

INTERNATIONALISATION AND INNOVATION: A CASE STUDY OF NOKIA

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NOKIA is one of the 'e-generation' companies, which relies on the web to conduct their everyday business, demanding richer and more personalized experience. Its objective is 'to transform the Digital Age to a truly Mobile Age', giving everyone access to information. Nokia is the undisputed global king of mobile communication. Its strategy is to become a global player in telecommunications through 'collaboration and innovations'. It has made spectacular innovations in mobile communications. It brought technologies such as General Packet Radio Services (GPRS), Wideband Code Division Multiple Access (CDMA) as the mobile moves third generation (3G). Nokia has established their cutting edge technology and trend settling lifestyle offerings while unveiling their mobile handset products. In 3G services, Nokia will give e-mail, weather information maps, rout planning, traffic information, bank account data, views, travel information, etc. Nokia adopted strategy of mergers, acquisitions, alliance and collaboration to gain superiority in technology and competitive advantage. While Nokia is the market leader in handset manufacturing with 35.3% share, Ericsson is the king of wireless network equipment with 33% market share. Nokia made impressive performance during

1996-2000. Nokia's future growth areas include market leadership in security infrastructure for corporates, supplying solutions to help corporations block viruses and intruders at their network gateways.

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Nokia is one of the 'e-generation' companies, which rely on the web to conduct their everyday business, demanding richer and more personalised experiences. Other 'e-generation' companies are Amazon.com, Federal Express, E*TRADE, United Airlines, DIRECTV and Kaiser-Permanente.

Nokia is the global leader in mobile communications. A pioneer in mobile telephony, Nokia is the world's leading mobile phone supplier and supplier of mobile, fixed and IP networks and services and multimedia terminal. Nokia owned 32% of the world cellular phone market and is the undisputed global king of that business. It has sold more than 128 million mobile phones in 2000, which represents 64% growth over 1999. Market volume for mobile phone market was 405 million in 2000, representing a 45% increase over 1999. Nokia is one of the most broadly held companies in the world with listing on six major exchanges of the world.

Nokia's principal objective is 'to transform the Digital Age to a truly Mobile Age', giving everyone access to information'. The slogan was "Connecting People" which has recently been replaced by 'Connecting to Life'.

Nokia's strategic intent is to take a leading, brand-recognized role in creating the Mobile Information Society by combining mobility and the Internet and stimulating the creation of new services.

Brief History of Nokia, the Corporate

From its inception, Nokia was in the communications business as a manufacturer of paper - the original communications medium. Nokia starts in 1865 as a lumber mill on the banks of the Nokia river. The process of Nokia's transformation from staid old conglomerate into one of the world's most relentlessly focussed consumer technology company was relatively slow, but steady and sustainable.

Nokia Corporation was formed in 1966 through a merger of three companies viz. Pulp and Paper, Tyres and Cables and Paper Manufacturing. During 1970's, Nokia started to diversify its business through expansion in different electronic product areas. Mobile Telephony did not exist as such, but Nokia was already a leading player in radio telephones. After the oil shock of 1973, Nokia experienced strategic problems in its traditional products. The then CEO, Kari Kairamo set out future goal of the company as internationalisation and innovation, increase the share of high tech products and maintain the competitiveness of its traditional products like paper, tyres and cables. In order to increase the share of

high tech products, Nokia diversified into consumer electronics and computers. Nokia has got a golden opportunity to enter high tech product when Finish army invited in the electronics industry to develop a new type of portable radio telephones. Nokia got the order alongwith Salora and Televa. Later Nokia formed Mobira - a joint venture with Salora, which later became a fully subsidiary of Nokia. It also acquired Televa and became a global leader in mobile phone.

Nokia's major strategy in business is internationalisation and innovation of their business. Nokia acquired Salora and Luxor in 1984 for supplementing the competence in R & D and small scale production with mass production and market orientations. The CEO of Nokia Kari Kairamo saw this acquisition as a step in further international cooperation. Later in 1986, Nokio integrated Salora and Luxor with 100% ownership.

After the demise of Kari Kairmo in December 1989, Jorma Ollila became the new CEO of Nokia in 1992. Jorma Ollila was a successful President of Nokia Mobile Phones. His strategy was the fastest growth, the productive investments and better results in Nokia's telecommunications sector. Nokia's strategy was to invest in telecommunications and closely associated business operations. It had focussed on industry segments and geographic regions that had good opportunities for growth and profitability.

