nokia.com/insight/ourobjectives](http://www.nokia.com/insight/ourobjectives)

The electronic way of operating is not only changing the way we generate revenues but the way we interact internally and with our stakeholders. Now, for example, you will find this report on the Web, in a much broader and more dynamic format than we could ever provide here on paper.

The Internet has already transformed the way most businesses operate and many people live. We want to go much further by creating a blueprint for all networks and standards to cooperate seamlessly. With our new Mobile Internet Technical Architecture we are bringing a range of new mobile business possibilities to our customers as well as developing a far more user-friendly experience in electronic services for everyone – on any network with any type of access.

### Finding new ways – as things change, we change with them

Our efforts to drive and shape the industry as a whole include continuous renewal of our own internal environment. In 2000, even with faster-than-market revenue growth, we stepped up our investment in R&D, employing nearly one third of the total Nokia team. This means an increasing share of resources today are being put towards the technologies that will benefit us tomorrow.

During the year we also increased our efforts in internal incubation and venture capital activities, putting in place an extensive network of business development professionals as well as a new US\$500 million fund. Both initiatives focus on areas away from Nokia's core operations.

Future growth areas include our new market leadership in security infrastructure for corporates, supplying solutions to help corporations block viruses and intruders at their network gateways. Demand from content providers for rights-enabled products is also increasing as more and more media is consumed in a mobile context.

We are intent on helping operators and providers create services with real usability and added value. During 2001, businesses and consumers will begin to enjoy a rollout of new interactive mobile services unimaginable in a fixed environment.

### The Nokia way – putting values into play

Nokia's success so far has been very much a team effort with our core values at the fore. Key to maintaining a sharp, competitive edge are speed and flexibility in decision-making. We make sure that decisions are made as close to the frontline as possible and by those people most knowledgeable.

The flat, non-hierarchical working style also works for us, nurturing discussion and openness as well as encouraging entrepreneurship and risk-taking. The Nokia way is a frame of mind based on mutual respect, and a willingness to work together in a constructive and even enjoyable way towards high-quality results.

Over the past few months, general economic uncertainty, the changing competitive landscape and caution over the timing of the transition to new wireless technologies have been viewed by some as clouds on the horizon. Certainly they have caused turbulence in the market. Nevertheless, our basic ideology about how mobility changes the way people live is firmly established and we look forward to the next generation of products and services. Our aspirations are high as we build on our strengths and our excellence in execution without compromise.

As we move closer to the mobile world and a new era in people's lives, we aim for continued strong leadership. With this in mind, we intend to further excel in our work and do our utmost to merit the trust that our shareholders have shown us.

**Jorma Ollila**  
Chairman and CEO

**Pekka Ala-Pietilä**  
President



# Heading towards an Internet world

Today's Internet and Internet Protocol (IP), the common language of all computers, are the driving forces behind the communications services people want, whether they are in the office, at home or on the move.

"To exploit it fully, mobile telephone networks need to change – and quickly – as the focus shifts from traditional voice to information services," says Vice President Petri Pöyhönen, of Nokia Networks.

Nokia is the vanguard of a global trend called 'Towards All IP' which will see mobile networks undergo dramatic change over the next couple of years.

From a user's point of view All IP networks will make the Internet more useful than ever before. It will become a natural extension of their personal communications providing the information and services they want at the right time without the need for time-consuming searching and downloading.

Other benefits will be based on streaming – a concept familiar in the data world – making real-time content streams such as voice, music, video clips and person-to-person video calls available on a range of mobile devices. Operators will gain from the All IP approach by providing such services efficiently

and cost effectively.

"Our role is to enable operators to create an end-user experience which is rewarding and inspiring enough to drive up their revenues. Those companies able to renew successfully and with sufficient speed stand to gain most in a rapidly changing marketplace," says Petri.

## User-friendly

Nokia has taken the lead in defining the architecture to create a user-friendly mobile Internet experience. The change has already begun with the deployment of General Packet Radio Services (GPRS) in the mobile networks.

GPRS carries information in digital 'packets' offering a new range of high-speed mobile services and 'always on' access to the Internet without the need to log on each time.

"GPRS is the first step towards All IP and has been a big success for Nokia because we have brought the technology to market very rapidly," says Petri.

Other access technologies such as Wideband CDMA are on the way as the mobile world moves towards Third Generation (3G) services which themselves depend on Internet Protocol.

Radio access apart, the core networks also need to evolve from traditional circuit switching – the backbone of telephone networks – to IP.

Petri explains: "An All IP infrastructure will bring more uniformity to an operator's networks so that voice and data can be carried in the same way."

At the moment, mobile voice calls still exceed mobile data traffic despite the phenomenal success of Short Message Service (SMS) text messages.

This is about to change, following the pattern in fixed-line networks where the vast amounts of data exchanged among corporate customers far exceeds the human race's ability to share information simply through talking.

Core networks are the service layer of the infrastructure in charge of mobility management. They also link all the various radio access technologies, which differ from operator to operator and provide common functions such as service management, charging, billing and registration.

## Excellent opportunities

An All IP environment presents excellent opportunities for conver-

gence and cost saving.

Good old voice services will still be provided in the new All IP world, resembling high capacity real-time transaction processing rather than traditional telephone switches.

"Reachability is a concept we have seen and understood in the telephone service – you can dial and reach anyone carrying a handset. The same idea will now be extended to the Internet so that applications that will be working for us in the Net can reach out to people giving them the information they want without them having to ask for it," says Petri.

"An All IP environment will enable individuals, groups of friends, teams of colleagues and communities to link up in a flexible way either directly or through messaging and automatic updates.

"The new network will enable easier collaborative interaction with our preferred contacts. We will be able to use the network to share a lot more about our whereabouts and our ability or willingness to engage in interactions. It will not be intrusive or violate people's desire to control their own communications," he says.

## Consumer choice – the way ahead

Mobile phones are commonplace around the world and people want to upgrade or replace them on a regular basis – once every two years is the current global average.

Today's customers want new features and functions and are looking for new models that best suit their individual needs and lifestyles.

Given Nokia's breadth of current products and innovative possibilities for the future, they are not likely to be disappointed as two of the latest models illustrate.

## Choice has never been greater!



### Nokia 3300 models

Designed particularly for younger users for whom the mobile phone is an important lifestyle accessory. Changeable coloured front and back covers, screen savers and downloadable ring tones make the phone more personal. The unique mobile chat function introduced with the Nokia 3310 allows users to chat with text messages whilst on the move. The phone also enables longer SMS messages to be exchanged by automatically connecting up to three messages together.



### Nokia 9210 Communicator

An integrated mobile multimedia device for mobile professionals combining phone, fax, e-mail, calendar, imaging, WAP and WWW. With a high-quality colour display it offers easy navigation and input. It is a dual band EGSM 900/1800 device capable of high data speeds for messaging, imaging and video clips. It also supports the most commonly used PC office applications making it possible to create Microsoft Word and Excel documents and view PowerPoint slides.



# Unfogging the mobile horizon

Nokia Mobile Phone's Chief Technology Officer Dr Yrjö Neuvo explains how mobile phone technology is evolving and what it would mean from a user's point of view. Dr Neuvo, a member of the Nokia Group Executive Board, answered by referring to a popular series of children's books!



**Neuvo:** I am a Harry Potter fan and in one of the stories the boy has to buy books for his new term at his school for wizards. The books are 'Unfogging the Future' and 'Predicting the Unpredictable'. That's exactly what I try to do!

The future is all about serving people better. The ongoing developments create good opportunities to enrich the way our products make people's lives easier.

The convergence of Internet and mobile phones is a clear direction we are following into the fog of the future. We have made great strides with WAP which enables people to start accessing the Internet from a mobile phone, and GPRS which will give faster speeds and a connection always on. Soon the third generation standards will be taken into use, enabling new attractive image and multimedia applications, along with new mobile Internet services.

**Insight:** What changes will users see?

**Neuvo:** The ability of the devices to serve users will constantly increase. For example, a phone can know where you are and can give a bus timetable for your next destination. You'll be able to pay your fare over a Bluetooth radio link without fumbling for change. All your data can be synchronised so that it's at your fingertips whether you are using a phone, lap-top, PDA, or any digital device.

**Insight:** How far away are we from such things?

**Neuvo:** Location-based services are steadily coming about. The technology is developing rapidly, and useful applications should not be too far in the future. Our first Bluetooth-based product is on its way to the markets, enabling a wireless and smooth connection between PC and phone. To develop the world's first data synchronisation protocol, Nokia helped to establish the SyncML initiative last year. All in all, there are many exciting developments going on.

**Insight:** If devices do more and more will they have to get bigger and heavier?

**Neuvo:** Not necessarily. Technology continues to shrink, as it has been doing for a long time. Segmentation of products will also increase to cater for different users. Instead of a single device that does everything, we will see different types of devices for different purposes. We can have small, speech-controlled phones for plain talking. Or communicators with more emphasis on a decent keyboard. More sophisticated multimedia content means higher data rates, larger colour screens, cameras, and more technical complexity. Such devices will not go to matchbox size.

New phone shapes will also appear, for example screens that roll out from phones like a large piece of paper – just like reading a book!

**Insight:** Evolution is all about adapting to needs – do users really need these things?

**Neuvo:** We cannot create need where none exists. But we can anticipate, identify and amplify unconscious needs, which are hidden at the moment – that's what unfogging the future is all about.

A certain basic need is connecting people. People want to eliminate distance and place and to have everything available wherever they are and whenever they want. They don't want

to worry about different technologies and want devices to co-operate so they can watch TV on a cellphone or make a phone call from a laptop. Therefore, we aim to make technology work as seamlessly as possible.

**Insight:** How difficult a challenge is this?

**Neuvo:** It takes a lot of work behind the scenes to make technology invisible to users. Nokia's Mobile Internet Technical Architecture is one key initiative, bringing all network environments, communications modes and services together to create a seamless user experience. It also goes back to segmentation. Some people might want a simple but fashionable phone that can give directions to the nearest garage if asked by speaking. Some users again might want to see two-way video or use multimedia applications. There's a lot we can do to add real value for users already with current technology. A key issue, however, is getting the timing right.

**Insight:** How do you do that?

**Neuvo:** That is exactly why I would like to get hold of those Harry Potter coursebooks!

Let me step a bit backwards. The so-called 'Metcalf's law' states that the value of a network is the square of the number of users connected. If only you and I have a phone, it soon gets pretty boring. But the more people we can connect with, the more real value the network and its applications have to us.

Exponential growth starts only after a particular technology or application has proved its worth during the initial phases and the word starts spreading about how useful it is. The growth curves of Internet and cellular phone penetration are good examples of Metcalfe's law in action.

Obviously, not all new things make hit products. History contains many examples of brilliant technologies that were brought into products only to never take off. The tough part is to unfog the future so much that you can jump on the right brooms, so to speak. We want to avoid the mistake of introducing things at the wrong time. That is why we carry out extensive research and market studies to really understand the value of technologies to users.

**Insight:** New ideas are critical – how do you ensure continuous innovation?

**Neuvo:** The profound changes going on in the world resulting from digital convergence, the Internet and wireless communications, result in an enormous potential. Future wireless developments like 3G are just elements of a deep transition where fascinating opportunities follow one another.

It is wise to leave some open space in products, thus having a window open for new ideas that come up as the future becomes unfogged. The Short Message Service is a classic example of this. Originally a simple extra channel left open in the GSM specification, it has become one of the real killer applications of the last years. Ideas with similar potential are what we are constantly looking for.

This industry is a melting pot of many exciting things. When a positive attitude towards innovation exists, brilliant ideas just seem to pop up around the company!



# Club creates customer loyalty

Games, music and imaging are among new treats in store for the ever growing band of Nokia mobile phone owners who are keeping in touch with the company through Club Nokia.

The Club, which is to become available in all Nokia regions during

2001, is open to every Nokia phone owner and, so far, several million people in over 20 countries have registered to join.

Club Nokia is all about information, support and fun. Through its customised website, the Club caters for every type of customer interaction



## A changing and dynamic market

The mobile phone industry is changing and, as customers become more sophisticated and demand more from their handsets, they are looking for new value when it comes to choosing what to buy.

In global terms, the market for mobile phone manufacturers continues to show impressive growth.

In 1992 there were only about ten million people in the world with a mobile phone. Our estimate for the global mobile subscriber base at the end of year 2000 is about 715 million, continuing to rise to over one billion in the first half of year 2002 – a hundred-fold rise in a decade.

The total number of handsets sold in 2000 was about 405 million – up from 280 million in 1999. In 2001, the total is estimated between 500 and 550 million.

In percentage terms, market growth is setting into lower levels as more and more people have mobile phones. However, for an industry of this size, market growth continues to be attractive.

On the other hand, the product life cycle of a mobile phone is around two years and the upgrade or replacement market is expected to grow from 40–50 per cent today, to 70–80 per cent in the next few years.

With the Internet going mobile the number of possible peer-to-peer or consumer-to-service connections is exploding and the way in which we are using our mobile phones is expanding. This offers tremendous new market opportunities.

Since customers are now familiar with the technology, and use it every day, the trend will be towards mobile phones that provide exactly what customers want. Called market segmentation, this trend will see a growing number of handsets and services which can be personalised to an individual's precise needs.

Heikki Norta, Vice President of Business Development at Nokia Mobile Phones, likens the change to buying a car.

When you buy your first car, it is likely to be a basic model but as you become more knowledgeable as a buyer and loyal to the brand of car you prefer, you will want your second, third and fourth cars to be much, much better.

"It's the same with mobile phones – the world's largest consumer electronics industry. Mobiles are more akin to wristwatches than computers because a typical owner may want to have a choice of several to suit their mood and needs at the time," he says.

In the past, operators used to concentrate on offering low-cost, basic handsets to attract new subscribers. Today, we see a wider variation in consumer prices reflecting different customer needs and product concepts.

