

Nokia: Strategic Transformation and Growth

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This case was prepared by Professor Seung-Joo Lee and Research Assistant Hashim Raza as a basis for class discussion rather than to illustrate either effective or ineffective handling of a business situation.

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Nokia : Strategic Transformation and Growth

Nokia, the global mobile phone company based in Finland, has shown a remarkable growth performance in the last five years. In 1999, the company's net sales rose to \$20.4 billion and net profits reached \$2.6 billion (See Exhibit 1). Nokia took the crown from Motorola in 1998 to become the world's leading maker of mobile phones with 27% global market share (See Exhibit 2). Its stock price has also shown an impressive 2,300% growth since 1994, boosting its market capitalization to \$242.2 billion (the second largest in Europe after Vodafone). Growth has come so fast that a third of Nokia's 51,000 employees has been with the company for less than two years.

Mr. Jorma Ollila, the Chairman and CEO of Nokia, while commenting on the success of Nokia said:

“This is the third consecutive year in which we have exceeded our overall growth and profitability targets. In part, we can thank this success to our ability to have continued to develop our sound competitive position, comprehensive product portfolio, innovative solutions, appealing brand and efficient global operations.”

Company Background

Nokia was founded in 1865 as a paper manufacturing company in southern Finland. The company soon became successful and its paper products were exported to Russia, UK, France and China. In 1898, the Finnish Rubber Works was established close to Nokia and began manufacturing rubber products such as footwear, tires, and rubber bands. In 1912, the Finnish Cable Works was established in Helsinki manufacturing cables for telephone, telegraph and electricity. After World War I, the Finnish Rubber Works bought the majority

shares of the Finnish Cable Works, and in 1967 the three companies were merged to form the Nokia Group.

Prior to its incorporation into the Nokia Group, the Finnish Cable Works established a small electronics department to conduct research on the emerging semiconductor technology. This research on semiconductors was the joint brainchild of Bjorn Westerlund, the President of the Cable Works and Kurt Wikstedt, the head of the electronics department. Realizing the future potential of semiconductor technology, Westerlund maintained good relations with universities and scientific institutions, and hired visionary scientists and engineers to conduct basic research. Wikstedt, who called himself “digitally crazed”, took the blueprints created by these visionaries and developed products that would respond to the needs of the market.

Nokia’s pioneering research in semiconductors laid the foundation for its entry into telecommunications. In 1969, Nokia was the first company to introduce Pulse Code Modulation (PCM) transmission equipment, an innovation in digital telecommunication which substantially increased the capacity of telephone cables. In the early 1970s, Nokia began developing switches (the Nokia DX 200) for the local telephone networks in Finland. The DX 200 was equipped with high-level computer language and Intel microprocessors and evolved to become the basis of Nokia’s network infrastructure today.

During the 1980s, Nokia’s operations expanded rapidly into more business sectors, countries, and products. CEO Kari Kairamo pursued an aggressive growth strategy through mergers and acquisitions in response to the anticipated 1992 European integration. In 1978, Nokia acquired a Swedish manufacturer of rubber products for automobile and machinery. In 1987, Nokia acquired the audio/video division of Standard Electric Lorenz, a German consumer electronics company and became the third-largest TV manufacturer in Europe. In 1988, Nokia acquired the PC and workstation division from Ericsson for \$200 million and established Nokia Data, which became one of the largest

information technology company in the Nordic Countries. By the late 1980s, Nokia had become a highly diversified business group with a range of businesses including paper, chemicals, rubber, cables, wires, machinery, consumer electronics and telecommunications (See Exhibit 3).

Hand portable cellular phones were added to Nokia's products portfolio with the launch of the Mobira Talkman in 1984. Nokia manufactured mobile phones for the Nordic cellular system, the mobile communication standard prevailing in Nordic countries at that time. The Nordic telephone system, because of its advanced technology and better reception, became the world's most heavily used system in a short time and a number of countries including Russia, Spain and Thailand adopted it. Major sales of Nokia mobile phones started coming from Russia, making it the market leader in the still-infant global market. By 1989, about 10% of Nokia's revenues were coming from its mobile phones.

Crisis and Restructuring

In the beginning of 1990, Finland faced a major financial crisis as a result of the deep economic recession in Europe and the sudden collapse of the Soviet Union. Within a few years' time, the Finnish Markka lost more than a third of its value, the whole banking system nearly collapsed, and unemployment rate reached more than 18%. Russia was the biggest trading partner of Finland and its sudden collapse gave a severe blow to the performance of Nokia.