In pursuit of their new strategy, Nokia divested cables and machinery business in 1993 and 1995. In 1996, it had completely divested consumer electronics business to Semi-Tech (Global) subsidiary

of Toronto. After these moves, Nokia has operations only in the telecommunications and mobile telephone industry.

The Corporate Nokia

Nokia comprises of three business groups : Nokia Networks, Nokia Mobile phones and Nokia Communications products. In addition Nokia includes a separate Nokia Ventures Organisation and Nokia Research Centre.

Under Nokia Networks, Nokia supplies mobile, broad band and IP infrastructure for both analog and digital networks. The network products include switching, transmission, network management and intelligent network (IN) solutions. These products are designed to meet the diverse needs of wireless fixed and convergent environments. Nokia networks are modular in design and are inherently flexible.

Nokia Mobile Phones is the world's largest manufacturer of mobile phones with a brand identity. They develops sophisticated mobile phones and accessories for all major analog and digital (GSM, AMPS, CDMA, TDMA) standards. Nokia phones are stylish, beautiful and have high quality.

Nokia communications products consist of Nokia multimedia terminals and Nokia Industrial Electronics. Nokia multimedia terminal supplies terminals designed for reception of digital broadcasting and multimedia applications. Nokia multimedia terminals collaborates closely with program and content providers worldwide to offer consumers attractive products and services such as online education, entertainment and shopping.

Nokia industrial electronics supplies high end large computer and workstation monitors. They produces their products with picture quality, ergonomic design and user friendliness. Nokia multimedia terminals offer user friendly digital multimedia terminals. Reception options include satellite, cable and terrestrial models. Nokia's expertise in satellite receiver technology and its pioneering role in multimedia reflects its history of innovation in the field. They developed the first digital multimedia terminal in the world.

Nokia Venture Organisation develops innovative new ideas for the home environment and the corporate world, expanding Nokia's business scope into promising new areas in telecommunications and data communications solutions, products and services. Nokia Ventures Organisation includes Nokia Internet Communications, Nokia Ventures Fund and an internal venturing unit. Nokia Internet Communications consists of Nokia Wireless Business Communications, Nokia Wireless Software Solutions and Nokia IP application and connectivity platform. Nokia Wireless Business Communications develops enterprise solutions like Nokia Wireless LAN products and IP Telephony solutions. Nokia IP Application and connectivity platforms offer worldclass routing capabilities with security and mobility applications.

Nokia Research Centre covers full range of activities from the exploration of new technologies and concepts to the development of actual products that fulfill consumers needs. Nokia has collaboration

with the media lab at MIT. Nokia also had cooperation with other business groups, universities and research institutes.

Financial Performance of Nokia

Nokia's financial performance was very impressive and extra ordinary during 1996-2000. Their net sales have been increased by 54 per cent, net profit increased by 53 per cent and their operating profits increased by 48 per cent in 2000 (Table 1). Expenditure on Research and Development has been increased by 47% that was quite substantial. Their earnings per share had shown an increase of 50 per cent (Table 1). Nokia mobile phones constituted 72% of their total sales whereas Networks constituted only 25% in 2000 (Table 2). The net sales of Nokia Networks had increased from euro 2 billion in 1996 to euro 6 Billion in 2000 with an average annual increment of 38% (Table 3). In the case of Nokia Mobile Phones, the net sales had increased from euro 3 billion to a spectacular euro 22 billion with an annual increment of 58% during the same period. Operating profits of Networks has shown an annual average increment of 29% during 1996-2000. Whereas operating profits of mobile phones has shown a spectacular annual average growth of 114% during the same period. There was a corresponding increment in average growth rate of personnel also in mobile phones. However, there was a sharp decline of personnel in Nokia Networks (Table 3).

There was 17% average annual increment in personnel in Nokia Corporation during 1996-2000. In Nokia, at present there are 60,000 people operating as one team

serving its customers in 130 countries.

The main market segments of Nokia was Asia Pacific (67%), followed by America (57%) and Europe (47%) (Table 4).

