Higher returns through focused growth

Rajeev Suri
President and CEO, Nokia
2014
- Created Nokia Technologies
  - Sold Devices & Services

2015
- Announced the acquisition of Alcatel-Lucent

2016
- Launched OZO
- Regulatory approval for Alcatel-Lucent
- Completed 100% acquisition of Alcatel-Lucent
- Enhanced licensing deal with Samsung
- Sold HERE

2017
- Decision in arbitration with Samsung
- Licensed brand to HMD global
- Acquired Withings
- Acquired Gainspeed
- Completed 100% acquisition of Alcatel-Lucent
Solid Q1–Q3 results during a transitional year

**Net Sales (non-IFRS)**

- Q1–Q3 2015: €18.9bn
- Q1–Q3 2016: €17.2bn

(9)%

**Gross margin (non-IFRS)**

- Q1–Q3 2015: 38.0%
- Q1–Q3 2016: 39.3%

130bps

**Operating margin (non-IFRS)**

- Q1–Q3 2015: 8.5%
- Q1–Q3 2016: 7.2%

(130)bps
Overview of the day

1. Well positioned in our primary market
2. Focused growth opportunities in attractive adjacencies
3. Disciplined operating model an important competitive advantage
4. Potential to deliver superior financial results
Rebalancing for growth

1. **Lead**
   in high-performance end-to-end networks with communication service providers

2. **Expand**
   network sales to select vertical markets

3. **Build**
   a strong standalone software business

4. **Create**
   new business and licensing opportunities in the consumer ecosystem
<table>
<thead>
<tr>
<th>Cloud Infrastructure</th>
<th>1 Lead in high-performance end-to-end networks with communication service providers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Network</td>
<td></td>
</tr>
<tr>
<td>Access Network</td>
<td>Communication Service Providers</td>
</tr>
</tbody>
</table>
Nokia Bell Labs Future X

A clear vision of how networks need to evolve

1. Massive-Scale Access
   - Humans & Machines

2. Converged Edge Cloud
   - Self-optimized coverage & capacity

3. Smart Network Fabric
   - Dynamic customer services
     - SDN, NFV
   - Management & Orchestration
   - Dynamic network optimization
   - Multi-operator federation
   - Access agnostic converged core
   - Modular, decomposed network functions
   - Common data layer
   - Machine learning
   - Analytics

4. Universal Adaptive Core
   - Programmable Network OS
   - Long fibers
   - Open APIs

5. Augmented Cognition Systems
   - ANP, CSP, ICP, Vertical apps
   - External data sources

6. Digital Value Platforms
   - Digital Value
   - Digital Value
   - Augmented Cognition Systems

8. Dynamic Data Security
   - New trust framework
   - Ecosystem sharing
   - Mass edge monitoring

7. Access Remote
   - Short waves & wires

- ANP, CSP, ICP, Vertical apps
- SDN, NFV
- Management & Orchestration
- Dynamic network optimization
- Multi-operator federation
- Access agnostic converged core
- Modular, decomposed network functions
- Common data layer
- Machine learning
- Analytics
- Open APIs
- Digital Value
- Augmented Cognition Systems
- Digital Value Platforms
- Access Remote
- Long fibers
- Short waves & wires
- Mass edge monitoring
- New trust framework
- Ecosystem sharing
- Mass edge monitoring

- Humans & Machines
- Self-optimized coverage & capacity
- Access Remote
Mobile Networks

Business Group Vision
- 1000X higher throughput, 100X lower latency, 10X peak speed
- Application aware and self-optimized networks
- Support for multiple spectrum bands, technologies, connectivity
- Ultra-secure and ultra-dependable private and public networks

Current Portfolio Focus
1. Radio access: LTE, 4G evolution, 5G
2. Multi-technology small cells to densify networks
3. Service automation
4. Virtualized core & telco cloud infrastructure & services
5. Shared data layer

Programmable Network OS
- Dynamic customer services
- Management & Orchestration
- Dynamic network optimization
- Multi-operator federation

Universal Adaptive Core
- Access agnostic converged core
- Modular, decomposed network functions

Digital Value Platforms
- ANP, CSP, ICP, Vertical apps
- External data sources

Augmented Cognition Systems
- Analytics
- Machine learning
- Open APIs

Smart Network Fabric
- Humans & Machines
- Access
- Converged Edge Cloud
- Common data layer

Augmented Cognition Systems
- Dynamic Data Security
- New trust framework
- Ecosystem sharing
- Mass edge monitoring