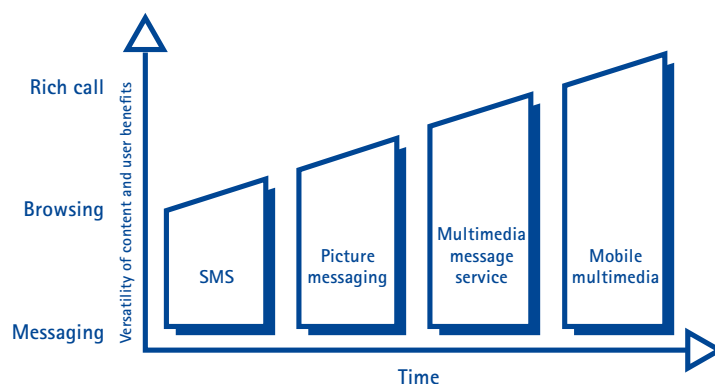
New categories of mobile phones are being developed. New features, functions and services are on the way to suit today's more sophisticated customers. And Nokia is at the forefront in giving them what they want.

### Nokia's mobile phone introductions in 2000

(model category and number)

Basic	Classic	Premium
3310 GSM 3390 GSM 1900 5165 TDMA 5185i CDMA	6185i CDMA 6210 GSM	8890 GSM
	<b>Tough</b>	<b>Media</b>
	6250 GSM	7160 TDMA 7190 GSM 1900
<b>Fashion</b>	<b>Communicator</b>	<b>i-Mode</b>
8260 TDMA 8290 GSM 1900 8250 GSM	9110i GSM 9210 GSM	NM502i

### Technological evolution



and features premium call centre support and service back-up.

Club Nokia is a multichannel service including WAP, WWW, and SMS access with personalisation as a key feature. Nokia will focus on terminal enhancing and complementary services such as ringing tones. A recent feature enables members to customise and send extra pictures to their Nokia Picture Messaging-enabled mobiles. They can also compose their own ringing tone or download a choice of caller group icons.

Regular content includes information on Club Nokia events in the member's area, new product releases, news about mobile technology, special offers, downloadable software, accessories and collectibles.

During 2001, the Club's whole user interface is to be reconfigured to make it even more friendly and to simplify links between users and the information they might need from any part of Nokia.

Markus Nilsson, Senior Manager, Club Nokia, says that the aim is to

create customer loyalty by establishing an emotional bond through continuous dialogue. It also adds value to the customer's experience of both new Nokia products and the company itself by providing services, support and information.

"Within the next few years, some 70–80 per cent of new mobile phones are estimated to be bought by people who already own one. Therefore maintaining customer loyalty is of vital importance to us. Club Nokia is also a branded sales

channel and very useful when it comes to selling new digital services with our partner organisations," he says.

Club Nokia is about customer care, too. In the first year, members receive free e-mail and phone support from the Club Nokia Careline.

Careline answers specific inquiries about phones and Club Nokia itself. Should a phone need attention, it directs members to the nearest service point.

# Relative values



**It's a Nokia! Ever since the early 1990s it's been easy to spot a Nokia mobile phone, not because they look alike but because they share the same fundamental principles of comfort, balance and pleasure of use, which forms the genetic code of a Nokia design.**

The designers at Nokia are determined to maintain this code in an array of new devices – including mobile communication devices, base station equipment and TV decoders – as the future unfolds.

UK Group Design Director Bill Sermon puts it this way: "It's a bit like spotting a distant relation across a room – you immediately know there's something familiar about them. We're not just designing individual products, we are creating a family that reflects the company's brand values in all that we do."

On the phones side of the business, this family feel was exposed in the early 1990s with the success of the Nokia 2110, which became an icon around the world with its large screen, clean design and easy to use interface.

In 2000, we launched a number of very different products from the rugged and durable Nokia 6250 which was designed to withstand being knocked about, to the sophisticated metal-cased Nokia 8890 and the colourful Nokia 3300 models for younger customers.

"They are all aimed at different consumers but, even at a distance, you just know it's a Nokia," says Bill.

The popularity of Wireless Application Protocol (WAP) phones which offer Internet access has already shown that mobile technology has moved a long way from making and receiving phone calls.

Progress towards Third Generation (3G) technology and the creation of the Mobile Internet Technical Architecture means that high

powered applications, and various information, entertainment and other wireless services, will become available whenever and wherever people want to use them.

Mobile devices will continue to be segmented into various product categories as witnessed by the evolution of Nokia products such as the Communicator, Fashion models or Premium phones. Forthcoming future models will enable multimedia messaging, various mobile transactions and services based on location, for example.

Such diverse applications will inevitably lead to devices of all shapes and sizes.

Whether it's phones or base station equipment, a consistency in design quality is essential.

Bill and his colleagues believe that good design is all about adapting to change, stretching and adapting the genetic code, but never quite breaking it!

## Nokia brand earns global recognition

The Nokia brand has become one of the most valuable in the world and is one of the company's key assets in securing long-term shareholder value.

Apart from world-wide recognition as a top Information Technology company, more than 50 per cent of the population aged between 16 and 75 on three continents now have spontaneous awareness of Nokia.

The brand is seen as an important business enabler and its value is measured as a percentage of market capitalisation, revenues and other performance indicators.

The Nokia name – used since 1865 and in its present logo form since 1976 – is protected in

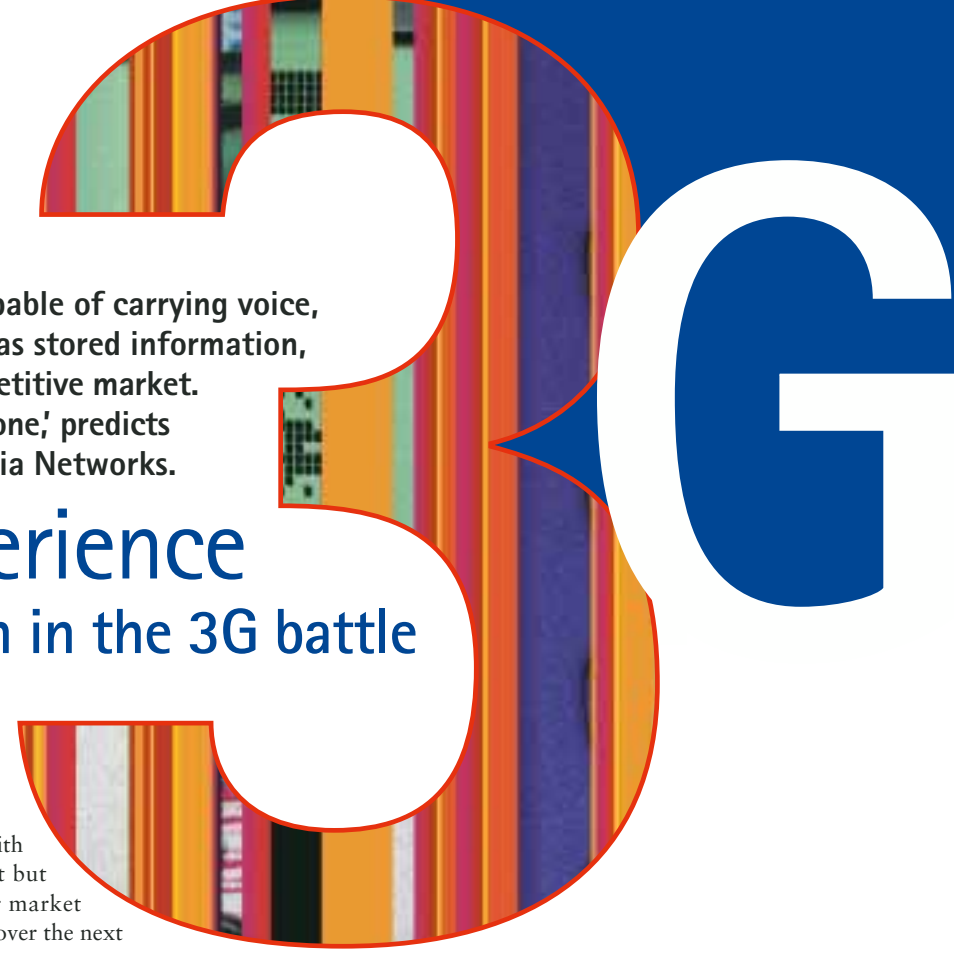
more than 140 countries. A similar number of registrations have been effected to protect Nokia as a top-level domain name.

Many registration authorities around the world have given official recognition to the company awarding it 'Well Known Trademark' status based on awareness amongst customers and the intensity, geographical extent and duration of its use.

## Nokia aligning the technologies of the mobile Internet

As the world leader in mobile communications Nokia wants to contribute to the development of the technical architecture for the mobile

Internet. The aim is to hide the technical complexity from the end-users and optimize the user experience through technical innovations in the mobile Internet. Nokia has taken a global initiative, Nokia Mobile Internet Technical Architecture, which aims to provide seamless interoperability among all interaction modes, in any network environment and with any type of access. The ultimate objective is to create a user-friendly mobile Internet experience for everyone. This will be done by identifying the relevant communication modes, by defining the key technologies required to support them and by driving industry participation to develop a common wireless Internet platform.



**Third Generation (3G) mobile radio, capable of carrying voice, data, text and graphics in real-time or as stored information, will launch straight into a fiercely competitive market. In fact it will be 'battle, right from day one,' predicts Vice President Christian Kurtén, of Nokia Networks.**

## **Speed and experience a winning combination in the 3G battle**

Nokia is supplying more than 100 operator customers with GSM, or Second Generation (2G), network equipment but more operators than ever are expected to compete for market share when 3G opens up a myriad of new opportunities over the next couple of years.

Most of the 2G operators will adapt their networks but they will face stronger international competition than ever before. They will also be joined by new operators from other industries and a new breed of Mobile Virtual Network Operators who will rely on others to provide the necessary infrastructure whilst concentrating exclusively on services for end-users.

Experience in the GSM world showed that operators who had their networks up and running first remained in a strong position. The same will be especially true of 3G when customers will want and demand far more than just voice services.

### **Dynamic environment**

"All this adds up to a very dynamic operating environment, full of opportunities but one with a new scale of challenges," says Christian.

"With 2G it was largely a matter of ensuring that base station sites could cope with the anticipated density of users who, after all, were doing more or less the same thing – talking."

"The 3G world will be more akin to the Internet and suddenly network planning gets a lot more complicated. However, we are simplifying this picture by creating a comprehensive technical architecture for the mobile Internet."

"Nokia's global Mobile Internet Technical Architecture initiative aims to provide seamless interoperability among all interaction modes, in any network environment and with any type of access."

Nokia's ability to produce fast turnkey solutions – all the way from initial planning, site acquisition, construction works, installation and commissioning – looks set to be in great demand. The company has already delivered GSM networks on a turnkey basis in almost 20 countries.

One of the fastest start-ups in the world looked to Nokia to help them get 700 000 customer connections in just 13 months. During one turnkey project, Nokia had 180 base stations up and running in just 12 weeks.

In anticipation of future demand, Nokia has strengthened its network implementation capabilities by selecting internationally recognised partners. The move will strengthen the role of Nokia Professional

Services which has over 5 500 staff around the world supported by an extensive network of local subcontractors and global partners as well as Nokia Online Services, providing round-the-clock support over the Internet.

### **Speed to market**

"By combining our strengths with those of our turnkey partners, we will enable faster implementation of new 3G networks and hence faster time to market," says Christian.

"Since 3G success is about speed, we want to make sure that Nokia's resources, project management skills, processes and partners are ready for 3G today."

Nokia expects a number of 2G operators, who will be busy running existing services, to opt for a turnkey solution for the first time with their 3G plans. New operators building on green field sites will also look to turnkey solutions because of the time pressures involved in starting their businesses. However, 3G is not the only option for operators.

Almost all existing GSM operators have chosen to implement GPRS, a recently introduced high-speed service which switches data in packets enabling 'always on' access to the Internet enhancing the services launched over Wireless Application Protocol (WAP) mobile phones.

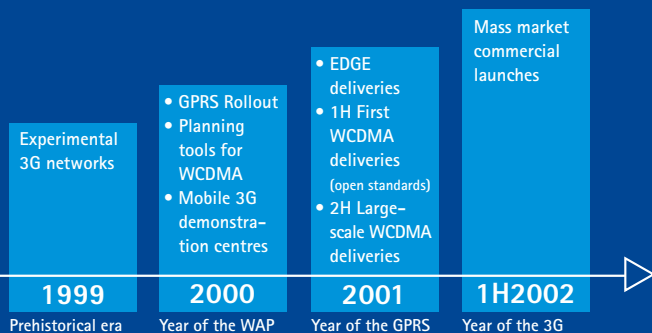
Operators may opt for EDGE – an enhanced technology which offers greater capacity for existing networks and new data services.

It is anticipated that operators will enhance their GPRS and voice performance with EDGE as their GSM networks continue to expand. EDGE can provide a cost-effective way of providing advanced service coverage and can be rolled out in conjunction with 3G on a nationwide basis.

"Operators will still invest in their GSM network since the frequency band remains a valuable resource and will continue to provide service for a number of years into the future," says Christian.

"There are many roads ahead and operators will have to be flexible and fast whilst learning about 3G," says Christian. "This is unexplored territory. We are all pioneers. But of course it will be a great help for operators to be able to set out into this new territory alongside an experienced partner like Nokia."





3G System timing and availability

## Personal Trusted Device:

My

voice calls  
messages and e-mail  
pictures and images  
music and video  
news and services  
location information  
calendar and tasks  
contacts and data  
financials and purchases  
transactions...

what I need right here, right now



# Making the Internet truly mobile

Exciting developments are taking place to bring highly personalised services to mobile phones at the time and place they are most needed.

Imagine going for a walk and knowing what the weather would be like on the route or buying a movie ticket over your mobile and then being shown how to get to the cinema from the point at which you made the call. These are some of the benefits on the way for future consumers.

Nokia Mobile Internet Applications is working on ways of combining the freedom of mobility with the huge amounts of data and services available today on the Internet. Some will be visible to customers and include new enhanced messaging, mobile commerce and entertainment services as well as charging and billing.

Other solutions, however, will be invisible for consumers but will underpin the changes ahead. These are based on Nokia middleware – a layer of reusable core functions – which will deliver services that are personal, intuitive to use, time and location specific and immediate.

