

Technology Leadership

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Senior Vice President and CTO

Nokia Capital Market Days 2003

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Agenda

- Digital Convergence – Opportunity to Add Value
- Nokia Platform Strategy for Innovation and Economies of Scale
- Technology as a Cornerstone for Sustainable Success
- Product Creation for Volumes and Innovation
- Conclusions

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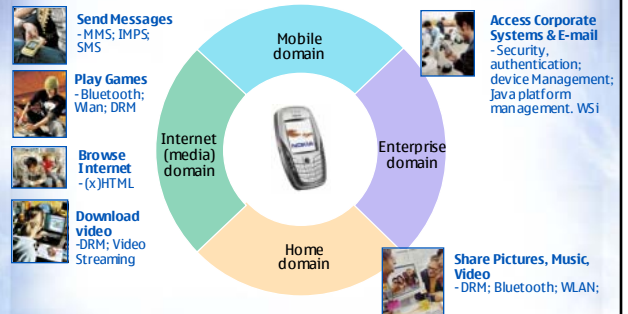
Convenience for the user



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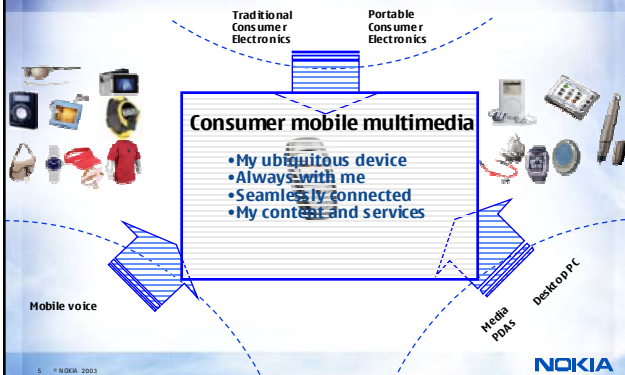
In Converging Digital World – Nokia Brings Seamless Solutions



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Personal Mobile Device will capture value



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Life Goes Mobile With Evolving Services



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Product platform: Definition

- **Platform** aims to provide a family of distinct products or services, covering current and future customer segment needs in a rapid and cost-effective manner



VW Golf



Audi A3



Seat Leon

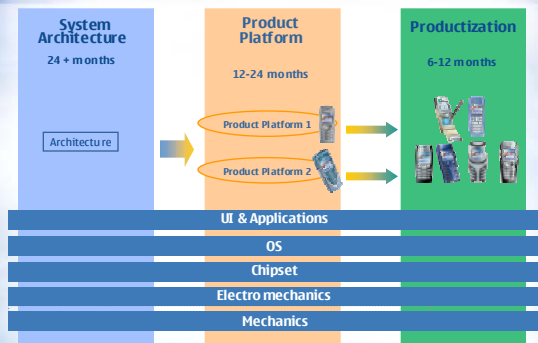


Skoda Fabia

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Right timing with New Innovations



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Platform Strategy

Consumer offer



Products



Categories

STYLE DIMENSIONS:
Basic, Expression, Classic, Premium, Fashion, Active

Features

FUNCTIONAL DIMENSIONS:
Phones, Imaging, Entertainment, Media,
Business Applications

Software platforms



Series 30 Series 40 Series 60 Series 80 Series 90

Chipsets



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Common Engine Platforms Enabling Rapid Innovation of Differentiated Products

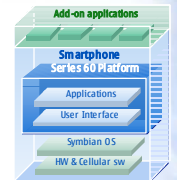


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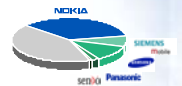
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Series 60 - the Leading Smart Phone Platform

- Preferred terminal platform
 - 9 Models launched
 - Series 60 has 80% share of Smart Phone market
- Enjoys wide developer support
- Enables Interoperability
- Allows differentiation



Interoperability between terminals
from a wide range of manufacturers



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Enabling Operator Service Differentiation

- Operator Service differentiation combined with benefits of Series 60 platform consistency
- Coexistence of operator service and device look & feel
- UI themes highlight operator's service brand



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Software Platform for True Innovation

Nokia's Developer promise :

Access to the Mobile mass market via volume developer platform and key technology enablers

World's largest Mobile Developer Community

- 1.250.000 registered members
- 330 000+ documents downloads per month
- 12 000+ unique visitors per day
- 100 new topics/day in discussion boards

Richard Horton, Head of Content Platforms, T-Mobile International :

"Since their launch, Series 60 devices (including the Nokia 3650 and 7650) have achieved some of the highest number of downloads from t-zones and contributed to a significant increase in download business for T-Mobile International"



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Nokia Chipset Strategy

GSM/WCDMA

- Drive and Focus on Value-added
- Leadership in 3G family - EDGE & WCDMA/GSM

CDMA

- Emphasis for leadership in CDMA
- Lead and drive 1X-EV/DV
 - August 2003: the world's first 1xEV-DV high-speed data call
- Working with TI and ST to introduce a chipset for open market based on Nokia's CDMA technology

WLAN & proximity

- Strong commitment to WLAN, complementing cellular
- Drive for mobile optimised WLAN, and other non-cellular

Application Processors

- Cooperate with industry bests & add value through own technology

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A Year of Nokia Leadership in EDGE

Nov 18, 2002

- Launch of world's first GSM/EDGE 3G phone
- Up to 118.4 kbps
- GSM/EDGE 850/1800/1900
- Deliveries: spring 2003

Nov 18, 2003

- Three models shipping. Several more announced.
- 6230 (up to 236.8 kbps), 3GPP streaming
- 7700 media device
- 5140 with PTT (RT VoIP over GPRS/EDGE)