Universal Adaptive Core
- Access agnostic converged core
- Modular, decomposed network functions

Digital Value Platforms
- ANP, CSP, ICP, Vertical apps
- External data sources

Mobile Networks
Fixed Networks

Business Group Vision
- Massive-scale ubiquitous access
- Fiber-like speed over any media
- Flexible software-defined access
- Helping CSPs beyond pure connectivity

Current Portfolio Focus
- Advanced Copper, Fiber, and Coax access
- Virtualized access solutions
- Access network transformation services
- Smart Home
- Residential CPE

Digital Value Platforms
- External data sources

Augmented Cognition Systems
- Analytics
- Machine learning

Programmable Network OS
- Dynamic customer services
- Management & Orchestration
- SDN & NFV
- Dynamic network optimization
- Multi-operator federation

Universal Adaptive Core
- Access agnostic converged core
- Modular, decomposed network functions
- Common data layer

Smart Network Fabric
- Long fibers
- Access Remote
- Short waves & wires

Primary investment domain
Secondary investment domain

Humans & Machines

Massive-Scale Access
Converged Edge Cloud

Digital Value Platforms
ANP, CSP, ICP, Vertical apps

Dynamic Data Security
- New trust framework
- Ecosystem sharing
- Mass edge monitoring

Primary investment domain
Secondary investment domain
IP & Optical Networks

Business Group Vision
- Terascale capacity at lowest TCO for all networks
- Dynamic cloud-optimized smart network (DC → WAN → Access)
- “Infinite” network/path programmability & slicing

Current Portfolio Focus
- Terabit IP edge & core routing
- Terabit Optical networking
- Converged adaptive core
- Seamless DC & WAN SDN
- Cloud-based optimized service delivery solutions

1. Converged Edge Cloud
2. Smart Network Fabric
3. Universal Adaptive Core
4. Programmable Network OS
5. Digital Value Platforms
6. Augmented Cognition Systems
7. Dynamic Data Security

Primary investment domain
Secondary investment domain
Applications & Analytics

Business Group Vision
- Automating edge/telco cloud networks
- Cognitive network operation
- Terascale automated IoT/device management contextual security
- Future Enterprise interactivity

Current Portfolio Focus
5 6 7 8
- Cloud/NFV orchestration and operations
- Any device management
- Novel Enterprise comms
- Augmented network + user analytics & security solutions

5 Programmable Network OS
- Dynamic customer services
- Management & Orchestration
- Dynamic network optimization
- Multi-operator federation

6 Augmented Cognition Systems
- Open APIs
- Analytics
- Machine learning

7 Digital Value Platforms
- External data sources
- ANP, CSP, ICP, Vertical apps

8 Dynamic Data Security
- New trust framework
- Ecosystem sharing
- Mass edge monitoring

5 Programmable Network OS
- Universal Adaptive Core
- Access agnostic converged core
- Modular, decomposed network functions
- Common data layer

6 Augmented Cognition Systems
- External data sources
- Analytics
- Machine learning

7 Digital Value Platforms
- Open APIs
- ANP, CSP, ICP, Vertical apps

8 Dynamic Data Security
- New trust framework
- Ecosystem sharing
- Mass edge monitoring

Business Group Vision
- Automating edge/telco cloud networks
- Cognitive network operation
- Terascale automated IoT/device management contextual security
- Future Enterprise interactivity

Current Portfolio Focus
5 6 7 8
- Cloud/NFV orchestration and operations
- Any device management
- Novel Enterprise comms
- Augmented network + user analytics & security solutions

5 Programmable Network OS
- Dynamic customer services
- Management & Orchestration
- Dynamic network optimization
- Multi-operator federation

6 Augmented Cognition Systems
- Open APIs
- Analytics
- Machine learning

7 Digital Value Platforms
- External data sources
- ANP, CSP, ICP, Vertical apps

8 Dynamic Data Security
- New trust framework
- Ecosystem sharing
- Mass edge monitoring
Nokia Technologies

Business Group Vision
- Innovating pro → consumer devices & device technologies
- New digital value platform exploration & innovation
- Unique IPR generation & valuation

Current Portfolio Focus
- Advanced digital health devices & technologies
- Advanced VR devices & technologies
- Device analytics & security

Primary investment domain

Secondary investment domain

Digital Value Platforms
- Programmable Network OS
- Universal Adaptive Core
- Augmented Cognition Systems

Digital customer services
- Management & Orchestration
- SDN & NFV
- Dynamic network optimization
- Multi-operator federation