“Adding mobility to the Internet is much more than adding wireless access to content designed to be viewed by someone sitting in front of a PC. Our work will enable highly personalised, location-based services to be delivered to any device at exactly the right moment. This requires a comprehensive approach taking all elements from the user interfaces to the underlying technical architecture into consideration,” says Vice President Niklas Savander of Nokia Networks.

Nokia is approaching its invisible task in three ways which, according to Niklas, will create a personal relevance triangle to deliver the services people want.

Firstly, new middleware will allow the mobile network to know exactly where you are

and translate that into a meaningful street address which can be used for giving directions.

Networks can easily work out the co-ordinates of your position but that's of little help if you've asked your mobile for the nearest florist only to find that you need to take a long detour over a bridge to get there. The network needs extra intelligence to suggest another florist which might be further away but much easier and faster to get to!

Such a system, called Nokia mPosition Solution, is designed to do this making existing services more useful through functions controlling time and location.

A second step involves ‘For Me’ personalisation. Imagine being able to profile your services so that messages from the office get diverted to voicemail once you are within sight on your home. Or to find a pizza parlour with a wood oven that happens to be serving your favourite special today... the possibilities are endless!

Thirdly, services need to be immediate and this will happen with GPRS networks which will give ‘always on’ access to the mobile Internet services.

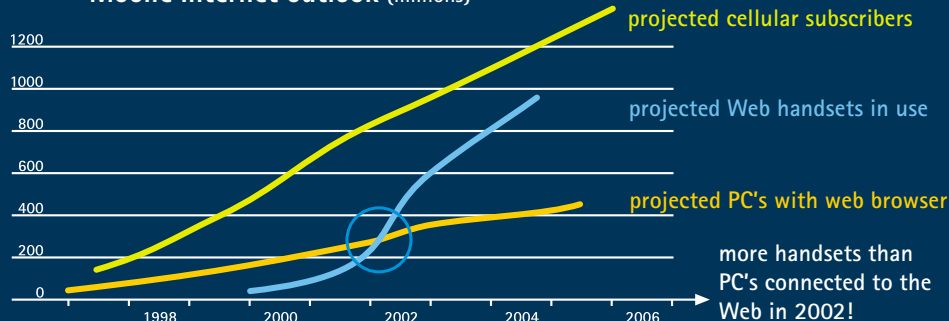
Middleware will present services in a natural way – like being told how to get to the cinema you've just bought a ticket for – without having to log on separately to various applications and click through countless screens.

Nokia is also active in four application areas which will be highly visible to consumers:

- Messaging – an evolution of the popular SMS service to embrace multimedia in the form of pictures and video clips and the ability to read e-mail on any type of device.
- Charging and billing – new systems capable of handling the micro billing generated by an explosion of small transactions.
- Mobile commerce – ways of making transactions secure through the use of digital signatures, and multiple payment methods.
- Entertainment – games and gaming platforms to fill that five minute wait with a little bit of fun.

Says Niklas: “At Nokia we aim to be the player that combines the Internet with mobility. In Mobile Internet Applications, we are creating the well functioning engine room that will make this possible.”

Mobile Internet outlook (millions)



# Web goes into fast spin

**The potential of high speed Internet access to change the way businesses of all kinds operate in the future has prompted Nokia to invest further in developing the broadband technology needed to make this happen.**

Digital Subscriber Line (DSL) technology is a way of exploiting the data carrying power of traditional copper networks to give true broadband access to the Internet at speeds in excess of 100 times that of conventional 56 Kbit/s computer modems that are in use today. This evolution in technology translates into enormous benefits for all consumers of Internet based content and applications – namely, the elimination of frustrating delays when downloading large files and the ability to utilize the Internet as a way to interact with streaming media (sound and video) applications.

Building on the basic benefits of high speed access, the powerful combination of Nokia's DSL and Virtual Private Network (VPN) technologies creates the secure, high speed, connection solution that makes telecommuting a realistic solution for remotely based employees.

The installation of DSL began in 1998 with America leading the way with just over 2 million subscribers today. However, the rest of the

world is also experiencing very rapid growth with over 40 million global DSL subscribers estimated by 2003. The rollout of DSL is subject to regulatory concerns, central to which is the issue of local loop unbundling – the opening up of the last mile of traditional copper networks to competitors. Dominant operators, who own the last mile as part of their networks, are being required to allow competitors to install DSL equipment in their exchanges and to compete with them on equal terms.

## DSL development

From a service provider's point of view, however, the introduction of DSL technology involves skilled manpower to install the necessary equipment at both the customers' premises and within their own networks. According to Pekka Virola, Director of Business Development at Nokia Broadband Systems, "global DSL deployment is still in its early days, but is clearly set to become one of the fastest growth areas in the industry. "Implementing DSL requires a lot of national level agreements between the parties. It is intended to open the doors to competition and boost national economies. In the US, the regulatory network enabling this was established several years ago. In the European Union, the process only started a year ago and progress has been fast, concluding with a regulation that became effective in all EU member countries on January 1, 2001.

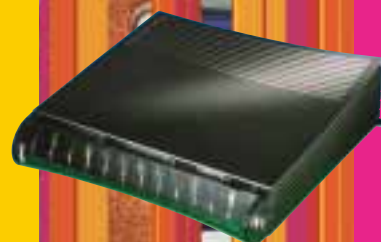
Additionally, the Nokia LoopMaster, an automated line provisioning, testing and loop management system, that helps service providers to rapidly install DSL lines complements

Nokia's long experience in broadband solutions and, in particular, the Nokia DSL Access Multiplexer product. The combination of the two is expected to open the floodgates for fast and profitable DSL deployment assisted by Nokia's global presence and international sales force. "DSL service providers will welcome our new portfolio and our aim is to become the world leader in broadband technology," says Pekka.

## New services

DSL also complements Nokia's existing mobility solutions. Wide Area Coverage would still depend on GSM networks which are being enhanced through GPRS packet switching and ultimately Third Generation (3G) technology. On the other hand, local area coverage can be introduced to the office or home which is connected to the network by a DSL connection. In this case the mobility is created through wireless LAN networks or Bluetooth short-range radio links, and the user can enjoy premium bandwidth. "Wide area coverage will always be at a premium but in fact most people will want both," says Pekka. DSL will not only create better business links but will prove a valuable asset in the home, too. New services as diverse as video, stock exchange information, games, books, music, sport, weather, traffic, transactions and multimedia content will become available and home shopping and e-business will also receive a tremendous boost.

Pekka concludes, "Broadband will enable many new ways of working and enjoying life. For the operators building the networks, Nokia has already delivered equipment into over 4500 central offices, which serve more than 90 million homes or offices, and the next three years will witness even stronger growth. For the users of the networks, Nokia launched in June 2000 the world's first gateway product for the home and office environment combining wireless LAN technologies to DSL. We are poised to remain at the forefront of the broadband revolution around the world."



Nokia MW series DSL/WLAN gateway

**Spending an evening at home will never be quite the same again as the Internet and broadcast media converge, promises Heikki Koskinen, Vice President and General Manager for Nokia Home Communications. A revolutionary new product, the Nokia Media Terminal, is being introduced for the connected home as part of a trend to promote open platforms and greater choice in domestic markets.**

Operating over broadband Digital Subscriber Lines (DSL) and broadcast technology, the Media Terminal brings fast Internet to the living room and with it a whole range of services based on open standards.

Amongst features on offer will be interactive services such as shopping and banking as well as the opportunity to pause and replay live broadcasts or split the screen between TV and the Internet.

Customers will also be able to watch digital TV and record to an integrated hard disk, play 3D network games, order video on demand,

send and receive e-mail with attachments, listen to and store MP3 music files and connect with printers, digital cameras and other devices.

The Media Terminal, based on open Internet technology (e.g. Linux), enables customers to unleash the full content of the Internet and enjoy greater entertainment choices.

It is part of a concerted effort by Nokia Home Communications, a unit within the Nokia Ventures Organization, to promote openness and end-to-end solutions – concepts aimed at stimulating freedom of choice amongst the vast amount of content now available over the Web

and from the broadcast world.

The Nokia Media Terminal is already winning awards. At the 2001 Consumer Electronics Show in Las Vegas, Nevada, the Media Terminal received TechTV's Best of CES Award in the video – television, video recorders, personal television – product category.

It has also received several design awards including Excellence in Swedish Design and an iF Product Design Award from Industrie Forum Design Hannover.

Nokia Home Communications is also making the source code – the computer language used by the Media Terminal – available to content developers in order to maximise freedom to create new applications. Developers will be offered a toolkit to enable them to reach wider audiences than ever before.

The release of source code is part of Nokia's open source strategy. The company is hoping that as many players as possible – consumers, application developers and hardware manu-

## Opening the door to home communication choice

facturers alike – will join in and help to push the industry forward.

In another move, also related to promoting open standards and choice, Nokia Home Communications is joining forces with Whirlpool, the world's leading domestic appliance manufacturer, in developing Internet Protocol (IP) products for communications, entertainment and wireless networking within the home.

Nokia has a unique insight in creating user-friendly interfaces for the home environment.

“Having an interface for a living room

product that looks like what's on your PC just won't work. A lot of effort is being spent on developing usability and in finding attractive ways for customers to manage the huge amount of content that open platforms and interoperability will put at their disposal,” says Heikki.

Nokia Home Communications' new products are based on broadband technologies and broadcasting providing far higher speeds than conventional telephone lines.

“We have been talking about interactive TV

for years but it's never been possible before because of technological limitations and proprietary solutions. By basing our products on Internet technology they will always develop at pace with the latest offerings. The potential market is huge – it ultimately means every home in the world.”

“The responsibility of Nokia Home Communications is to offer innovative products that today's savvy consumers want and to pave the way and help to shape the industry,” concludes Heikki.



Nokia Media Terminal is based on open standards and integrates digital TV and Internet



# Taking heart in Internet security

**The Internet has become the heart of business. But what happens if it skips a beat or stops altogether? The power of e-business lies in the ability to enable a one-to-one connection with customers.**

Nokia Internet Communications makes this relationship possible by bringing a new level of security and reliability to the network – enabling an Internet transaction that is personal and trusted. Each and every time.

Companies are rapidly shifting away from the idea of ‘e-business’ to simply ‘business’ with the Internet at the core. All businesses require technology that works. They need to expand their market, maximize customer satisfaction and retention, and increase profits while reducing expenses. Reliability and scalability are fundamental to the success of any business.

In such a world, lost information means lost revenue and the network downtime involved in putting matters right could run into millions and even billions of dollars.

Companies concerned about the security and reliability of their networks are turning to Nokia for help.

## Trusted transactions

Whether conducting an online transaction via a mobile device or accessing a corporate network from a corporate satellite or branch office, the connection needs to be a ‘trusted’ one.

The risks involved in compromised network security and integrity are unavoidable whether you’re a large enterprise, managed service provider or small Internet company.

Increasingly, the Internet is being used for electronic transactions and in many organisations it is replacing private circuits as the communications lifeline between offices and sites.

The strain on already stretched networks can be expected to increase as a result of extra traffic from mobile access by a multitude of new mobile devices including, amongst others, Personal Digital Assistants (PDAs).

While the Internet is convenient and cost effective, there are risks attached in moving your entire business online. That’s why companies are turning to Nokia, one of the world’s most recognised global brands, delivering innovative technology and secure, reliable solutions.

Nokia has a 44 per cent market share in the high-end Virtual Private Network (VPN) hardware market and has been consistently rated among the top companies and brands in the world.

## More than mobile phones

While the Nokia brand is synonymous with being the leader in mobile communications, this past year has demonstrated that Nokia is also a strong player in the Internet space.

Markets for Nokia Internet Communications’ network security and VPN solutions are growing fast and revenues are expected to exceed EUR 500 million in 2001. Targeted annual revenue growth is at least 50 per cent and Nokia Internet Communications is expected to reach the break-even point during 2002.

Nokia’s strong global brand recognition and reputation has certainly fostered much of Nokia Internet Communications’ rapid growth. The unit has also developed an impressive, award-winning portfolio of products and solutions designed to meet any organization’s most challenging security issues.

## Proper security policy

A company’s security policy was once thought to be sufficiently served by installing a firewall. However, a proper security policy can be defined in many ways depending on the needs of the organization.

Firewall protection, intrusion detection, virus protection, network extension/VPN technologies and encryption/authentication techniques play a vital role in implementing the network security policy every business needs.

Protecting and extending the network has never been more important than it is today, as companies are finally realising. Secure Internet communications are a must and the appropriate security policy has to be simple to install and manage while offering flexibility, continuous availability and significant cost savings.

Nokia Internet Communications’ solutions offer all these things to put the Internet at the heart of any business and ensure that it never misses a beat!

## Nokia Internet Communications

Nokia Internet Communications, headquartered in Mountain View, California, provides world class network security and virtual private network solutions that assure the security and reliability of enterprise and managed service provider networks.

Employing over 1700 people around the world at the end of the year 2000, Nokia Internet Communications invests approximately 50 percent of its talent pool in research and development.

## Network protection

Our network protection portfolio makes your network safe for business with its unique line of purpose-built IP network security appliances. Through partnerships with leading security application providers such as Check Point Software Technologies, Internet Security Systems (ISS), McAfee and OpenService, Nokia enables a reassuring environment for users and customers who can be confident that their network and mobile transactions are secure and reliable.

## Virtual Private Networks

Nokia solutions also offer choices in extending a company’s private Intranet out to employees, trusted partners, and mobile users. As a result, many organisations are finding it less expensive to move from a dedicated infrastructure such as private circuits towards Virtual Private Networks created over the Internet. Nokia’s dedicated VPN solutions provide a reliable, scalable and secure extension to the corporate network through patented IP Clustering technology to eliminate any single point of failure delivering bulletproof reliability.

# Investing in the future

**The pursuit of new ideas is an everyday activity at Nokia. But Nokia Ventures Organization looks beyond the expected, as Nokia's President Pekka Ala-Pietilä explains.**

Nokia believes in the power of corporate venturing, and is looking for substantial and sustainable new business ideas outside the natural development path of current core businesses.