Despite best efforts by CEO Simo Vuorilehto to streamline the existing businesses, Nokia lost a total of \$213 million in 1991-92. Nokia's major businesses stopped churning out cash and its exports of mobile phones fell dramatically with the collapse of the Russian economy. Nokia's major shareholders started to get rid of Nokia shares, but due to the poor condition of Nokia and its reputation as a troubled conglomerate, no one was ready to buy it.

In January 1992, Nokia's board of directors appointed Jorma Ollila, age 41, as the new CEO of the company. Having worked at Citibank as a corporate banker, Ollila joined Nokia in 1985 as Vice-President of international operations and moved to become the President of Nokia Mobile Phones, where he delivered good results despite the economic crisis (See Exhibit 4). Mr. Ollila remarked about the time when he took over as the CEO of Nokia:

“We had unhappy Finnish shareholders and unhappy international shareholders. The only thing you could do is to start building a base for very meaningful stock performance”.

As soon as Ollila took charge, he undertook a number of radical measures to turnaround the company's performance.

First, he formed a well-knit team comprising of new generation people whom he knew well from working at Nokia. Pekka Ala-Pietela, head of business development for mobile phones, was put as President of the Nokia group. Matti Alahuhta, from Nokia's telecom networks business, was made President of Nokia Mobile Phones. Sari Baldauf, President of cellular systems was named as President of Nokia Networks, and Olli-Pekka Kallasvuo from finance became CFO of the Nokia group.

To generate badly needed cash, Ollila and his team focused on restructuring the business portfolio and attracting foreign capital. At that time, the Nokia group had six business groups and 20 business divisions including paper, rubber, chemicals, cables, machinery, consumer electronics, telecommunications, data and mobile phones.

After an intense brainstorming session, Ollila and his team made the strategic decision to focus on telecommunications and divest its non-core operations. The company's new vision which was crystallized into “telecom-oriented, focused, global, value-added” guided the company's strategy since then.

The long list of divestment started from the paper and rubber businesses, which were already in the process of being sold when Ollila took over. The cable business was sold in 1993, followed by the power business and picture tube unit in 1994. Within a few years, tires, chemicals, TV and computer businesses were divested, leaving 100% of Nokia's operations in the telecommunications sector – namely mobile phone and telecom network. Ten years ago telecom made up 10% of Nokia's total revenues. Now it accounts for 100%.

These moves were well received by foreign investors. Nokia did a private placement with a few U.S. institutional investors in 1993 and listed on the New York Stock Exchange in 1994. Since then, Nokia's stock price jumped by more than 1000% (See Exhibit 5).

Globalization and Growth Strategy

Till now, Nokia generated the majority of its revenue from the European market, but this was not sufficient to achieve global scale in the rapidly globalizing mobile phone industry. As the next phase of the restructuring plan, Ollila and his team devised a new game plan for globalizing the company, building the Nokia brand, and sustaining innovation in a cutthroat pricing environment.

New Product Development

To expand market share in the global market, Nokia had to develop phones which appealed to consumers in the target markets. Technologically, Nokia had substantial experience in developing mobile phones for the Nordic Cellular Standard and the Global System for Mobile Communications (GSM), a

common standard for digital mobile telephony in Europe. As one of the leading developers of GSM technology, Nokia continued to focus on GSM and initiated the worldwide globalization campaign for GSM network and mobile phones.

However, the phone made by Nokia in 1992 weighed 300 grams, which was twice the size of popular phones sold in Japan. So engineering the phone down in size was the first big challenge for Nokia's R&D department. In addition, since every competitor in the industry was concentrating on reducing the size of the phone, Nokia focused on developing innovative design and customer-friendly interfaces to differentiate its phone from the pack.

Pertti Korhonen, a 29-year-old vice-president at the Camberley, England R&D center in collaboration with Frank Nuovo, a Los Angeles designer, developed a breakthrough product, called the 2100 series. The design of the phone was smooth and rounded and had unique features including a computer-like screen and text menu one could scroll through. The 2100 series proved to be a huge success. The goal was to sell 400,000; Nokia sold 20 million. With the 2100 series' success, Nokia's operating profit went from negative in 1991 to \$1 billion in 1995.