Common data layer
- Modular, decomposed network functions

Open APIs

External data sources

Humans & Machines

Massive Scale Access

Converged Edge Cloud

Smart Network Fabric

ANP, CSP, ICP, Vertical apps

Analytics

Machine learning

Dynamic Data Security
- New trust framework
- Ecosystem sharing
- Mass edge monitoring

Digital Platforms
- ANP, CSP, ICP, Vertical apps

Long fibers

Short waves & wires

Access Remote
And a powerful, end-to-end scope
#1 in 4G
#1 in copper access
#2 in edge routers
#3 in services
Innovation
1. We use our R&D in a very targeted way.
2. We research technologies with a clear link to what we sell

FTTX

XG-FAST
XG-CABLE
XLG-PON
3 We maximize the value of every euro we spend on R&D
1. Improving efficiency through deployment of best-in-class tools

2. Reducing back-office complexity and redeploying people to the frontline

3. Expanding resources and improving incentives for “hunting”

4. Strengthening competence development, related to software and new portfolio

5. Using expanded automation across all sales processes
Customer experience continues to be strong

12 months through October, year-on-year

2013: 45.0%
2014: 51.9%
2015: 58.7%
2016: 58.7%
Primary market: rebound to positive five-year CAGR
Strong demand expected to drive future investment

Exabytes per day

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>2.0</td>
<td>3.0</td>
<td>4.0</td>
<td>5.0</td>
<td>6.0</td>
<td>7.0</td>
<td>8.0</td>
</tr>
<tr>
<td>9.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Demand**
- **Unmet demand**
- **New technologies + alternate business models**
- **3G + LTE + small cells**

Wi-Fi
New performance requirements will need to be met
Latency
Rebound spread across most regions

- North America: 2016-21
- Latin America: 2017, 2016-21
- Europe: 2016-21
- Middle East and Africa: 2017, 2016-21
- Asia-Pacific (including India): 2017, 2016-21
- Greater China: 2017, 2016-21
Strong market growth expected in segments covered by Applications & Analytics, 5G drives increase in mobile market.
<table>
<thead>
<tr>
<th>Cloud Infrastructure</th>
<th>Core Network</th>
<th>Access Network</th>
<th>Communication Service Providers</th>
<th>Webscale</th>
<th>Vertical Markets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 Lead</td>
<td>2 Expand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>in high-performance end-to-end networks with communication service providers</td>
<td>network sales to select vertical markets</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Webscale**
  - Use IP/Optical/SDN as primary insertion point
  - Mobile access opportunities

- **Vertical Markets**
  - Energy, transport, public sector, technology extra-large enterprises
  - Increase penetration with existing customers
  - Diversify go-to-market
1. Leverage existing technology
2. Focus on select segments
3. Utilize defined insertion points

<table>
<thead>
<tr>
<th>Cloud Infrastructure</th>
<th>1 Lead in high-performance end-to-end networks with communication service providers</th>
<th>2 Expand network sales to select vertical markets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Network</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access Network</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication Service Providers</td>
<td>Webscale</td>
<td>Vertical Markets</td>
</tr>
</tbody>
</table>
Targeted adjacencies: attractive growth rates, sizeable market
<table>
<thead>
<tr>
<th>Applications</th>
<th>Platforms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3 Build</strong></td>
<td><strong>1 Lead</strong></td>
</tr>
<tr>
<td>strong standalone software business</td>
<td>in high-performance end-to-end networks with communication service providers</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Extend strong software presence to fixed and cable</td>
</tr>
<tr>
<td>• OSS, BSS, Service delivery platform</td>
</tr>
<tr>
<td>• Explore strategic options for Enterprise IoT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Core Network</th>
<th>Access Network</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Service Providers</td>
<td>Webscale</td>
</tr>
<tr>
<td>Vertical Markets</td>
<td></td>
</tr>
</tbody>
</table>
| Devices | **4 Create**  
new business and licensing opportunities in the consumer ecosystem |
|---|---|
| Applications | **3 Build**  
strong standalone software business |
| Platforms |  |
| Cloud Infrastructure | **1 Lead**  
in high-performance end-to-end networks with communication service providers |
| Core Network | **2 Expand**  
network sales to select vertical markets |
<p>| Access Network |  |
| Communication Service Providers | Webscale | Vertical Markets | Consumer |
| Patent licensing | Technology licensing | Brand licensing |</p>
<table>
<thead>
<tr>
<th>Devices</th>
<th>4 Create</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>new business and licensing opportunities in the consumer ecosystem</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Applications</th>
<th>3 Build</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>strong standalone software business</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Platforms</th>
<th>1 Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloud Infrastructure</td>
<td>in high-performance end-to-end networks with communication service providers</td>
</tr>
<tr>
<td>Core Network</td>
<td>2 Expand</td>
</tr>
<tr>
<td></td>
<td>network sales to select vertical markets</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Access Network</th>
<th>Communication Service Providers</th>
<th>Webscale</th>
<th>Vertical Markets</th>
<th>Consumer</th>
</tr>
</thead>
</table>