Nokia's ten market centres which represents 64% of total sales are given in Table 5. Nokia's main market centre was USA (17.5%) followed by China (10.1%), UK (9.3%) and Germany (8.5%) in 2000 (Table 5). Nokia always counts China as its No.2 customer behind USA in terms of net sales across its business units. It is interesting to note that Nokia's market in Finland was less than 4% in 2000 (Table 4). Exports from Finland had increased tremendously from euro 4 billion to euro 13 billion during 1996-2000, with an average annual growth rate of 36% during the same period. However exports from Finland and net sales of Nokia's subsidiaries had increased from euro 6 billion in 1996 to euro 30 billion in 2000 with an annual average growth of 48% during the same period. Nokia has production centres in 10 countries. Nokia invested heavily in R&D activity with an annual expenditure of euro 3 billion in 2000. The R&D expenditure was growing at an annual average growth of 8.8% during 1996-2000. Nokia has R&D centres in 15 countries. Nokia had 19,304 R & D employees approximately 30% of Nokia's total personnel.

Nokia's return on capital employed had increased from 22.7% in 1996 to 58% in 2000. Return on equity had increased from 20.5% to 41.3% during the same period. Equity ratio has increased from 48.4% to 55.7% during the same period. The net debt equity ratio had fallen from -9% to -26% during the same period.

Nokia has extremely good international logistics and scrutiny of 250 million components used daily in mobile phone manufacturing. In the network it is the skill in timing parallel technology programs from the development phase right through to manufacturing and implementation that allows to provide customers with a competitive advantage.

Nokia focussed on productivity which could be seen from the fact that there was 54% increase in revenues against only 9% increase in personnel. Nokia maintains an efficient network of top quality people.

Nokia's mobile telephones sales volume growth has consistently exceeded the market growth.

Nokia - the Innovator

The convergence of the Internet, mobile telecommunications and personalization of services make a paradigm shift in mobile communications system. It has resulted in emergence of different wireless protocols - from Wireless Applications Protocol (WAP), GPRS (General packet Radio Services), GSM (Global System of Mobile Communications), Bluetooth to 3G (Third Generation).

Nokia brought GPRS first to the market. 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. It delivered more than 30 GPRS core networks worldwide.

Nokia launched several products which combined mobile internet infrastructure solutions, which include Nokia mPlatform, WCDMA base stations, Nokia Common Radio Resource Management Solutions,

etc. The Nokia mPlatform provides operators with a new dimension to their existing value added portfolio allowing mobile subscribers greater access to personally relevant services such as weather reports, traffic conditions, restaurant reservation, theatre and cinema ticketing and emergency services. Nokia developed and delivered the world's first integrated TETRA Voice and IP Packet Data System, 800 MHz TETRA System, etc. They launched Mobile Operator Wireless LAN for operators to offer secure high speed data services, bringing access to cooperate networks and the internet from locations such as the office, airport and hotel.

Nokia has established their cutting edge technology and trend setting lifestyle offerings while unveiling their mobile handset products. Their products Nokia 3310, Nokia 3330, Nokia 8210, Nokia 8250, Nokia 8850 and Nokia 8850 the gold edition all incorporated innovative and personalisation features.

In 3G services, Nokia will give e-mail, weather information maps, route planning, traffic information, bank account data, news and travel information. With the introduction of Mobile Internet Technical Architecture, Nokia brings a range of new mobile business to their customers and developing a far more user friendly experience in electronic services for every one.

Nokia brought technologies such as wideband CDMA (Code Division Multiple Access) as the mobile moves towards third generation (3G) services which themselves depends on Internet Protocol. Nokia established a 3G applications centre in Hong Kong to help local industry

develop end-to-end mobile multimedia applications. Nokia Networks announced the Nokia Active Sgment Solution for secure mobile e-commerce services and business-to-business transactions to corporate customers, especially financial institutions and banks.

Nokia introduced in their mobile phones new features, functions and services such as games, music, imaging, etc. They introduced visa branded payment services for Visa Cardholders in Asia - Pacific that enables consumers to make purchases by a simple 'click' on an Internet mobile phone. This service will leverage on Nokia's network and expertise and Visa's global e-commerce initiatives for security and authentication. Nokia offers their customers Lotus Mobile Notes for messaging, collaboration and e-mail.

Nokia's Strategy of Competition, collaboration and Internationalisation.