While the 'core' business units such as Nokia Mobile Phones and Nokia Networks invest heavily in their own new developments, Nokia Ventures Organization takes a broader view to push the frontiers past what we can do today to what we can envision for tomorrow and beyond. Although Nokia Ventures Organization is only two years old, it has achieved several successes. Notably, the Nokia Internet Communications unit has developed a leading portfolio of Internet security solutions for corporate customers – see story on page 14.

As there is no single model for innovation, Nokia Ventures Organization uses a variety of tools and approaches to create its portfolio of new businesses. Looking to the outside world, Nokia Venture Partners, established in 1998, is an independent venture capital fund which has already made investments in 25 companies in the US, the UK, Germany and Finland.

Our next targets will be Israel and the Asia Pacific region which both have tremendous potential in the mobile Internet sector.

The idea of the fund – based in Menlo Park, California, with offices in Washington, London and Helsinki – is to build partnerships with leading-edge wireless technology companies targeting high-growth market opportunities.

The fund has a portfolio of investments which goes far beyond Nokia's current efforts with the aim of supporting entrepreneurs in building successful businesses.

Nokia has already established a strong track record in leveraging the company's combined resources, experience and contacts to help these entrepreneurs build their business cases.

The first fund has invested most of its \$150 million and, in December 2000, Nokia created a second fund of \$500 million, in partnership with outside investors including Goldman Sachs, BMC Software and CDB WebTech.

The fund is looking for ideas that will generate both a return on investment and enable Nokia to learn from exposure to new technologies, markets and business models.

Unlike some corporate funds, we are not only focusing on investments in our own key technology areas. Nokia Venture Partners is not about creating markets for Nokia – it's about having an early view of developments in the Internet economy and sensing any weak signals from the market place.

## Nokia's entrepreneurial Web

Nokia Ventures Organization seeks out and incubates new ideas from within the company itself as well as from outside. In addition to the external fund, Nokia Ventures Organization contains a 'greenhouse' for internal venturing. Many of the new businesses are a result of the venturing process combining Nokia's current strengths to new ideas and solutions. Examples of this process are Nokia Mobile Display Appliances and Nokia Home Communications which you can read about on page 13.

The greenhouse includes the Nokia Entrepreneurial Web – a new type of a network organization for business development professionals.

Typically, ideas do not grow from conception into a major business in a smooth progression – we identify synergies between new ideas and existing processes to speed things along.

Effective management, a strong entrepreneurial spirit and a variety of new business development tools are key. We have therefore recently divided the Nokia Entrepreneurial Web into three areas:

- **Insight and Foresight** – a unit which doesn't work on concrete business plans but rather with research and new business creation projects to identify market trends and disruptive technologies which are going to affect future markets. This way it can contribute to Nokia's renewal and find new emerging opportunities. The unit uses a multitude of approaches to benefit from the synthesis of an end-user/market perspective and a technology perspective.
- **nVentures** – an internal incubator which works along similar lines to the external venture capital world and provides seed finance for ideas within the company. The staff involved are expected to act as entrepreneurs with strong personal commitment and contribution to the new business projects.
- **New Growth Businesses** – develops and creates new substantial and sustainable businesses within Nokia. The unit is geared to ramp up and operationalize businesses and is using Nokia's strategic assets in the new business development.

At Nokia, we look upon new ideas as the 'engine' which drives us into the future.

And we believe there's much, much more to come!

Nokia Internet Communications' head office is located in Mountain View, California



# Nokia in Singapore

## Cultural diversity under the microscope

### Diversity – a way of life

Alan Bentley, aged 45, is British and works as Vice President, Human Resources for the Asia Pacific region which puts him in an excellent position to assess the way cultural diversity affects day-to-day operations.

"We are a multi-cultural organisation doing business in a multi-cultural environment. I don't believe that we would have been able to create the relationships with customers and business partners that we enjoy today if our mix of people had not closely reflected that of our markets."

"In our office in Singapore a total of 25 languages are spoken, giving at least one indication of the level of diversity, and while you would think that this could give rise to confusion, it has not been the case. In fact my experience is a positive one with people helping each other out in both their business and private lives. Despite the fact people from different parts of the world seem to address problems in different ways and from different angles, putting our people together in teams has produced very positive and creative solutions. Diversity is a way of life for us and it has come naturally from an approach of selecting the best people available to join our team," says Alan.



**Alan Nicklos**, aged 41, is Australian and is General Manager, Nokia Mobile Phones, Singapore.

Singapore is the most Western country in Asia and local people and visitors are bombarded with brand names known the world over, says Alan. The Nokia brand can be seen everywhere and branded goods of all kinds are doing a roaring trade at the recently opened Nokia Care Centre in Orchard Road in the heart of the city. The Centre sells the full range of Nokia products and

offers visitors a cyber café where they can surf the Internet and download ringing tones. It also sells Nokia branded merchandise which is very popular with the brand conscious Singaporeans. "During the launch of the Nokia Care Centre we sold out of all our merchandise in the first week", says Alan. The country acts as a shop window for quality merchandise and is small enough for news and trends to spread like wildfire.

"You can drive through the city in minutes and whatever

**Sharon Lee**, aged 29, is Chinese Singaporean and works as a Customer Service Manager, Nokia Mobile Phones, Asia Pacific.

Sharon's office deals with 14 Asia Pacific countries and interacting with people from different backgrounds is an inescapable fact of daily life.

Her role in strategy and value added services in the after-market services department seldom puts her in direct contact with end users but her command of several languages includ-

ing Mandarin and Cantonese is very useful.

Even with Cantonese, the slang is different between Singapore and Hong Kong and she enjoys keeping in practice.

One point she stresses to colleagues is that in Hong Kong the locals prefer to be described as 'Hong Kongers.' Elsewhere in Asia Pacific countries people from Hong Kong are known as 'Honkies' which can sound like 'donkies' even though the term is not intended as an insult!



**Ilkka Wijkberg**, aged 34, is Finnish and works as Business Operations Manager, Nokia Networks, Asia Pacific.

Ilkka travels extensively for Nokia Networks which builds the infrastructure for operator customers in countries as culturally and economically diverse as India, Australia, Taiwan, Japan, Indonesia, Vietnam and South Korea.

Nokia Networks, recently awarded a contract to build a 3G network for Singaporean operator M1, looks to establish

long-term customer relations. "Local etiquette and customs do play a role but I think attitude is far more important. The Nokia Values – particularly Respect for the Individual – help you to manage in any culture," says Ilkka.

"If you respect people in other cultures it doesn't matter about the small things such as knowing exactly what to say and how to dress in certain situations.

"The business world has its own global customs and I always

**Danesh Daryanani**, aged 36, is Indian Singaporean and is Head of Marketing Communications, Nokia Mobile Phones, Asia Pacific.

As an Indian Singaporean, Danesh is in a group representing only 8 per cent of the island's 3.9 million population.

"If you work in Singapore it's the norm rather than the exception to deal with different races and cultures. The country is built on the principles of racial and religious harmony. It's a very diverse and interesting place," he says.

His colleagues include Italians – who tend to be very passionate about things, he says – and Australians who appear more laid back. The majority of his own team members are Singaporean Chinese and mainly women.

"Everyone has got their own cultural traits but we all work together very well as a team." Danesh's biggest achievement has been helping to develop a brand strategy that has been differentiating, relevant and motivating to Nokia's customers across all cul-



Singapore, a cultural mosaic of different nationalities, languages and religions, has a special significance for Nokia.

Recently ranked as the most 'globalised' nation in the world, the small island at the tip of the Malaya peninsula is home for some 700 Nokia people of 30 different nationalities who serve both the local market and act as a regional hub for 14 Asia Pacific markets.

In this extended feature, we look at how Nokia's own cultural diversity and networked approach to business has found a powerful resonance with the Singaporean way of life.

Our people find that living and working there acts as a stimulus to creativity and new ideas. They also find it fun – surrounded by such cultural riches there's never a dull moment!

Their experiences have shown there to be more similarities than differences between team members from different ethnic backgrounds. The same goes for the customers they serve.

As one member of staff put it, the Nokia Values – particularly Respect for the Individual – bridges the ethnic divide and a 'smile is a smile' the world over...



happens in Singapore everyone knows about it in an hour or two. It's like having a country under a microscope which is very useful in getting quick feedback on everything we do."

Singaporeans tend to change their mobile phones every six to nine months and are extremely fashion-conscious in what they buy. Best sellers at the moment are the Nokia 3310, 3210, 8210 and 8850. Short messaging services (SMS) are extremely popular too. "If you go to the movies all you can see when the lights

go down is a sea of mobile phone screens because people would rather message one another than watch the film!" Despite their comparative wealth, Singaporeans tend to take taxis rather than run their own cars. Taxis are cheap, but there's local etiquette involved in hailing one. "Don't shout and wave your arms about like you would in London or New York because that's considered rude. Just hold out your hand, with the palm facing downwards, and wiggle your fingers around. They come!"

It's also important not to point with your index finger when showing someone directions, especially in Malaysia. The gesture is considered highly offensive and a thumb should be used instead, she recommends.

Although business is usually conducted in English, a knowledge of other languages helps her, particularly when it comes to evaluating tender proposals from potential suppliers.

"If you can speak their language people tend to be more

open with you and it makes the job of finding out whether they are really suitable much easier."

Sharon finds the culture gap between North Asia and countries like Korea and Japan particularly wide.

"We have colleagues who are posted full time to Korea and Japan and it's easier to get under the skin of a culture if you live there full time. One of the frustrations of a regional environment is that you feel you are skimming the surface," she says.



find that the differences between individuals are generally far greater than the differences between cultures."

Ilkka thinks the Singaporean approach to life has much to offer the West and is particularly impressed with the team spirit which runs through such things as transportation and education.

"The people here are prepared to work together to get a job done. They don't talk about personalities and target individuals for blame."

Sometimes, however, details of etiquette can cause misunderstandings as Ilkka found on his first trip to India.

"I was in a meeting and everyone kept shaking their heads. I thought they were disagreeing with everything I said until someone told me that to shake your head in India means 'Yes' and a nod means 'No.' It was very confusing!"

tures in the Asia Pacific region. Danesh joined the company from Coke – a brand literally on everybody's lips – in 1993 when few people in Singapore had heard of Nokia.

"We have managed to build a brand coherently and consistently across 13 different markets. That took a lot of teamwork involving all our resources in China, Hong Kong, Australia and all the other countries we deal with."

Such an effort has required a lot of meetings and constant

communications with colleagues and customers.

"One of the best aspects of my job is being able to get on with it. Nokia is an apolitical organisation and people pull together passionately to do the same thing – and working in such a team is very satisfying."

The worst part? "It's the e-mails! If I'm out of the office for a couple of days there will be 200 of them waiting for me but I have to accept it as a part of the job."



# Achieving success – the Nokia Way

Nokia measures itself against, and often exceeds, the best achievements in the high technology sector.

But we can only maintain our leading position on a global stage through the skill, enthusiasm and positive attitude of Nokia people wherever in the world they may work.

The company employs 60 000 people of 70 different nationalities and our cultural diversity helps to stimulate innovation.

We aim to behave with the freshness of a start-up company. As a large but closely-knit team, we consider it vital that we share the same goals and objectives when looking after customers and stakeholders.

This can only be maintained by a shared commitment to meeting the challenges that lie ahead.

We achieve our objectives through what we call the Nokia Way – a style of working which enables our people to work together in harmony as a team whilst stretching the abilities of individuals whatever their role within the company.

The Nokia Way is built on core values of Customer Satisfaction, Respect for the Individual, Achievement and Continuous Learning.

These, together with a flat, networked operational structure and value-based leadership stimulates personal growth.

Our people are encouraged to develop speed, quality, openness, integrity, teamwork, humbleness, accountability, responsibility and empowerment in their day-to-day dealings.

Such strengths are keenly fostered and willingly given. The Nokia Way is a frame of mind based on respect, an eagerness to learn and a pride in the achievements we have made to delight our customers.

## Ethical conduct

The principles by which Nokia conducts its business go far beyond the confines of the company itself.

We are strongly committed to the highest standards of ethical conduct and observe all applicable national and internal laws.

These include antitrust laws and the promotion of fair competition; preventing bribery and illicit payments; safety; the environment and the protection of intellectual property.

On human rights, we believe in freedom from any discrimination based on race, colour, sex, language, religion, political or other opinion and national or social origin.

As a global Corporate Citizen, we also believe in freedom from arbitrary detention, execution or torture; the freedom of peaceful assembly and the freedom of thought, expression, conscience and religion.

**The Nokia Way and our ethical stance in the wider world lies behind everything we do and plays a large part in the success and recognition the company has earned.**

## Measuring success

The success of our aims lies in the hearts and minds of our people. Every year we ask an independent research company to conduct a 'Listening to You' survey which not only looks at how we think we are doing but compares the results with external benchmarks from the best high-performance companies around the world.

This year, the keynote rating – overall satisfaction – remained high with Nokia continuing to score above the benchmark for high-performance companies, irrespective of industry.

Our participants backed our commitment to customer satisfaction with the highest figure achieved by anyone, apart from Nokia itself in 1998/99.

Business focus remained strong with respondents stating that they had a clear understanding of their goals and objectives, again above the high-performance company norm.

Confidence in Nokia's quality culture is higher this year with management perceived as doing a better job in implementing processes and programmes, providing tools and investing in training.

Training and development itself scored well and remain ahead of the norm for comparable companies.

## Rewarding performance

Nokia maintains its long track record of good relations with its people. Despite a global scarcity of IT and skilled communications people, the company continues to attract a high intake of top quality recruits and more than half of those who completed the 'Listening to You' survey had been with the company for less than three years.

During 2000, we continued to work towards performance-based compensation with emphasis on the payment of incentives for achievement of clearly specified and measured targets. The share options scheme was extended from 5 000 to over 16 000 individuals and, under the Nokia Connecting People Bonus Plan, over 88 million euros will be paid out based on 2000 performance.

**Confidence and commitment to the Nokia culture have remained high during 2000. The way ahead remains the Nokia Way.**

for more insight into Nokia's ethical concerns please visit our corporate website: [www.nokia.com/insight](http://www.nokia.com/insight)



# Mobile phones and health

A report by Peter Harrison

Many electrical devices around the home or office create electromagnetic fields; TV's, radios, PC's, hairdryers to name a few.