In addition to GSM, Nokia developed phones for most of the standards prevailing in the different regions. In the U.S. market, where there are multiple systems for mobile telephone, Nokia made a dual phone, AMPS/TDMA, to cater for those consumers who want to switch from one system to the other. In Japan, where operators introduced a half rate standard to increase network capacity, Nokia started shipping its new half rate PDC digital phones. In 1999, Nokia launched a total of 18 new mobile phone models including the Nokia 7110, 3210, 6090 and 8850. Nokia developed many standard features of today's mobile phone, such as large graphics displays, signal and battery indicators, colored covers and ringing tones. According to Nokia President Pekka Ala-Pietila:

“Anticipation of customer needs and quick response to market requirements is vital. With the variety of standards, versions and special models

needed for each market segment, our aim is logistical efficiency and flexibility without loss of economies of scale.”

Global Production and R&D Network

In the process of global expansion, Nokia established sales offices, production units and R&D centers around the world. At the end of 1999, Nokia had manufacturing plants in 10 countries and R&D centers in 14 countries. 97% of its revenues are generated outside of Finland and its products are sold in 140 countries worldwide. In 1999, Europe accounted for 53% of net sales, the Americas 25% and Asia Pacific 22%. The 10 largest markets were the U.S., China, UK, Germany, Italy, France, Brazil, the Netherlands, Finland and Australia, together representing 67% of total sales (See Exhibit 6).

Special attention has been given to global R&D. R&D centers were established in major markets to conduct research on consumer trends and develop products to meet the local market requirements. Nokia opened R&D centers in China, Japan, Malaysia, Sweden, Denmark, and Hungary in 1997. Germany was added to the list in 1998 and new R&D centers were established in Canada, Italy, Korea and Spain in 1999. Engineers at Nokia conduct research in all the global centers on a parallel basis leveraging the various talents from different parts of the world. It is estimated that a third of Nokia's employees worldwide is involved in research and development.

At the same time, Nokia keeps finding ways to leverage its R&D costs through various forms of technology partnerships and alliances. Nokia's overseas R&D centers are at a comparatively smaller scale than its major competitors and the company spends less on R&D than its competitors (8.9% sales). Nokia has a long tradition in international university cooperation and actively participate in a variety of multilateral R&D projects around the world.

For example, in 1998 Nokia in collaboration with Ericsson, IBM, Intel

and Toshiba formed the Bluetooth Special Interest Group to develop the technology standard enabling seamless voice and data transmission via wireless and short-range radio. In the same year, Nokia, Ericsson and Psion agreed to form a joint venture called Symbian to develop the wireless software standards for wireless information devices. Nokia is also working closely with software firms like Geoworks in California to develop the next generation wireless phones.

Nokia executives are strongly committed to open standards and interoperability in wireless and are not shy to collaborate with competitors to develop shared operating systems and standards. The logic is that the easier to use phones and other wireless devices, and the better they work together, the more people will want to buy them.

Global Marketing and Branding

To compete in an increasingly commoditized market, Nokia emphasized creative marketing and branding concepts. Nokia realized very early that a mobile phone is a personal technology that must suit its user's tastes in terms of function, design and aesthetics. Nokia encourages its people to think like a consumer products company and introduces a variety of new models every year, much like a car manufacturer or a clothes designer.

To better address major user segments in the target market, Nokia segmented the mobile phone market into four clearly defined segments – businessmen/ professionals, teenagers, the fashion conscious, and bargain hunters. It also changes features, designs and colors according to the changing trends of fashion and encourages people to customize their phones to meet specific customer needs, e.g. phones that do not require two hands to use, with switchable covers and changeable ringing tones etc. Nokia introduced various new Asian language interfaces, including Chinese, Japanese and Thai.

Merrill Lynch analyst Barton comments on Nokia's strengths as follows:

“Motorola and Ericsson are pioneers in technology. Nokia is much closer to customers. It doesn't pioneer technology. It gives customers what they want.”

Before Ollila became CEO, Nokia's phones had been sold under a number of different names: Mobira, Radio Shack, cellular operator's private labels. Ollila and his team came to believe that mobile phones would become mainstream consumer products and focused on building Nokia into a global brand.

Nokia hired young and creative marketing executives from consumer goods companies and benchmarked successful brand builders such as Nike, Philip Morris and Daimler-Benz. It applies a “holistic” approach – thinking about the brand in every aspect of design, production, and distribution – and advertising only when all the other elements are in place. Nokia invested heavily in major advertising campaigns that appeal to specific user segments. In the U.S., for instance, it did a self-mocking spot on MTV to go after Generation Xers and sponsored the Sugar Bowl to capture older, professional viewers who are likely to buy phones.