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Nokia is leading in 3G in all key technology metrics

Nokia 7600

- Standby: 290 hours
- Active connection time: 190 minutes
- Weight: 195g
- Search time: 190s



Nokia 7600

Motorola A 920

- Call reliability
- Handover between 3G and 2G
- Standby time
- Active connection time
- Weight

Motorola A 920

NEC E 808

- Standby: 70 hours
- Active connection time: 201 minutes
- Weight: ~195g
- Seamless handover: NO



NEC E 808

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3G Evolves to Multiradio

- Several connection methods will become to complement 3G
- IP convergence providing unified connection layer
- Towards radio-agnostic services



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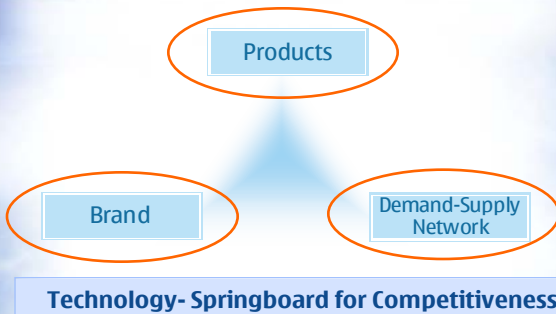
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Scope of R&D Broader than Product Development



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Nokia's Product Creation Philosophy

Vitruvius: Three Pillars of Architecture

- Firmitas **Reliability. Quality. It works.**
- Utilitas **Ease of use and ergonomics. Designed to suit its purpose.**
- Venustas **Beauty. Equally important as the other two.**



iF design award.CHINA
Sep 24, 2003

The panel of judges looked at, not only the product's exterior, but its **overall design and function**. What makes Nokia 6108 special is its intuitive pen input feature, which is specially designed for Chinese language users.

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User Interfaces Contributing to Nokia Brand

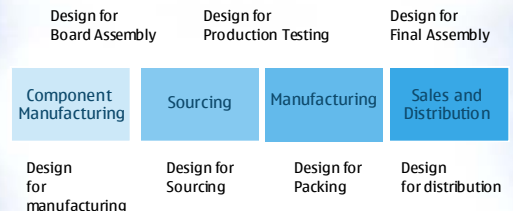
- User Interface is a fundamental constituent in Nokia's brand equity, and together with industrial design the key differentiator against competitors



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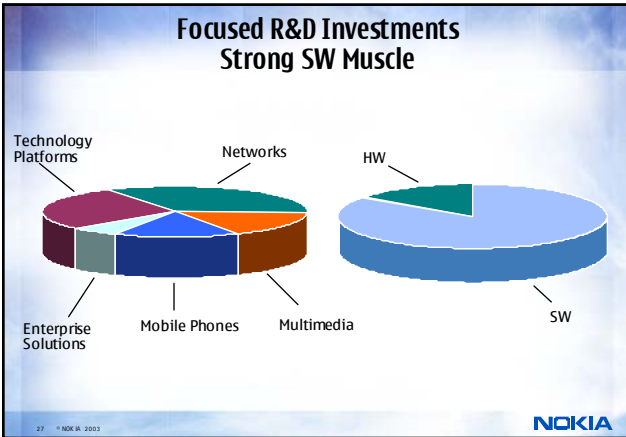
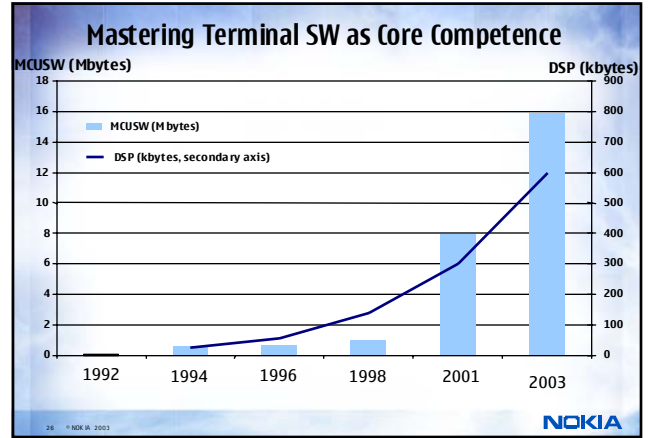
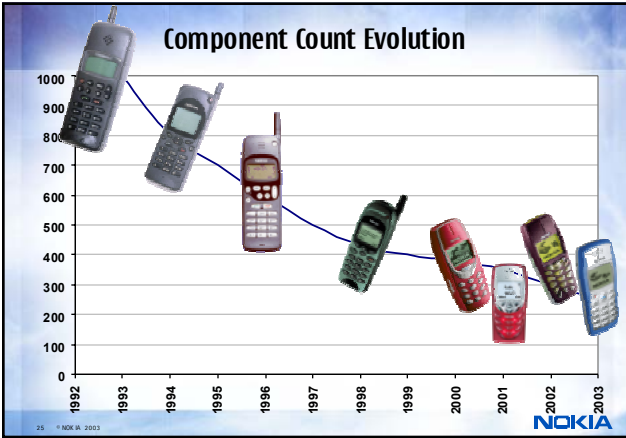
Product Creation: the Foundation for Nokia's Demand Supply Network Excellence



Mastering the Demand-Supply Network

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Conclusions

- Technology brings the means to delight the users
- Platforms provide basis for effective & efficient product creation
- Design for demand-supply network is the foundation for industry leading profits
- Nokia simultaneously masters complexity & scale

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CONNECTING PEOPLE

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