The phenomenon of electromagnetic fields has been known for more than a century, but only relatively recently has speculation about possible effects on human health been made. As a result, there are calls for more information to be made available to customers on this important subject.

Nokia is committed to bringing such information to customers and has an ongoing research sponsorship programme in this area.

The company is addressing research into mobile phone safety at a global level. The World Health Organisation (WHO) has published an 'EMF Research Agenda' listing recommendations for further research needed to enable a better health risk assessment to be made.

Nokia has joined forces with many other leading manufacturers around the world to conduct research within a global framework. The company is also pooling resources to systematically address the WHO recommendations through the Mobile Manufacturers Forum, a global association formed in 1998.

Over the years, a substantial amount of scientific research has been conducted into radiofrequency (RF) energy emitted by mobile phones and their base stations. Independent expert panels have reviewed the findings of many hundreds of studies; consistently the conclusions of these reviews are that there is no demonstrated health risk.

- During 2000, WHO updated its fact sheet with the most recent findings and determined that, **'None of the recent reviews have concluded that exposure to the RF fields from mobile phones or their base stations causes any adverse health consequence.'** [Source: WHO Fact Sheet 193, June 2000]
- The United States Food and Drug Administrations agrees and states that, **'The available scientific evidence does not demonstrate any adverse health effects associated with the use of mobile phones.'** [Source: US FDA CDRH Consumer Update on Mobile Phones, 20 Oct 1999]

Although a large amount of technical data is available there has, until now, been a lack of common, global benchmarks which might prove helpful to bringing meaningful information to customers.

Standardised test methods are now becoming available and a new way of making relevant information accessible began at the end of 2000 with the publication of some technical data.

The aim is to give customers understandable information relating to the exposure levels of their mobile phones. The levels are calculated as the Specific Absorption Rate or SAR which is a measure of the quantity of radiowaves absorbed by the body.

These latest developments are all about presenting such information in a way that is helpful and meaningful to customers.

Through the industry trade body in the United States – the Cellular Telecommunications & Internet Association (CTIA) – Nokia has agreed to make SAR values available and to put information, expressed simply, on packaging and within user guides.

During 2001, such information will be more widely available in regions other than the USA as standardised testing methodologies are established.

By making SAR information available in a standardised way, customers will be in a position to make informed choices about their mobile phone performance.

The SAR values of individual models of mobile phones will vary, and some will be higher than others.

All Nokia mobile phones are designed to comply with science-based safety standards and recommendations. The industry is viewing the publication of this information as a means to enable informed choice.

Radio frequency energy is an inescapable fact of life. Our homes and offices contain many devices that emit electromagnetic fields. Indeed, sunlight itself is part of the electromagnetic spectrum and, as our chart shows, acts as the divide between non-ionising energy, which can cause heating and ionising energy which can cause molecular change.

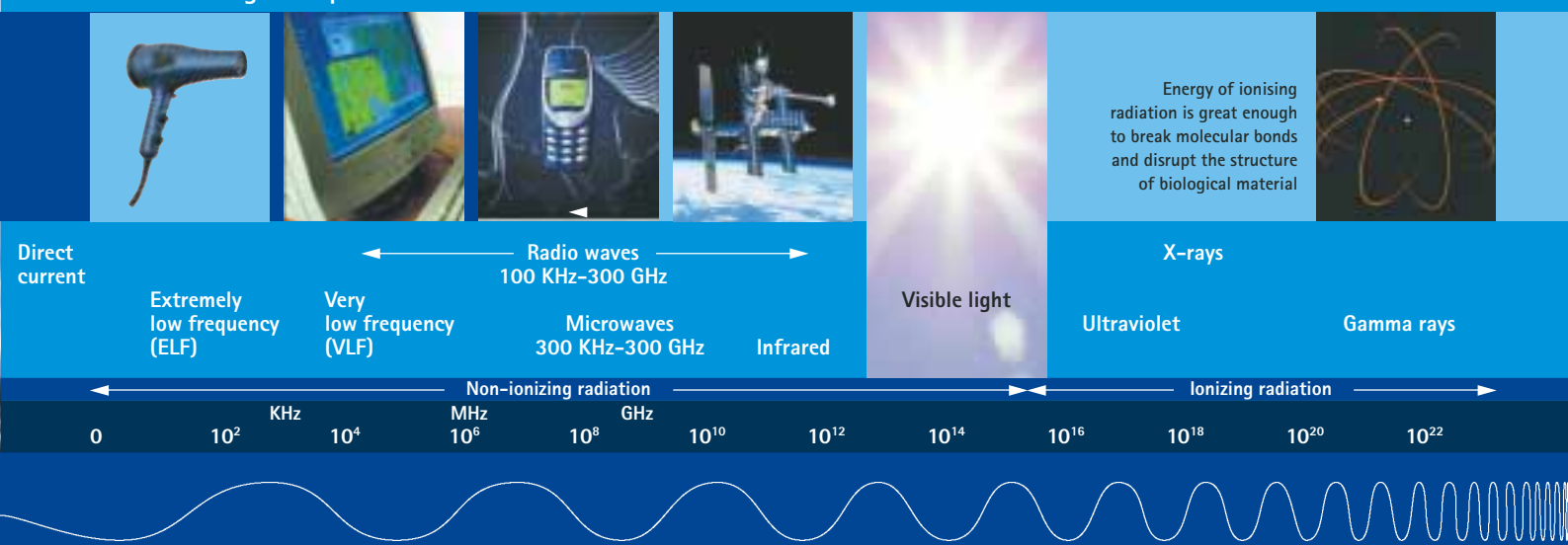
Mobile phones operate firmly within the non-ionising part of the spectrum. When radiowaves are absorbed by the body, they produce heat energy at low levels that are well understood and very significantly below any adverse heating effect.

Peter Harrison is Nokia Director of Electromagnetic Fields (EMF) issues and is current Chairman of the Mobile Manufacturers Forum, a body which co-ordinates research and policy on behalf of all the world's leading mobile phone manufacturers.

In rare instances, claims that mobile phones cause adverse health effects have been made into the subject of legal cases. All of those decided so far by any courts of law worldwide, have been dismissed for lack of evidence.

Currently, there are two cases ongoing in the USA where Nokia and other defendants have been named. Nokia believes that the allegations made in these cases are without merit and will defend these actions vigorously.

## The electromagnetic spectrum







# Breathing life into appliances

Intelligent meeting rooms, homes and offices which can recognise human visitors by sight and sound and 'learn' what they might need, could result from a five year research project involving some of the world's best brains.

Nokia, which has been involved with the internationally renowned Massachusetts Institute of Technology (MIT) for a number of years, is taking part in the ambitious Oxygen Project which will challenge the role of computers as we know them

## Grooming talent for the future

### Students find world of opportunity

In its drive to attract and retain the best talent, Nokia offers students the opportunity to work all over the world.

Nokia's Student Exchange Programme is highly unusual in that it enables students to train in most of the countries in which the company operates.

Aimed at building a future talented workforce, the Programme complements Nokia's long tradition of offering traineeships to local students within their home countries.

It plays an important part in staff recruitment because the majority of students stay on when their studies are complete.

The opportunities for students to travel, train, get post-graduate qualifications and ultimately find work have sparked enormous interest in the scheme.

Students receive a salary appropriate to local standards taking into account the cost of living

and accommodation in different countries. The Programme also takes care of visas and work permits and runs a helpdesk for students and their managers should problems arise.

There's fun too, with hiking tours, sailing, cultural visits and action weekends to promote networking between the students and permanent staff.

### Campaign strengthens university ties

The IT and communications industry is booming to such an extent that highly skilled people are not only in great demand but are in short supply.

Nokia has been committed to fostering new talent for many years and has supported a great number of schemes to improve relations with universities around the world.

During 2000, Nokia invested strongly in university co-operation globally by initiating and supporting research, providing students

with interesting traineeships, thesis topics and research studies for doctoral candidates and by contributing to education through participation in curriculum boards and encouraging employees to lecture at universities.

In addition, a university campaign called 'Future Moves' was launched to strengthen co-operation between universities and the company. Events were staged at universities in nine countries to stimulate views and ideas about the future of mobile communications.

A symposium in Helsinki attracted more than 60 professors from 40 universities around the world who shared their visions of the Mobile Information Society with colleagues and the company. The 'Future Moves' campaign also included two Internet competitions, in which students were asked to write an essay about a new device or service which could benefit users in the wireless world of the future.

## Next generation Internet developed in China

The Internet explosion means that the world is already running out of IP addresses but research work by Nokia in China, the company's second biggest market, could help to solve the problem.

IP or Internet addresses are used by service providers to connect customers – not to be confused with the e-mail addresses that people can register for themselves.

Allocated 20 years ago to countries or organisations, IP addresses are already scarce and vastly more are needed for conventional Internet, and especially for the emerging mobile Internet services.

China was originally one of the poorest served. Today, there are middle-sized universities in the world with more addresses than the entire People's Republic which has 1.3 billion inhabitants and an Internet population of 20 million – a group growing faster than anywhere else. But pioneering work by Nokia, in collaboration with the China Education and Research Network (CERNET), is set to lead the world and put China ahead.

The project involves the development of new technology based on a new protocol which will deliver as many addresses as there are grains of

sand on the planet.

Called IPv6, the new protocol has been developed by the Internet Engineering Task Force, the body that develops Internet technologies. IPv6 has clear technical advantages over the currently used IPv4. In addition to a huge number of addresses, it facilitates the implementation of crucial features such as quality of service, security and network configuration. All these aspects make IPv6 the ideal protocol for the networks of mobile information world.

The Nokia and CERNET research programme,



today. Nokia Research Center has a strong team located close to MIT and will second people to the project. The company not only has long experience of mobile devices but also the networks which could be used to download applications to the future appliances.

At MIT, a total of 250 researchers from the Laboratory for Computer Science and its sister the Artificial Intelligence Laboratory,

will work on Oxygen – so named because the idea is to make computers as indispensable to the needs of mankind as the air we breathe.

The project will bring an abundance of computing and communication power together through natural speech and visual interfaces.

It is believed that Oxygen and its advanced technologies could result in a profound leap in human productivity by automating routine

tasks and by ensuring that computers look after people rather than the other way round. The effect on computing could be more revolutionary than the move from mainframes to desktops 20 years ago.

Juha Ylä-Jääski, Head of Strategy Planning at Nokia Research Center, says: "The project will give researchers a free hand to think wildly. Yes, they're going to challenge what we currently believe in

but that's the whole point."

Juha says that the way we currently deal with computers is to enter their world and, as a result, they tend not to be user friendly.

A better way, he said, would be to create pervasive, human-centred computers to be at the beck and call of humans instead.

Nokia is one of six international companies backing the Oxygen Project.



### Leila 'nets' dream job

Iranian-born Leila Gharavi swapped space for cyber-space when she approached Nokia for thesis work under the Student Exchange Programme.

After deciding against joining a space technology firm, she had an early introduction to high-tech communications when she applied to Nokia over the Internet.

The response to her 'cyber' CV was by e-mail. This was followed by a 45 minute test over the phone and she was finally appointed during a videoconference. The first time she met someone face-to-face was when her new boss greeted her on her first day!

Leila, who had completed her Masters course in Sweden, wanted to do thesis work in the Radio Frequency (RF) field and found about 10 opportunities at Nokia.

"After my Bachelors degree I worked in RF for a biomedical engineering company in Tehe-

ran which made heart telemetry systems for use in hospital Intensive Care Units. I believe that whatever you do for your Masters is what you'll end up doing for life and I wanted to carry on in RF."

Leila has now achieved her second degree and has been given a permanent job as a research engineer at the Nokia Research Centre in Helsinki.

Although her appointment was unusual (most students do get a face-to-face interview) she praised Nokia's web-based system.

"The pages attracted me to the company – everything was well classified and there was plenty of choice. I'm very pleased to have been a part of the Programme," she said.

She now intends to work on a PhD.

called INTERNET 6, has this year established a nationwide IPv6 network between 10 Chinese universities using Nokia's IP650 router platform and software.

In 2001, the next phase will trial IP mobility allowing terminals to roam in the same way as in today's cellular networks. Nokia China R&D in Beijing has been involved in spear-head research in this area since 1998, and co-ordinates the INTERNET 6 project from the Nokia side.

Today's Internet services borrow a temporary IP address for the duration of the session. However,

mobile Internet and especially packet-based services like GPRS are inherently 'always-on,' putting tremendous pressure on the way operators and service providers configure their networks.

In addition to mobile services, similar pressure is emerging from the fixed Internet side. Fast Internet access provided over ordinary telephone lines through Digital Subscriber Line (DSL) technology is also 'always-on' and requires a fixed IP address for optimal use.

It is this combination of existing scarcity, new technology and increasing customer demand for

the latest services that makes the INTERNET 6 project vital for the future.

Markku Ranta, Director of R&D for Nokia China, comments: "This is an intensive and exciting programme of co-operation with our Chinese partners. In terms of rapid deployment of IPv6, China has the potential to make a global impact. Not only is Nokia bringing technology to China ahead of everybody else – we are developing it in China as well."

# Global focus on youth and education

Nokia aims to be a good corporate citizen wherever the company operates and has been running programmes for many years to help people, particularly the young, improve themselves through a wide variety of learning opportunities.

The focus of Nokia's Corporate Citizenship programme is youth and education – a logical step given Nokia's leadership in future-oriented technologies.

Chairman and CEO Jorma Ollila puts it this way: "In the future that Nokia's business is shaping, people will have the technology to communicate anytime, anywhere. Helping young people improve their skills, knowledge and connections to society is a natural outgrowth of Nokia's business, vision and values."

The company is committed to having a positive impact on society that extends far beyond the advanced technology, products and services it creates.

Nokia's Corporate Citizenship programme is designed to respond to the expectations of all stakeholders – customers, employees and investors alike – and to reflect the company's core values.

The company is dedicated to the ideal of continuous learning – constantly improving life skills, creating an environment that fosters open and creative thinking, establishing a meaningful connection with society and sharing best practices across all borders.