Cellular phones are quickly becoming a commodity. Nokia constantly improve its phone but at the same time sell them at low price. The demand for cellular phone is growing at the rate of 30-50% annually, especially in some Asian market. About 450 million cellular phones were sold in 2000. Nokia's strategy is to become a global player in telecommunications. Nokia's ongoing efforts are to anticipate future industry trends and adapt its international strategy to match them. It has strengthened its network implementation capabilities by selecting internationally recognised partners. It has appointed Unipalm as the UK distributor for its WAP Server technology and IP Security Solutions network security appliances. It has signed a contract with

Ukrainian Mobile Communications (UMC) to supply the Nokia WAP (Wireless Applications Protocol) solutions enabling the delivery of mobile internet services to UMC customers. Nokia Network Russia sells equipment to cellphone service providers in Russia.

Nokia is always well ahead of its competitors viz. Motorola of US, Ericsson of Sweden, and Siemens of Germany and Alcatel of France. The competition between Nokia and Ericsson helped to turn both companies into global giants. While Nokia is the market leader in handset making, Ericsson is the king for wireless network equipment. The market share for Nokia handset was 35.3% followed by Motorola (13.2%), Siemens (6.9%) and Ericsson (6.8%) in 2001. While Nokia garners 66% of the revenue and 19% profit margins from handset making segments, Ericsson is dominant player in the fast growing network equipment that provides them 65% of its revenue. Nokia maintained their leadership in handsets because they have always excelled at designing and marketing mobile phones at a variety of price levels. However, Ericsson dominates in network with a 33% market share. Ericssons' revenues from networking equipments have been growing at 29% a year with 17% profit margins. Ericsson is far better positioned to benefit from the build out of more advanced wireless networks -3G which promises better data video and multimedia services. However, Nokia's resources, project management skills, process and partners are directed towards the adoption of 3G.

Nokia's corporate culture is one of the company's strategic and competitive

advantages. Nokia has flat, non-hierarchical working style, it nurtures discussion and openness as well as encouraging entrepreneurs and risk taking. The Nokia way is a frame of mind based on mutual respect and willingness to work together in a constructive way towards high quality result. Their competitive advantages are speed and flexibility in decision making. Nokia created a user-friendly mobile Internet experience.

Nokia always invest in their core business units such as Nokia Mobile Phones and Nokia Networks for their developments. They always pursue new ideas in their core business units. People in Nokia are encouraged to develop speed, quality, openness, integrity, teamwork, accountability, responsibility and empowerment in their day-to-day dealings.

Mergers, Acquisition and Alliances - A Strategy for Competitive Advantage

As said earlier, Nokia as a company started with the merger of three traditional companies viz. pulp and paper, tyres and cables, and paper manufacturing. Nokia continued the strategy of mergers and acquisitions to gain superiority in technology and competitive advantage and internationalisation.

Nokia acquired Discovery Com, a company which provides solutions that enable communications service providers to rapidly install and maintained Broad Band Digital Subscriber Line (DSL) Services for fast internet access. This acquisition would strengthen Nokia's loop management and related DSL

competencies. It acquired Network Alchemy for IP clustering solutions in 2000. Nokia acquired Telekal Corporation, Rooftop Communications Corporations and Diamond Lane Communications to strengthen its capabilities in IP Wireless bypass technology in 1999. It acquired Ramp Networks inc. to conduct secure transactions over the Internet.

Nokia's strategy towards collaborations can be seen in many of their innovative activities. For instance Nokia has teamed up with Ericsson and Motorola to develop a common industry framework for secure mobile electronic transactions. Nokia is paving the ways to the mobile information society with its innovative products and solutions.

Nokia's future

Nokia Corporation has its sight set on capturing 50% of the worldwide mobile phone market in future. Future growth areas include new market leadership in security infrastructure for corporate, supplying solutions to help corporations block viruses and intruders at their network gateways. It aimed at to be a global leader in the mobile Internet.