Through careful marketing and advertising, Nokia built a powerful and distinctive global brand. In many parts of the world, “Nokia” is synonymous with “mobile phone”. According to an Interbrand study, Nokia was ranked as the 5th most-valuable brand in the world and the highest ranking non-American brand with a brand value of \$ 38.5 billion (See Exhibit 7).

The Nokia Way

Nokia's organization is characterized by fast decision-making, flat, team-based organization and maximum delegation of decision-making authority. The company's headquarters in Helsinki has the feel of a college campus. Every assignment is given to a team rather than individuals. People frequently move from one project to another and it is often unclear who is in charge. According to Kevin Knowles, human resources manager at Nokia's Texas office:

“People who join Nokia spend a few months trying to figure it out. You really have to develop a network of people to get things done.”

Nokia employs the “Concurrent Engineering Process” under which the product development, marketing, sourcing and production departments work closely as a team. These teams are generally small and self-steering. Suppliers and other external sources of technological know-how are integrated into the process, resulting in a much faster and more cost-efficient new product launch.

To improve the supply chain management process, Nokia launched the “Supply Line Management” initiative in 1995. It focused on finding the loopholes in the current supply chain and logistics process among its customers/suppliers and finding out the solutions for them. Teams were formed from different departments worldwide, including sourcing, R&D, production, distribution, finance and legal affairs. The teams came up with numerous ideas for improving the purchasing, logistics, quality control and product development process, which slashed inventories and speeded up the turnover of raw materials and finished goods.

To speed Nokia's international growth, Nokia management constantly encourages a global mindset within the organization. English is the official language and a large percentage of senior managers have overseas working

experience. Employees are infused with an open, value-based culture. The cornerstones of Nokia's values are:

- Customer satisfaction
- Respect for the individual
- Achievement
- Continuous learning

Nokia management seeks to internalize these values through debates and discussions among teams. Nokia's annual strategy meetings, specifically named "the Nokia Way", plays an important role in this process. The meeting starts with managers gathering from all over the world, brainstorming about technological and life-style trends and discussing strategic priorities of Nokia in the global market. The lengthy discussions are distilled into a strategic vision for the company, which is transmitted throughout the Nokia organization through a large number of presentations and discussions at all levels. Progress on achieving the desired results is monitored through the performance management process and regular internal opinion surveys.

Future Challenges

In less than 10 years, Nokia has successfully transformed itself from a staid, money-losing conglomerate into a vibrant global telecom powerhouse. The mobile phone industry has grown at more than 60% in the last five years, with more than 570 million people in the world having cellular phones today. Both Nokia and Motorola predict that by 2003, a billion people around the world will own at least one mobile phone, displacing the PC as the essential appliance of the Information Age.

Despite the impressive growth performance so far, Nokia is facing a host of new challenges given the rapid pace of change in the global mobile phone

industry.

First is the technology risk. In the 1990s, Nokia rode the GSM wave to global success. Today, the mobile phone industry is again at a crossroad as competing digital standards, such as CDMA, is being adopted by many large cellular operators (See Exhibit 8). The transition from the current 2G phones to the next-generation 3G phones poses a challenge for Nokia, since 3G phones would be based on CDMA technology which is not compatible with Nokia's GSM technology. In order to move into 3G, Nokia will have to invest significantly to develop the competence in the new technology standard, called W-CDMA, which is widely being adopted in Europe and Asia.

Second is the increasing complexity and sophistication of handphones with the introduction of Wireless Application Protocol (WAP) and other software and standards. WAP provides a universal open standard for bringing Internet content and value-added services to mobile phones and other wireless devices. WAP would enable users to access web-based interactive information and services from the screen of the mobile phones. Nokia has already launched some WAP phone models, but market reaction of its initial version – the 7110 – has been disappointing. The delay in the introduction of the 6210, Nokia's first mass-market WAP phones, triggered a 26% drop of its stock price in July 2000.

Nokia also faces an unprecedented level of competition from both existing competitors and new entrants.

Motorola had been the market leader in the global mobile phone industry till 1998 when Nokia took the title from it. In 1999, Motorola went through a major restructuring and is now ready to strike back. In 2000, Motorola was successful in shipping its first WAP phones earlier than Nokia. It is currently working on the 3G solution, the "Aspira Architecture", in collaboration with Cisco, AT&T and other software companies.