Veli Sundbäck, Nokia's Executive Vice President, who is in charge of global Corporate Social Responsibility, explains: "It is not our intention to promote technology as such even though it is our core competence. In a fast changing world, we want young people to develop the skills they are going to need – creative thinking, the life skills needed to make quick decisions, and simply an ability to think for themselves and take responsibility for what's happening around them."

Veli points out that the company also has made local donations for specific events, such as disaster relief in Kosovo and victims of the Venezuelan floods, in addition to supporting long-term initiatives on all the continents.

"It's not a question of pure donations – we want to take an active role as a company and as individual employees," says Veli. "This is all about human values."

## Nokia and the IYF Make a Connection

While Nokia has been sponsoring activities to support youth and education for many years, 2000 saw the beginning of a multi-year commitment to the International Youth Foundation (IYF) – a new and truly global partnership to promote corporate responsibility.

In the first year, Nokia invested 3.4 million Euros in the well-established IYF programme to support children and youth development activities in six countries – China, Germany, South Africa, UK, Mexico and Brazil – as well as to conduct global programs.

The IYF programme, called 'Make a Connection', will work hand-in-hand with existing Nokia projects in many parts of the world.

IYF itself is an independent, non-governmental organisation dedicated to improving the conditions and prospects for young people wherever they live, learn, work and play.

It does so by drawing on the expertise of a worldwide network of national-level children and youth development organisations, as well as corporations, such as Nokia, and governments, to ensure that the best programmes are identified, strengthened and expanded. Currently, this global network includes organisations in more than 30 countries with plans to expand to 60 by 2003.

IYF views young people's needs as an urgent global priority with all young people having the innate right to develop their full potential to become responsible and caring individuals.

Its programmes seek to build character, confidence and competence and to connect young people to their families, peers and communities.

"In just two days, I learned skills which I believe are most important to success in the Information Age. I believe this project will have a positive and significant impact on nurturing the creative thinking skills of Chinese university students."



## Creative Thinking in China

This is what graduate Fu Peng had to say about Nokia's 'Creative Thinking Corner' project which helped him to prepare his thesis for his master's degree.

The programme, launched in Beijing University of Post and Telecommunications, is the first of its kind and is touching the lives of thousands of students. It includes a series of roadshows and Thinking Club activities and has travelled to 12 universities across China.

An important part of the programme in 2000 is the Nokia College Student Thinking Challenge Competition to help students from the 12 universities develop their brainpower, intelligence, innovation abilities, problem-discovery and solutions capabilities.

And, in order to share the project with as wide an audience as possible in China, the Thinking Corner now has its own website.

The Thinking Corner, for university students, has a natural synergy with an existing International Youth Foundation (IYF) project called the 'Little Master Newspaper' which is now receiving Nokia backing.

Youngsters under the age of 15 write, edit and produce the newspaper which has a circulation of more than 1 million.

Folke Ahlbäck, Chairman of Nokia (China) Investment Corporation, comments: "We feel that the newspaper encourages leadership, creativity and responsibility across activities such as culture, education, sports and the arts. We hope it will emulate the success of Nokia's Creative Thinking Corner workshops."

# Life skills initiatives in the UK

For the past seven years, Nokia has sponsored Mencap – the UK's leading charity for children and adults with learning disabilities.

The company supports specific projects each year ranging from establishing a special sensory unit for learning to the construction of a recording studio to produce Mencap's newsletter in audio format.

Mencap Chairman Brian Baldock, comments: "Computer and communication technologies have the potential to revolutionise the lives of people who have a disability by offering a better quality of life unimaginable only

a few years ago." Mencap is also one of the partners helping to develop teaching materials in the new International Youth Foundation Make a Connection project in the UK, funded by Nokia and managed by the Children and Youth Partnership Foundation.

The nationwide project is aimed at young people aged between 11 and 16, including those with special educational needs, to equip them with the necessary life skills for future personal and social well-being.



# Connecting schools and families in the USA

ClassLink is a well-established example of Nokia's commitment to creating a positive impact on society by providing wireless phones to hundreds of schools across the USA in order to connect students, teachers and parents more effectively.

More than 90 per cent of American classrooms do not have access to a telephone, yet a national survey of teachers showed that wireless phones are the one tool they really need.

ClassLink, a philanthropic partnership sponsored by Nokia, the CTIA's Wireless Foundation and several carriers, answers that need.

Piloted successfully in Texas, Nokia donated 1000 phones to 200 high schools in the state. Due to the success of the Texas programme, ClassLink moved into the national arena in 2000. So far, more than 6000 phones and millions of minutes of airtime have been donated to schools across the

country, bringing teachers and parents into a closer partnership in the education of their communities' students.

But ClassLink is not the only Nokia Corporate Citizenship project in the USA – others include help for sick children and support for community issues.

The Make a Wish Foundation supported by Nokia and CBS Channel 11 has given trips to Disney, puppies and computers to children suffering from life-threatening illnesses.

The United Way is a programme dedicated to making communities better places in which to live and work.

Nokia employees choose to donate to a network of agencies looking after children, families, crisis relief, health and the elderly. Their contribution went up by 116 per cent in 2000 and the combination of corporate and employee pledges rose to \$472000 in 2000 from \$173200 the year before.



### **Chairman Jorma Ollila, 50**

**Chairman and CEO of Nokia Corporation.**

**Member since 1986. Chairman since 1992.**

**Joined Nokia 1985.**

President and CEO, and Chairman of the Group Executive Board of Nokia Corporation 1992–1999, President of Nokia Mobile Phones 1990–1992, Senior Vice President, Finance of Nokia 1986–1989. Member of the Board of Directors of Ford Motor Company, Otava Books and Magazines Group Ltd and UPM-Kymmene Corporation.

Deputy Chairman of the Board of The Confederation of Finnish Industry and Employers, and member of The European Round Table of Industrialists.

Holdings in Nokia on January 30, 2001: 15 976 shares and stock options for 4 000 000 shares.



### **Pekka Ala-Pietilä, 44**

**President of Nokia Corporation.**

**Member since 1992.**

**Joined Nokia 1984.**

Executive Vice President and Deputy to the CEO of Nokia Corporation and President of Nokia Communications Products 1998–1999, President of Nokia Mobile Phones 1992–1998, Vice President, Product Marketing of Nokia Mobile Phones 1991–1992, Vice President, Strategic Planning of Nokia Mobile Phones 1990–1991. Member of the Board of Directors of Alma Media Corporation.

Member of the Board of Economic Information Bureau and Finnish-Japanese Chamber of Commerce.

Holdings in Nokia on January 30, 2001: 9 600 shares and stock options for 1 840 000 shares.



### **Dr Matti Alahuhta, 48**

**President of Nokia Mobile Phones.**

**Member since 1993.**

**Joined Nokia 1975–1982 and 1984.**

President of Nokia Telecommunications 1993–1998, Executive Vice President of Nokia Telecommunications 1992, Senior Vice President, Public Networks of Nokia Telecommunications 1990–1992.

Member of the Board of Directors of Finnair Oyj. Chairman of the Board of Federations of Finnish Electrical and Electronics Industry, Vice Chairman of the Board of The Federation of Finnish Metal, Engineering and Electrotechnical Industries, and member of the Board of The Central Chamber of Commerce of Finland and member of the Board and The Executive Committee of The International Institute for Management Development (IMD). Holdings in Nokia on January 30, 2001: 13 200 shares and stock options for 1 520 000 shares.



### **Sari Baldauf, 45**

**President of Nokia Networks.**

**Member since 1994.**

**Joined Nokia 1983.**

Executive Vice President of Nokia APAC 1997–1998, President, Cellular Systems of Nokia Telecommunications 1988–1996, Vice President, Business Development of Nokia Telecommunications 1987–1988.

Member of the Board of International Youth Foundation and Technical Research Centre of Finland, and member of The National Committee for the Information Society Issues.

Holdings in Nokia on January 30, 2001: 103 200 shares and stock options for 1 520 000 shares.



### **Mikko Heikkonen, 51**

**Executive Vice President and General Manager, Customer Operations of Nokia Networks.**

**Member since 1998.**

**Joined Nokia 1975.**

President, Network Systems of Nokia Telecommunications 1997–1999, President, Network and Access Systems of Nokia Telecommunications 1995–1996, Senior Vice President, Area Management of Nokia Telecommunications 1993–1995, Senior Vice President, Cellular Systems of Nokia Telecommunications 1988–1992.

Holdings in Nokia on January 30, 2001: 12 000 shares and stock options for 1 176 000 shares.

**Olli-Pekka Kallasvuori, 47**

Executive Vice President, CFO of Nokia Corporation.

Member since 1990.

Joined Nokia 1980.

Executive Vice President of Nokia Americas and President of Nokia Inc. 1997–1998, Executive Vice President, CFO of Nokia 1992–1996, Senior Vice President, Finance of Nokia 1990–1991. Chairman of the Board of Directors of F-Secure Corporation, Nextrom Holding S.A. and Nokian Tyres plc, and member of the Board of Directors of Fortum Corporation and Yleisradio Oy (Finnish Broadcasting Company).

Holdings in Nokia on January 30, 2001: stock options for 1 520 000 shares.

**Dr Yrjö Neuvo, 57**

Executive Vice President, CTO of Nokia Mobile Phones.

Member since 1993.

Joined Nokia 1993.

Senior Vice President, Product Creation of Nokia Mobile Phones 1994–1999, Senior Vice President, Technology of Nokia 1993–1994, National Research Professor of The Academy of Finland 1984–1992, Professor of Tampere University of Technology 1976–1992, Visiting Professor of University of California, Santa Barbara 1981–1982. Vice Chairman of the Board of Directors of Vaisala Corporation, Member of Finnish Academy of Technical Sciences, The Finnish Academy of Science and Letters, and Academiae Europae, Foreign member of Royal Swedish Academy of Engineering Sciences, and Fellow of the Institute of Electrical and Electronics Engineers.

Holdings in Nokia on January 30, 2001: 20 640 shares and stock options for 1 200 000 shares.

**Veli Sundbäck, 54**

Executive Vice President, Corporate Relations and Trade Policy of Nokia Corporation.

Member since 1996.

Joined Nokia 1996.

Secretary of State at the Ministry for Foreign Affairs 1993–1995, Under-Secretary of State for External Economic Relations at the Ministry for Foreign Affairs 1990–1993.

Chairman of the Board of Directors of Huhtamäki Van Leer Oy.

Vice Chairman of the Board of the International Chamber of Commerce, Finnish Section and Chairman of the Trade Policy Committee of The Confederation of Finnish Industry and Employers. Holdings in Nokia on January 30, 2001: 97 600 shares and stock options for 1 360 000 shares.



## Management January 30, 2001 Group Executive Board

for more detail go to: [www.nokia.com/insight/whoweare/management](http://www.nokia.com/insight/whoweare/management)

**Anssi Vanjoki, 44**

Executive Vice President, Nokia Mobile Phones.

Member since 1998.

Joined Nokia 1991.

Senior Vice President, Europe Et Africa of Nokia Mobile Phones 1994–1999, Vice President, Sales of Nokia Mobile Phones 1991–1994, Suomen 3M Oy 1980–1990.

Holdings in Nokia on January 30, 2001: 16 000 shares and stock options for 1 176 000 shares.

**Auditor**

PricewaterhouseCoopers Oy  
Authorized Public Accountant  
(auditor in charge: Lars Blomquist)

Of Nokia's strategic countries, Matti Alahuhta is responsible for Nokia's operations in Japan, Sari Baldauf in China and Olli-Pekka Kallasvuori in the U.S.

As of January 30, 2001, only some of the stock options mentioned above were exercisable. In addition, the subscription price had not been determined to all of them.

# Board of Directors January 30, 2001

## Chairman

### Jorma Ollila, 50

Chairman and CEO and Chairman of the Group Executive Board of Nokia Corporation.

**Member since 1995. Chairman since 1999.**

President and CEO, and Chairman of the Group Executive Board of Nokia Corporation 1992–1999, President of Nokia Mobile Phones 1990–1992, Senior Vice President, Finance of Nokia 1986–1989.

Member of the Board of Directors of Ford Motor Company, Otava Books and Magazines Group Ltd and UPM-Kymmene Corporation. Deputy Chairman of the Board of the Confederation of Finnish Industry and Employers and member of The European Round Table of Industrialists. Holdings in Nokia on January 30, 2001: 15 976 shares and stock options for 4 000 000 shares.

## Vice Chairman

### Paul J. Collins, 64

**Member since 1998. Vice Chairman since 2000.**

Vice Chairman of Citigroup Inc. 1998–2000, Vice Chairman and member of the Board of Directors of Citicorp and Citibank N.A. 1988–2000.

Member of the Board of Directors of BG Group, Genuity Corporation and Kimberly-Clark Corporation.

Holdings in Nokia on January 30, 2001: 82 128 shares.

### Georg Ehrnrooth, 60

**Member since 2000.**

President and CEO of Metra Corporation 1991–2000, President and CEO of Lohja Corporation 1979–1991, employed at Oy Wärtsilä Ab 1965–1979.

Chairman of the Board of Directors of Assa Abloy Corporation, Sanitec Corporation and Varma-Sampo Mutual Pension Insurance Company, and member of the Board of Directors of Oy Karl Fazer Ab, Sandvik AB, Sampo-Leonia Insurance Company plc and Wärtsilä Corporation. Chairman of The Centre for Finnish Business and Policy Studies (EVA).

Holdings in Nokia on January 30, 2001 (held personally or by company): 320 460 shares.

### Dr Bengt Holmström, 51

Paul A. Samuelson Professor of Economics at MIT, joint appointment at the MIT Sloan School of Management.

**Member since 1999.**

Edwin J. Beinecke Professor of Management Studies at Yale University 1985–1994.

Member of the Board of Directors of Kuusakoski Oy.

Member of the American Academy of Arts and Sciences and Foreign member of The Royal Swedish Academy of Sciences.

Holdings in Nokia on January 30, 2001: 2 588 shares.

### Jouko K. Leskinen, 57

**Member since 1994.**

President and CEO of Sampo Group 1993–2000, Vice Chairman of the Board of Directors of Neste Oy 1989–1992, member of the Board of Directors of Neste Oy 1987–1989 and Senior Executive Director of Neste Oy 1987–1992.