Technology renewal through innovation
Focus on digital health and digital media
<table>
<thead>
<tr>
<th>Devices</th>
<th>4 Create new business and licensing opportunities in the consumer ecosystem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applications</td>
<td>3 Build strong standalone software business</td>
</tr>
<tr>
<td>Platforms</td>
<td></td>
</tr>
<tr>
<td>Cloud Infrastructure</td>
<td>1 Lead in high-performance end-to-end networks with communication service providers</td>
</tr>
<tr>
<td>Core Network</td>
<td></td>
</tr>
<tr>
<td>Access Network</td>
<td></td>
</tr>
<tr>
<td>Communication Service Providers</td>
<td>Webscale</td>
</tr>
</tbody>
</table>
Operational excellence driven by Nokia Business System

- Investment optimization
  - Strategy and financial planning
  - Innovation investment
  - End-to-end M&A

- Performance management
  - Business performance management
  - Integration

- Continuous improvement
  - Transformation
  - Quality, expert networking, and knowledge management

- Talent management
Networks targets

1. Grow faster than our primary market over the long term

2. Expand long-term operating margin to 10% to 15%

3. Perform in line with our primary market in 2017

4. 2017 operating margin of 8% to 10%

5. Operating expenses to decline in 2017 versus 2016

6. €1.2 billion cost savings for the full year 2018
Disclaimer

It should be noted that Nokia and its business are exposed to various risks and uncertainties, and certain statements herein that are not historical facts are forward-looking statements, including, without limitation, those regarding future business and the financial performance of Nokia and its industry and statements preceded by "believe," "expect," "anticipate," "foresee," "sees," "target," "estimate," "designed," "aim," "plans," "intends," "focus," "continue," "will" or similar expressions. These statements are based on management's best assumptions and beliefs in light of the information currently available to it. Because they involve risks and uncertainties, actual results may differ materially from the results that we currently expect. Factors, including risks and uncertainties that could cause such differences can be both external, such as general, economic and industry conditions, as well as internal operating factors. We have identified these in more detail on pages 69 to 87 of Nokia's annual report on Form 20-F for the year ended December 31, 2015 under "Operating and Financial Review and Prospects—Risk Factors", our other filings with the U.S. Securities and Exchange Commission and in our interim report issued on May 10, 2016, our half year financial report issued on August 4, 2016, our interim report issued on October 27, 2016 and our stock exchange release covering our Capital Market Day issued on November 15, 2016. Other unknown or unpredictable factors or underlying assumptions subsequently proven to be incorrect could cause actual results to differ materially from those in the forward-looking statements. Nokia does not undertake any obligation to publicly update or revise forward-looking statements, whether as a result of new information, future events or otherwise, except to the extent legally required.

In addition to information on our reported IFRS results, we provide certain information on a non-IFRS, or underlying business performance, basis. Non-IFRS results exclude costs related to the Alcatel-Lucent transaction and related integration, goodwill impairment charges, intangible asset amortization and purchase price related items, restructuring related costs, and certain other items that may not be indicative of Nokia's underlying business performance. We believe that our non-IFRS financial measures provide meaningful supplemental information to both management and investors regarding Nokia's underlying business performance by excluding the aforementioned items that may not be indicative of Nokia's business operating results. These non-IFRS financial measures should not be viewed in isolation or as substitutes to the equivalent IFRS measure(s), but should be used in conjunction with the most directly comparable IFRS measure(s) in the reported results. A detailed explanation of the content of the non-IFRS information and a reconciliation between the non-IFRS and the reported information for historical periods can be found in Nokia's respective results reports. Please see our issued interim reports for more information on our results and financial performance for the indicated periods as well as our operating and reporting structure. Nokia is a registered trademark of Nokia Corporation. Other product and company names mentioned herein may be trademarks or trade names of their respective owners.

© Nokia 2016