Ericsson is the third largest mobile phone company with global market share of 10.5%. Last year, Ericsson faced a major blow in the U.S. market as

sales dropped from 19% of the market to 11.5%. Recently, Ericsson acquired the telecom infrastructure business of Qualcomm that had provided Ericsson with access to the CDMA technology. It has already marketed its WAP phones and is now concentrating on 3G based on the WCDMA standard which it has been working on since 1990.

Samsung, the Korean electronics company, has been extremely aggressive by launching more than 100 types of cell phones in less than three years. Samsung has quickly grabbed the fourth place in the mobile phone industry with global market share of 6.2%. It has competence in the CDMA technology and has nearly surpassed its competitors in the WAP phones in the U.S. market. Sprint, one of the leading mobile phone operator in the U.S., has four Samsung models as against two from Nokia.

Nokia is also faced with competitive threats from Japanese electronics companies, such as Matsushita, NEC and Fujitsu. Initially, Japan never took GSM seriously as it adopted its own standard that was not found anywhere else in the world. However, that is about to change. Japan will be the first country to have 3G networks, with NTT DoCoMo rolling out its services in the first half of 2001. This time the Japanese have adopted WCDMA, the same technology as that of Europe. Vodafone has already decided that four out of its five 3G handsets will come from Asian rather than European suppliers.

As today's mobile phones morph into many different devices, such as handheld computers, game consoles, and pocket audio/visual terminals, new competitors like Microsoft, Palm, Sony, and Phone.com are entering the market, challenging the traditional handset makers. Since the success of these new devices will depend on the services and applications that are developed by third-party firms, an array of software and web solution companies have joined the competition to reap the profits themselves.

One of the major battleground that will reshape the competitive landscape

of the world mobile phone industry is China. As of 2000, China has become the largest market in the Asia-Pacific region and the second largest in the world (after the U.S.) with more than 65 million cell phone subscribers. With current penetration rate of only 5%, it is adding nearly 10 million new subscribers a quarter, and is projected to grow to 160 million by 2003.

So far China has been almost entirely a GSM market. However, in October 2000, China Unicom, the country's second-largest mobile-phone operator, announced that it will build a 10-million subscriber network using Qualcomm's CDMA technology. As a result of China Unicom's decision, nearly a third of China's mobile phone customers could be using Qualcomm's CDMAOne or CDMA2000 systems by 2004.

China has been the second largest market for Nokia, generating revenues of \$2.4 billion in 1999. Nokia had invested in two mobile phone joint ventures in China and the base station factory in Suzhou started operations in early 2000. In response to the new competitive and technological challenges, Nokia will have to reformulate its strategy for China to sustain its dominant position in this increasingly competitive environment.

Exhibit 1: Key Financial Data

Nokia	1999 (\$ million)	% change from 1998
Net sales	20,362	48%
Operating profit	4,024	57
R&D	1,807	53
Capital expenditure	1,398	78
Net profit	2,654	45
Market capitalization	215,624	250

Source: Nokia Annual Report

Business Groups	1999 (\$ million)	% change from 1998
<u>Nokia Networks</u>		
Net sales	5,842	13%
Operating profit	1,114	38
<u>Nokia Mobile Phones</u>		
Net sales	13,575	63
Operating profit	3,191	101
<u>Other Operations</u>		
Net sales	1,024	-2
Operating profit	(281)	

Source: Nokia Annual Report

Exhibit 2: Worldwide Mobile Phone Sales and Market Share

Company	1999 Unit Sales (Thousands of Units)	1999 Market Share (%)	1998-1999 Growth (%)
Nokia	76,335	26.9	97.6
Motorola	47,817	16.9	43.3
Ericsson	29,785	10.5	14.8
Samsung	17,686	6.2	277.4
Panasonic	15,581	5.5	7.7
Others	96,376	34.0	76.7
Total Market	283,581	100.0	65.3

Source: Dataquest (February 2000)

Exhibit 3: Nokia Business and Product Portfolio in 1986

Rubber and Flooring	<ul style="list-style-type: none">• Footwear• Tires• Industrial rubber products
Paper, Power and Chemicals	<ul style="list-style-type: none">• Soft tissue• Electric energy generation and sale• Bleaching agents• Water treatment chemicals
Cables and Machinery	<ul style="list-style-type: none">• Cables• Power projects• Cable production equipment• Capacitors• Cable making machines• Precision castings and components• Lightweight fixtures
Electronics and Telecommunications	<ul style="list-style-type: none">• TV, VCR, monitors• Satellite transmission equipment• Microcomputers• Point-of-sale systems• Workstation networks• Digital exchanges• Cellular handsets• Pagers