Vice Chairman of the Board of Directors of UPM-Kymmene Corporation and member of the Board of Directors of Finnlines Plc. Member of the Board of Employers' Confederation of Service Industries.

Holdings in Nokia on January 30, 2001: 1 948 shares.

### Robert F. W. van Oordt, 64

Chairman and CEO of Rodamco Continental Europe N.V.

**Member since 1998.**

Chairman of the Supervisory Board of NKF Holding N.V. 1986–1999, Chairman of the Executive Board of NV Koninklijke KNT BT 1993–1996, Chairman of the Executive Board of Bührmann-Tetterode N.V. 1990–1993, Executive Vice President and COO, and member of the Board of Directors of Hunter Douglas Group N.V. 1979–1989.

Member of the Board of Directors of Schering-Plough Corporation and N.V. Union Minière S.A. and member of the Supervisory Board of Draka Holding N.V.

Holdings in Nokia on January 30, 2001: 1 948 shares.

### Vesa Vainio, 58

Chairman of the Board of Directors of Nordea Plc. **Member since 1993.**

Chairman of the Board of Management and CEO of Merita Bank Ltd and CEO of Merita Ltd 1992–1997, President of Kymmene Corporation 1991–1992.

Vice Chairman of the Board of Directors of Wärtsilä Corporation and member of the Board of Directors of UPM-Kymmene Corporation. Chairman of the Board of The Central Chamber of Commerce of Finland.

Holdings in Nokia on January 30, 2001: 13 248 shares.

### Iiro Viinanen, 56

**Member and Vice Chairman 1996–2000.**

**Member since 2000.**

President and CEO of Pohjola Group Insurance Corporation 1996–2000, Finland's Minister of Finance 1991–1996, member of the Finnish Parliament 1983–1996.

Member of the Board of Directors of Kone Corporation.

Holdings in Nokia on January 30, 2001: 2 732 shares.

## Secretary

### Ursula Ranin

# Corporate Governance

## The Board of Directors

The Board decides on matters which in relation to the Group's activities are of significant nature. Such matters include confirmation of the strategic guidelines, approval of the periodic plans and decisions on major investments and divestments.

The Board appoints the CEO, the President, the Chairman and the members of the Group Executive Board of the Company. The Board also determines their remuneration.

The roles of the Board, its Chairman and its subcommittees are defined in the Board's Rules of Procedure.

## Election and term of members of the Board of Directors

According to the Articles of Association the Company has a Board of Directors composed of a minimum of seven and a maximum of ten members. The members are elected at the Annual General meeting for a term of one year at a time. Since the General meeting on March 22, 2000 the Board was composed of eight members.

The Board elects the Chairman and the Vice Chairman from among its members for one term at a time. In 2000, Jorma Ollila acted as the Chairman of the Board throughout the year. Paul J. Collins acted as Vice Chairman of the Board as of the General meeting.

## Committees of the Board of Directors in 2000

**The Personnel Committee** monitors the personnel policy of the Group and oversees its implementation including the development of compensation policies applied in the Group. The Committee also prepares policy matters and principles for remuneration to be presented for the Board of Directors. As of March 22, 2000, the Personnel Committee was composed of the following members of the Board: Paul J. Collins (Chairman), Bengt Holmström, Vesa Vainio and Iiro Viinanen. The Committee convened three times in 2000.

**The Audit Committee** consists of a minimum of three independent and qualified non-executive members of the Board. The purpose of the Committee is to assist the Board of Directors in fulfilling its responsibilities to oversee the Group's financial reporting processes including monitoring the integrity of the company's financial statements and the performance of its internal and external auditors. The Committee assembles regularly in each quarter. As of March 22, 2000, the Audit Committee was composed of the following members of the Board: Jouko K. Leskinen (Chairman), Georg Ehrnrooth and Robert F.W. van Oordt. The Committee held four meetings during the year.

**The Nomination Committee** prepares proposals for the general meeting concerning the composition of the Board and the remunerations and remuneration principles of the members of the Board. It further monitors issues and practises related to Corporate Governance and proposes necessary actions in respect thereof. As of March 22, 2000, the Nomination Committee was composed of the following members of the Board: Paul J. Collins (Chairman), Jouko K. Leskinen and Iiro Viinanen. The Committee held one meeting in 2000.

## Meetings of the Board of Directors

The Board met eleven times in 2000. Four of the meetings were held in a form of conference call.

## The CEO and the President

The Chairman of the Board, Jorma Ollila acts as the Chief Executive Officer of the Group. The President of the Company is Pekka Ala-Pietilä.

## The Board Composition in 2001

Nomination Committee proposes to the Annual General meeting on March 21, 2001 that the number of Board members remain eight and that the following board members be re-elected for a term of one year: Paul J. Collins, Georg Ehrnrooth, Bengt Holmström, Jorma Ollila, Robert F.W. van Oordt and Vesa Vainio. Moreover, the Committee proposes that Marjorie Scardino and Arne Wessberg be elected as new members of the Board for the same term. Ms Scardino is the Chief Executive of Pearson plc and Mr. Wessberg the President of Yleisradio Oy (Finnish Broadcasting Company).

## Remuneration

The Annual General Meeting on March 22, 2000 resolved that the annual retainers to the Board members be 109 000 euros for the Chairman, 85 000 euros for the Vice Chairman and 61 000 euros for each of the members, retaining the remunerations at the level of 1999. The Annual General Meeting further resolved that the retainers be partly paid in company's stock to be acquired from the market. In line with this the Chairman received 840 shares, the Vice Chairman 640 shares and the members 460 shares each. The remainders of the annual retainers along with the meeting fees 420 euros per meeting were paid in cash.

In 2000, Jorma Ollila received as remuneration for his services as CEO a fixed salary of 1 070 000 euros and a bonus of 357 000 euros for 1999 and a bonus of 160 500 euros for the first half of 2000. Pekka Ala-Pietilä received as remuneration for his services as President a fixed salary of 570 600 euros and a bonus of 159 000 euros for 1999 and a bonus of 80 600 euros for the first half of 2000.

## Insiders' Trading with Securities

The Board has established a Policy in respect of trading with securities. The Policy is in line with the Guidelines for Insiders issued by the Helsinki Exchanges.



# Nokia shares

## General

Nokia has one class of shares. Each Nokia share entitles to one (1) vote at General Meetings of Nokia, and to a fixed annual dividend amounting to 10 per cent of the par value of the share.<sup>1</sup> Nokia shareholders resolved at the Annual General Meeting 2000 to split the par value of the share on a four-for-one basis. With effect from April 10, 2000, the par value of the share is EUR 0.06.

The minimum share capital stipulated in the Articles of Association is EUR 170 million and the maximum share capital EUR 680 million. The share capital may be increased or reduced within these limits without amending the Articles of Association. On December 31, 2000 the share capital of the Parent Company was EUR 281 772 763.38 and the total number of shares and votes 4 696 212 723. The total number of shares included 4 079 425 shares owned by the Group companies with an aggregate nominal value of EUR 244 765.50 representing approximately 0.09 per cent of the total number of shares and voting rights at the Parent Company.

## Authorizations

The Board of Directors had been authorized by Nokia shareholders at the Annual General Meeting 1999 to increase the share capital, which authorization extended to March 17, 2000. At the Annual General Meeting 2000 Nokia shareholders again authorized the Board of Directors to decide on an increase of the share capital, which authorization is effective until March 22, 2001. The share capital may be increased to finance possible business acquisitions or corresponding arrangements. In 2000, the share capital was increased on the basis of these authorizations by a total of EUR 601 261.10, consisting of 10 021 035 shares in total.

At the Annual General Meeting 2000, Nokia shareholders also authorized the Board of Directors to repurchase a maximum of 224 million Nokia shares and to resolve on transfer of such shares. No shares were repurchased or transferred in 2000 under the authorizations. These authorizations are effective until March 22, 2001.

## Stock option plans

During 2000, Nokia had four global stock option plans as part of the incentive program of Nokia. Of these plans, Nokia Stock Option Plan 1994 came to an end on January 31, 2000. By termination, a total of

12 506 112 shares had been exercised and the share capital had been increased by a total of EUR 750 366.72, representing less than one per cent of the outstanding share capital of Nokia. Nokia Stock Option 1994 had been offered to approximately 50 persons.

Nokia Stock Option Plan 1995 includes A warrants and B warrants, each of which entitle to subscribe for sixteen shares with a par value of EUR 0.06 at an aggregate subscription price of FIM 168. The A warrants are exercisable since December 1, 1997, and the B warrants since December 1, 1999. If exercised in full, the share capital of Nokia would increase under Nokia Stock Option Plan 1995 with a total of EUR 5 568 000, consisting of 92 800 000 shares and representing approximately 2.0 per cent of the outstanding share capital of Nokia. Nokia Stock Option Plan 1995, covering approximately 350 persons, came to an end on January 31, 2001.

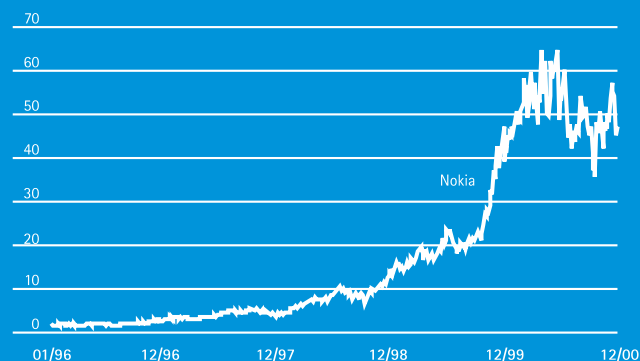
Nokia Stock Option Plan 1997 includes A, B and C warrants, each of which entitle to subscribe for sixteen shares with a par value of EUR 0.06 at an aggregate subscription price of FIM 307. The A warrants are exercisable since December 1, 1997, the B warrants since November 1, 1999 and the C warrants since November 1, 2001. The exercise periods of all the warrants terminate on January 31, 2003. If exercised in full, the share capital of Nokia would increase under Nokia Stock Option Plan 1997 with a total of EUR 9 120 000, consisting of 152 000 000 shares and representing approximately 3.2 per cent of the outstanding share capital of Nokia. Nokia Stock Option Plan 1997 covers approximately 2 000 persons.

Nokia Stock Option Plan 1999 includes A, B and C stock options, each of which entitle to subscribe for four shares with a par value of EUR 0.06. The A stock options may be exercised from April 1, 2001 at a subscription price of EUR 67.55, the B stock options may be exercised from April 1, 2002 at a subscription price of EUR 225.12, and the C stock options may be exercised from April 1, 2003 at a subscription price determined upon the trade volume weighted average price of the share on the

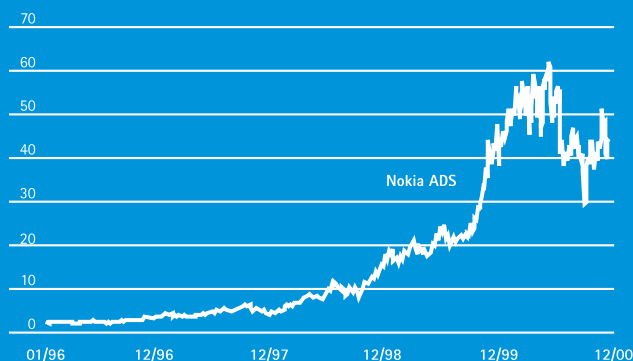
*Continues on page 31*

<sup>1</sup> Nokia used to have two classes of shares, A shares and K shares. Nokia shareholders resolved at the Annual General Meeting 1999 to consolidate the two classes of shares. The rights presently related to all Nokia shares correspond to the rights of the previous class A shares. The rights of the previous class K shares entitled to ten (10) votes at General Meetings, but to no fixed annual dividend. The consolidation of the two classes of shares is effective since April 9, 1999.

Nokia share price on the Helsinki Exchanges, EUR



Nokia ADS price on the New York Stock Exchange, USD



## Share capital and shares, Dec. 31<sup>2</sup>

	2000	1999	1998	1997	1996
<b>Share capital, EURm</b>					
K (common)	*)	*)	54	66	84
A (preferred)			201	186	168
<b>Total</b>	<b>282</b>	<b>279</b>	<b>255</b>	<b>252</b>	<b>252</b>
<b>Shares (1 000, par value EUR 0.06)</b>					
K (common)	*)	*)	1 016 246	1 259 000	1 595 403
A (preferred)			3 828 527	3 538 634	3 197 397
<b>Total</b>	<b>4 696 213</b>	<b>4 654 064</b>	<b>4 844 773</b>	<b>4 797 634</b>	<b>4 792 800</b>
Shares owned by the Group at year-end (1 000)	4 080	1 385	257 288	257 288	260 488
Number of shares excl. shares owned by the Group at year-end (1 000)	4 692 133	4 652 679	4 587 485	4 540 346	4 532 312
Average number of shares excl. shares owned by the Group during the year (1 000)	4 673 162	4 593 761	4 553 364	4 532 512	4 536 976
Number of registered shareholders <sup>3</sup>	94 500	48 771	30 339	28 596	26 160

\*) Since April 9, 1999 one class of shares only.