TABLE 1 : NOKIA'S FINANCIAL PERFORMANCE

(IN MILLION EURO)

PARTICULARS	1999	2000	Percentage change
Net Sales	19772	30376	54
Operating profits	3908	5776	48
Profit before taxes	3845	5862	52
Net profits	2577	3938	53
Research & Development	1755	2584	47
Capital expenditure	1358	1580	16
Market capitalisation	209171	222876	6
Earnings per share	0.56	0.84	50

Source : Nokia Financial Statements 2000

TABLE 2 : NET SALES BY BUSINESS GROUPS (MILLION EURO)

PARTICULARS	AMOUNT	%	AMOUNT	%
Nokia Networks	7714	25	5673	29
Nokia Mobilephones	21887	72	13182	67
Nokia Venture Organisation	854	3	415	2
Nokia Groups*	30376	100	19772	100

Source : Nokia Financial Statements 2000

* includes other business groups

**TABLE 3: NET SALES, OPERATING PROFITS
AND PERSONNEL BY BUSINESS GROUPS
(IN MILLIONS EURO)**

Particulars	1996	1997	1998	1999	2000
1. Net Sales					
Nokia Networks	2242	3166(41.2)	4390(38.7)	5673(29.2)	7714(36.0)
Nokia Mobile Phones	3629	4649(28.1)	8070(73.6)	13182(63.3)	21887(66.0)
Nokia Venture Org.	-	-	-	415	854 (105.8)
Nokia Group	6613(6.8)	8849(33.8)	13326(50.6)	19772(48.4)	30376(53.6)
2. Operating Profits					
Nokia Networks	501	682(36.1)	960(40.8)	1082(12.7)	1358(25.5)
Nokia Mobile Phones	241	645(167.6)	1540(138.8)	3099(101.2)	4879(57.4)
Nokia Venture Org.	-	-	-	175	387
Nokia group	717	1422(98.3)	2489(75)	3908(57)	5776(47.8)
3. Personnel					
Nokia Networks	12558	15710(25.1)	19280(22.7)	22804(18.3)	23508(3.1)
Nokia Mobile Phones	10927	12631(15.6)	16064(27.2)	20975(30.6)	27353(30.4)
Nokia Venture Org.	8281	7149(-13.7)	5747(-19.7)	6142(6.9)	5625(-8.5)
Nokia Group	31766	35490(11.7)	41091(15.8)	51177(24.5)	58708(14.7)

Source : Nokia Financial Statement 2000

Note : Figures in brackets indicate % change over the previous year

**TABLE 4 : NET SALES BY MARKET SEGMENTS
(IN MILLION EURO)**

Particulars	1996	1997	1998	1999	2000
Europe	4070	5212(28.1)	7673(42.2)	10614(38.3)	15554(46.5)
of which Finland	410	430(4.9)	465(8.1)	479(3.0)	494(3.1)
America	1065	1601(50.3)	2815(75.8)	4909(74.4)	7708(57.0)
Asia Pacific	1478	2036(37.8)	2838(39.4)	4249(49.7)	7114(67.4)
Total	6613	8849(33.8)	13326(50.6)	19772(48.4)	30376(53.6)

Source : Nokia Financial Statement 2000

Note : Figures in brackets indicate percentage changes over previous year

TABLE 5 : TEN MAJOR MARKETS, NET SALES

COUNTRIES	1999	2000
USA	3360 (17.0)	5312 (17.5)
China	2332 (11.8)	3065 (10.1)
UK	1855 (9.4)	2828 (9.3)
Germany	1679 (8.5)	2579 (8.5)
Italy	968 (4.9)	1243 (4.1)
France	951 (4.8)	1085 (3.6)
Brazil	600 (3.0)	1056 (3.5)
Philippines	203 (1.0)	780 (2.6)
Australia	437 (2.2)	723 (2.4)
Spain	420 (2.1)	678 (2.2)
Total	19772	30376

Source : Nokia Financial Statements 2000

Note : Figures in brackets indicate percentages

TABLE 6 : KEY RATIOS AND ECONOMIC INDICATORS
(IN MILLION EURO)

Particulars	1996	1997	1998	1999	2000
Exports from Finland	3946	5408 (37.1)	7038 (30.1)	9334 (32.6)	13390 (43.5)
Exports and foreign subsidiaries	6203	8419 (35.7)	12861 (52.8)	19293 (50.0)	29882 (54.9)
R & D Expenditure	591 (8.9)	761 (8.7)	1150 (8.6)	1755 (8.9)	2584 (8.5)
Return on capital employed (%)	22.7	38.3	50.2	55.7	58.0
Return on equity (%)	20.5	32	38.5	41.3	41.3
Equity ratio (%)	48.4	52.7	52	53.3	55.7
Net debt equity ratio (%)	-9	-35	-36	-41	-26

Source : Nokia Financial Statements 2000

Note : Figures in brackets indicate percentage changes over previous year

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