Exhibit 4: Profile of CEO Jorma Ollila

Year	Profile
1950	Born in Seinajoki, Finland
1978	Masters in Economics, London School of Economics
1978-1980	Citibank, London, Account Manager
1981	M.Sc (Engg), Univ of Helsinki
1981-1982	Citibank, Account officer
1983-1985	Citibank, Member of the Board of Management
1985-1986	Nokia, Vice President, International Operations
1986-1989	Nokia, Senior Vice President, Finance
1990-1992	Nokia Mobile Phones, President
1992-1999	Nokia, President and CEO
1999-to date	Nokia, Chairman of the Board and CEO

Source: Nokia.com

Exhibit 5: Share Prices of Nokia and Competitors

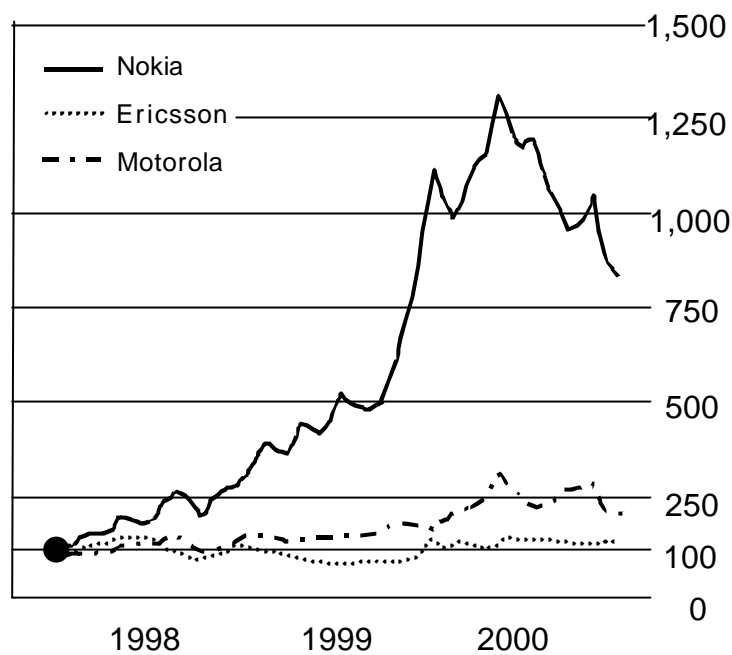


Exhibit 6: Nokia's 10 Major Markets

Countries	Net Sales 1999, \$ millions
U.S.A	3,460
China	2,401
UK	1,910
Germany	1,729
Italy	996
France	980
Brazil	618
Netherlands	560
Finland	493
Australia	450

Exhibit 7: World's Top 10 Brands

Rank	Brand	Country	Brand Value (\$ billion)
1	Coca-Cola	US	72.5
2	Microsoft	US	70.2
3	IBM	US	53.2
4	Intel	US	39.0
5	Nokia	Finland	38.5
6	GE	US	38.1
7	Ford	US	36.4
8	Disney	US	33.6
9	McDonald	US	27.9
10	AT&T	US	25.5

Source: Interbrand, 2000

Exhibit 8: Telecommunications Technology Standard

Millions of subscribers and percentage of total

REGION/ COUNTRY	END SEPT 2000		END 2004	
	GSM	CDMA	GSM & WCDMA	CDMAONE & CDMA2000
World	381 68%	74 13%	789 64%	294 23%
Europe	245 99.7	1 0.3	430 96	17 4
North America	8 13	28 45	21 14	97 66
Latin America	1 3	10 20	18 16	37 32
Asia-Pacific	107 56	35 18	235 59	127 32
China	64 99.5	0.3 0.5	134 68	63 32
Hong Kong	4 83	1 17	4 73	2 27
Japan	0 0	6 12	36 40	21 23
South Korea	0 0	26 100	11 30	25 69
Southeast Asia	12 98	0 2	27 75	9 25
India	2 100	0 0	12 80	3 20
Middle East	8.1 96	0.3 4	36 86	6 14
Africa	8.4 100	0.0 0	37 84	7 16

Source: Forbes (Nov. 27,2000)