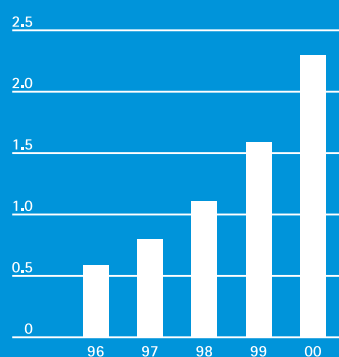
## Key Ratios, Dec. 31, IAS (calculation see page 39 on Financial Statements)

	2000	1999	1998	1997	1996
<b>Earnings per share from continuing operations, basic</b>					
Earnings per share, EUR	0.84	0.56	0.37	0.22	0.11
<b>P/E Ratio</b>					
K (common)	*)	*)	35.3	18.4	24.8
A (preferred)	56.5	80.4	35.3	18.3	24.9
(Nominal) dividend per share, EUR	0.28 **)	0.20	0.12	0.08	0.04
Total dividends paid, EURm	1 315 **)	931	586	378	176
Payout ratio	0.33	0.36	0.33	0.35	0.33
<b>Dividend yield, %</b>					
K (common)	*)	*)	0.9	1.9	1.3
A (preferred)	0.6	0.4	0.9	1.9	1.3
Shareholders' equity per share, EUR	2.30	1.59	1.11	0.80	0.59
Market capitalization, EURm <sup>4</sup>	222 876	209 371	59 796	18 503	12 706

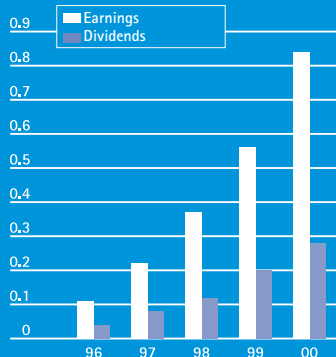
\*) Since April 9, 1999 one class of shares only.

\*\*) Proposed by the Board of Directors.

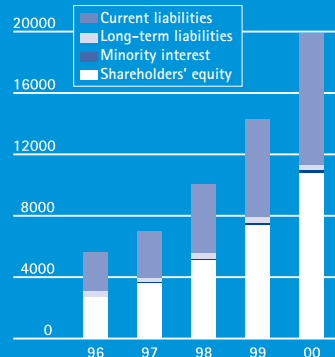
### Shareholders' equity per share EUR



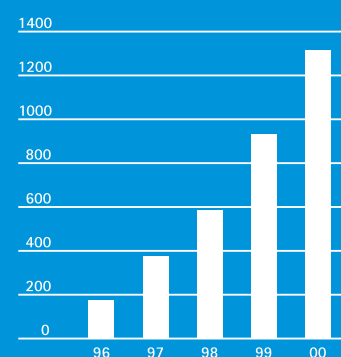
### Earnings and dividend per share EUR



### Shareholders' equity and liabilities EURm



### Total dividends EURm



## Share issues and bonus issues 1996-2000<sup>5</sup>

Type of issue	Subscription date	Subscription price or amount of bonus issue EUR	Number of new shares (1 000)	Date of payment	Net proceeds EURm	New share capital EURm
Nokia Stock Option Plan 1994	1998	0.98	268	1998	0.26	0.01
	1999	0.98	12 238	1999	12.03	0.73
Nokia Stock Option Plan 1995	1997	1.77	2 326	1997	4.11	0.12
	1998	1.77	30 304	1998	53.52	1.59
	1999	1.77	18 602	1999	32.85	1.12
	2000	1.77	22 011	2000	38.87	1.32
Nokia Stock Option Plan 1997	1997	3.23	2 508	1997	8.09	0.13
	1998	3.23	16 566	1998	53.46	0.87
	1999	3.23	33 456	1999	107.97	2.01
	2000	3.23	10 117	2000	32.65	0.61
Bonus issue	1999	0.0075	-	1999	-	36.05
Share issue to stockholders of Rooftop Communications Corporation	1999	20.04	2 118	1999	42.45	0.13
Share issue to stockholders of Network Alchemy, Inc.	2000	49.91	6 112	2000	305.06	0.37
Share issue to stockholders of DiscoveryCom, Inc.	2000	45.98	3 909	2000	179.75	0.23

## Reductions of share capital

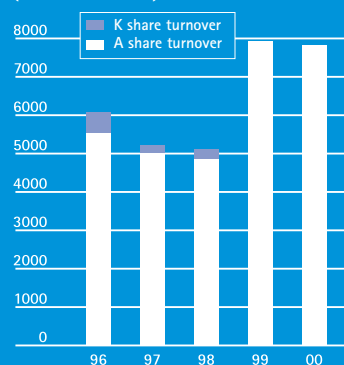
Type of reduction	Year	Number of shares affected (1 000, par value EUR 0.06)	Amount of reduction of the share capital EURm	Amount of reduction of the restricted capital EURm	Amount of reduction of the retained earnings EURm
Cancellation of shares	1999	257 123	15.43	-	3 435.27

## Splits of the par value of the Nokia share

	Par value before	Split ratio	Par value after	Effective date
1986	FIM 100 (EUR 16.82)	5:1	FIM 20 (EUR 3.36)	December 31, 1986
1995	FIM 20 (EUR 3.36)	4:1	FIM 5 (EUR 0.84)	April 24, 1995
1998	FIM 5 (EUR 0.84)	2:1	FIM 2.5 (EUR 0.42)	April 16, 1998
1999	FIM 2.5 (EUR 0.42)	2:1	EUR 0.24 <sup>6</sup>	April 12, 1999
2000	EUR 0.24	4:1	EUR 0.06	April 10, 2000

## Share turnover (all stock exchanges)

(Million shares)



<sup>2</sup> Figures have been recalculated to reflect the par value of EUR 0.06 of the share.

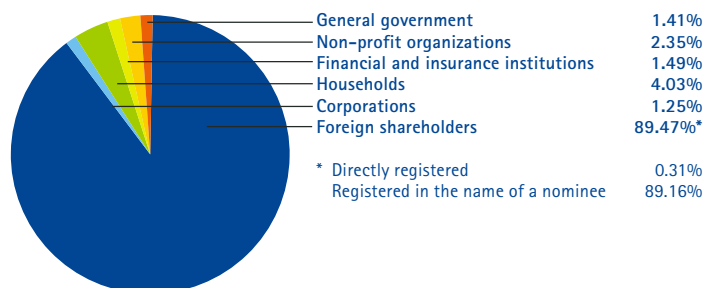
<sup>3</sup> Each account operator is included in the figure as only one registered shareholder.

<sup>4</sup> Shares owned by the Group companies are not included.

<sup>5</sup> Prices and numbers of shares have been recalculated to reflect the par value of EUR 0.06 of the share.

<sup>6</sup> A bonus issue of EUR 0.03 per each share of a par value of EUR 0.24 in the same connection.

## Shares by shareholder category



*Continues from page 28*

Helsinki Exchanges during the last five trading days in March 2001. The exercise periods of all the stock options terminate on December 31, 2004. If exercised in full, the share capital of Nokia would increase under Nokia Stock Option Plan 1999 with a total of EUR 8 640 000, consisting of 144 000 000 shares representing approximately 3.1 per cent of the outstanding share capital of Nokia. Nokia Stock Option Plan 1999 covers more than 16 000 persons.

In addition to the global stock option plans, Nokia has a complementary stock option plan covering approximately 700 Nokia employees in the U.S. and Canada. An exercise of stock options under this Plan does not result in an increase of the share capital of Nokia Corporation.

### Listing on stock exchanges

Nokia shares are listed on the Helsinki Exchanges since 1915. The shares are also listed in Stockholm (since 1983), London (since 1987), Paris (since 1988), Frankfurt am Main (since 1988) and New York (since 1994). Nokia shares are traded on the New York Stock Exchange (NYSE) in the form of American Depositary Shares (ADSs) and evidenced by American Depositary Receipts (ADRs). The ADRs are issued by Citibank, N.A., acting as the Depositary Bank, upon deposit of shares or evidence of rights to receive shares with the Depositary. Each ADS represents one share.

The A and B warrants of Nokia Stock Option Plan 1997 are listed on the Helsinki Exchanges as one security, and Nokia will apply for including C warrants into the listing as of November 1, 2001. Nokia will also apply for listing of the A stock options of Nokia Stock Option Plan 1999 on the Helsinki Exchanges as of April 2, 2001.

### Proposals to Annual General Meeting 2001

The Board of Directors will propose to the Annual General Meeting on March 21, 2001 a dividend of EUR 0.28 per share. Furthermore, the Board will propose that the Articles of Association be amended to abolish the fixed annual dividend of 10 per cent of the par value of the share, and to adopt some amendments relating to general meetings of the Parent Company. The Board will also propose issuance of 145 million stock options to key personnel of Nokia. In addition, the Board will propose that it will have an authorization to resolve to increase the share capital by a maximum of 900 million new shares as well as an authorization to repurchase a maximum of 225 million Nokia shares and to transfer them. It will also propose that a share capital be reduced through cancellation of a number of shares held by the Parent Company.

## Attending and voting at General Meetings

To attend and vote at a General Meeting, a shareholder must be registered in the register of shareholders. Voting rights at a General Meeting may not be exercised by a shareholder if his shares are registered in the name of a nominee. A beneficial owner of shares registered in the name of a nominee, including also all the holders of Nokia ADSs, must arrange to have his name entered in the register of shareholders of Nokia. According to a recent amendment of Finnish law, a beneficial owner may be registered for solely the purpose of voting at the General Meeting, without opening a Finnish book-entry account, and such a registration must be effective on a record date of the Meeting, which is ten (10) days prior to the Meeting.

On December 31, 2000, Nokia shares registered in the name of a nominee accounted for 89.16 per cent of the total number of shares and voting rights.

## Distribution of profits

Profits are distributed by Nokia within the limits set by the Finnish Companies Act. The amount of dividend is based upon and calculated in relation to the level of Nokia's annual profit. There is, however, no formula according to which the amount of dividend is determined.

The intention of Nokia is that distribution of profits should, over the long term, reflect the development of the Group's earnings per share.

## Effect of imputation system

The imputation system (avoir fiscal) will apply to the 2000 dividends payable by Nokia. Any Finnish company, when paying dividends to its shareholders, is required to pay tax amounting to a minimum of 29/71 of the dividend. A resident of Finland, receiving dividends from a Finnish company, is entitled to tax credit amounting to 29/71 of the dividend. As the dividend for 2000 is proposed by the Board of Directors to be EUR 0.28 per share, the tax credit thus amounts to EUR 0.11 per share thereby increasing the shareholder's profit to EUR 0.39 per share taxable at 29 per cent.

The credit is granted to non-resident shareholders only when an existing tax treaty between Finland and the shareholder's resident country specifically includes a provision of the credit. According to a tax treaty, a resident of the Republic of Ireland is entitled to a partial tax credit.

## Nokia Dividend Reinvestment and Direct Purchase Plan

A Dividend Reinvestment and Direct Purchase Plan for Nokia ADSs was implemented in December 1997. The Plan is designed to provide owners of ADSs and other interested investors who participate in the Plan a convenient way to accumulate and increase their investment in ADSs and to reinvest all or a portion of their cash dividends or optional cash investments in additional ADSs. The Plan is not available to persons located outside the United States.

The Plan is sponsored and administrated by the Depositary Bank, Citibank, N.A. Nokia has consented to the establishment of the Plan by the Depositary Bank, but does not, and should not be deemed to, sponsor or administer the Plan. Nokia assumes no obligation or liability for the operation of the Plan.

## Further information

Please see section Nokia shares and shareholders in Nokia's Financial Statement on pages 31–35 for further details.

# Investor information

## Annual general meeting

Date: Wednesday, March 21, 2001, at 3 p.m.

Place: Hartwall Areena, Veturitie 13, Helsinki, Finland.

## Dividend

Dividend proposed by the Board of Directors for 2000 is EUR 0.28.

The dividend record date is proposed to be March 26, 2001 and the dividend is proposed to be paid on or about April 3, 2001.

## Financial reporting

Nokia's quarterly interim reports in 2001 are due on April 20, July 19 and October 19. The 2001 results will be published in January 2002 and the Annual Report for 2001, in March 2002. The reports are published in English, Finnish and Swedish.

## Stock exchanges

The shares of Nokia Corporation are quoted on the following stock exchanges:

	Symbol	Trading currency
Helsingin Pörssi (quoted since 1915)	NOK1V	EUR
Stockholms Fondbörs (1983)	NOKI	SEK
London Stock Exchange (1987)	NOKA	EUR
Frankfurter Wertpapierbörse (1988)	NOA3	EUR
Bourse de Paris (1988)	NOK	EUR
New York Stock Exchange (1994)	NOK	USD

## Investor relations contacts

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## Information via the Internet

Internet World Wide Web users can access Nokia's financial reports and other information on financial, environmental and social reporting as well as press releases on Nokia through [www.nokia.com/insight](http://www.nokia.com/insight)

## List of indices

### NOK1V

HEX HEX General Index  
HEXTELE HEX Telecommunications Index  
HEX20 HEX 20 Index  
BE500 Bloomberg Europe  
BETECH BBG Europe Technology  
SX5E DJ Euro STOCXX 50  
SX5P DJ Europe STOXX  
SX\_\_ Various Other DJ Indices  
E300 FTSE Eurotop 300

### NOKI

OMX Stockholm  
GENX Swedish General  
GENX04 Swedish Engineer  
GENX16 Swedish SX 16 Index

### NOK

NYA NYSE Composite  
NNA NYSE Utilities  
NN NYSE Utilities  
CTN GSFO Technology  
MLO Merrill Lynch 10

# General contact information

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It should be noted that certain statements herein which are not historical facts, including, without limitation those regarding 1) the timing of product deliveries; 2) the Company's ability to develop new products and technologies; 3) expectations regarding market growth and developments; 4) expectations for growth and profitability; and 5) statements preceded by "believes", "expects", "anticipates", "foresees", or similar expressions, are forward-looking statements. Because such statements involve risks and uncertainties, actual results may differ materially from the results currently expected by the Company. Factors that could cause such differences include, but are not limited to 1) general economic conditions, such as the rate of economic growth in the Company's principal geographic markets or fluctuations in exchange rates, including the impact of the weakening Euro; 2) industry conditions, such as the strength of product demand, the intensity of competition, pricing pressures, the acceptability of new product introductions such as Internet-ready phones, the introduction of new products by competitors, the impact of changes in technology, including the Company's success in the emerging 3G market, the ability of the Company to source components from third parties without interruption and at reasonable prices, demand for vendor financing and the Company's ability and willingness to provide such financing, and the success and financial condition of the Company's strategic partners and customers; 3) operating factors, such as continued success of manufacturing activities and the achievement of efficiencies therein, continued success of product development or inventory risks due to shifts in market demand; as well as 4) the risk factors specified in the Company's Form 20-F for the year ended December 31, 1999 and December 31, 2000.



**NOKIA**  
CONNECTING PEOPLE