Group Progress Update

Pekka Lundmark
President and CEO

Marco Wirén
Chief Financial Officer

26 January 2023
Agenda

3. Progress since CMD 2021
6. Our purpose and strategy
10. Aspirations across business groups

31. Progress on operational model
34. Capital allocation policy
35. Long-term modelling assumptions
Nokia’s financial performance is transforming...

...with accelerating growth and expanding margins

*2017 is non-IFRS data which adjusted for amortization impacts of the Alcatel-Lucent acquisition.
In 2021 we introduced the three phases for Nokia’s transformation

<table>
<thead>
<tr>
<th>2021 focus</th>
<th>2022 and mid term</th>
<th>Scale</th>
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<tbody>
<tr>
<td><strong>Reset</strong></td>
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<td>✓ Technology leadership</td>
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<td>✓ Operating model</td>
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<td>✓ Mobile Networks</td>
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<td>✓ Lower cost base</td>
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<td>✓ Purpose and culture</td>
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<td>✓ Leadership team</td>
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<td><strong>Accelerate</strong></td>
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<td>• Grow beyond CSP</td>
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<td>• Increase market share</td>
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<td>• Improve operating margins</td>
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<td>• Technology Vision 2030</td>
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<td>• Refreshed ESG strategy</td>
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<td>• Digitalize operations</td>
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<td>• Create new growth</td>
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<td><strong>Scale</strong></td>
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<td>• Higher market share in CSP</td>
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<td>• Market leader in target</td>
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<td>enterprise opportunities</td>
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<td>• Higher operating margins</td>
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<td>• Meaningful partner-driven</td>
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<td>revenue stream</td>
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<td>• New business models</td>
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<td>thriving</td>
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Enterprise momentum building

- Strong return to growth in 2022 with 21% net sales growth
- Strong webscale traction with new IP Routing wins
- Maintain leadership in private wireless
- Building go-to-market with expanding partner network

Aspiration

**Net sales:** Continue double-digit growth to become at least 10% of group net sales

All net sales changes presented are year-on-year in constant currency
Nokia’s purpose uses technology to address global challenges
Aligning roadmaps to make ESG a competitive advantage

At Nokia, we create technology that helps the world act together

Product design and development

Technology strategy and vision

ESG strategy
Nokia’s Technology Strategy for sustainable differentiation

Execute the cross-company technology strategy

**Consumability**
Nokia technology becomes easy to consume

**Software**
Handling the complexity

**AI**
Embracing AI/ML through the stack

**Security**
Foundational to critical networks

**Semiconductor**
System-on-Chip remains critical

**Sustainability**
Minimize footprint, maximize handprint

**Innovation**
Creating the future. The basis for everything.
ESG Strategic focus areas for maximizing impact
Translating our purpose into a refreshed ESG strategy with 5 focus areas

<table>
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<tr>
<th>ESG roles</th>
<th>Focus areas</th>
<th>Key targets/Ambitions</th>
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<tr>
<td></td>
<td>Environment (Climate &amp; Circularity)</td>
<td>2025 100% renewable electricity in facilities</td>
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<td>2030 95% circularity rate</td>
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<td></td>
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<td>2050 Net zero emissions in our value chain</td>
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<td></td>
<td>Industrial Digitalization</td>
<td>We provide connectivity and digital solutions that sustainably transform physical industries</td>
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<tr>
<td></td>
<td>Security &amp; Privacy</td>
<td>Security and privacy become cornerstone of our reputation and product proposition</td>
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<tr>
<td></td>
<td>Bridging Digital Divide</td>
<td>2024 Nokia’s technologies connecting 400 million additional residential subscribers covering unconnected and underserved</td>
</tr>
<tr>
<td></td>
<td>Responsible Business</td>
<td>2030 100% of suppliers delivering high risk activity meet or exceed “H&amp;S preferred supplier” status</td>
</tr>
</tbody>
</table>

Nokia is part of the solution to the world’s biggest challenges
We are a trusted partner within our eco-system
We do the right thing in our operations and interactions with other

Security and privacy become cornerstone of our reputation and product proposition

2024 Nokia’s technologies connecting 400 million additional residential subscribers covering unconnected and underserved

2030 100% of suppliers delivering high risk activity meet or exceed “H&S preferred supplier” status
Investing in product roadmaps to drive industry leadership

Renewed focus on R&D investment

<table>
<thead>
<tr>
<th>Products / BG</th>
<th>2021</th>
<th>2022</th>
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<tbody>
<tr>
<td>NI – IP Networks</td>
<td>Launched FP5 silicon 1st with 112G SerDes ANYsec encryption</td>
<td>World’s 1st 800GE optical interfaces running live with FP5</td>
</tr>
<tr>
<td>NI – Fixed Networks</td>
<td>1st triple coexistence: GPON + 10G + 25G</td>
<td>Launched MF-14 supporting the Fiber for Everything vision</td>
</tr>
<tr>
<td>NI – Optical Networks</td>
<td>Expanded Capacity with C+L band 2.0</td>
<td>Expanded OTN Switch Capacity to 48 Tb/s</td>
</tr>
<tr>
<td>NI – Submarine Networks</td>
<td>1st commercial submarine cable with Aluminium</td>
<td>1st deployment of DCFO for Equinor</td>
</tr>
<tr>
<td>Mobile Networks</td>
<td>Energy efficient AirScale baseband: industry benchmark for flexibility and capacity</td>
<td>5G 3CC Carrier downlink aggregation speed record of 2 Gbps</td>
</tr>
<tr>
<td>Cloud and Networks Services</td>
<td>Pioneering SaaS model launched - energy, security, and core SaaS followed</td>
<td>Patented technology to combine disparate radio paths</td>
</tr>
<tr>
<td>Nokia Technologies</td>
<td>~1,500 patent filings</td>
<td>~1,700 patent filings</td>
</tr>
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</table>
Long-term targets
Delivering continuous improvement each year

- **Revenue growth**: Grow faster than the market
- **Comparable operating margin**: ≥14%
- **Free cash flow**: 55 to 85% conversion from comparable operating profit
Network Infrastructure (NI) performance

Operating Margin – CMD ‘21 recap
2023 target from CMD ‘21  9 – 12%
Current 2023 assumption  11 – 14%

Net Sales (EUR billion)

Gross profit

Operating profit

Public
NI - delivering the critical pieces of the network

NI net sales (2022)

- IP Networks: 34%
- Optical Networks: 21%
- Fixed Networks: 32%
- Submarine Networks: 13%

5G infrastructure & services
Enterprise digital transformation & cloud
Pandemic-accelerated residential broadband
Industry 4.0

New applications need higher capacity networks driving continued innovation and investment across the network.
IP Networks – Our competitive edge
Delivering an agile, secure and sustainable IP Network

Silicon and systems
We build the right systems with the right silicon foundation for the right places in the network enabling optimum network performance and efficiency
• FP routing silicon
• Broad router portfolio

Software excellence
Software quality is the heart of what we do - developed 100% in-house for total control, proven predictability, and demonstrated quality
• SR OS router software
• SR Linux network OS

Automation and tools
Open APIs, fully integrated real-time analytics, assurance, automation and security are critical to address increasing network scale and complexity
• NSP
• Fabric Services System
• Deepfield
• ANYsec
IP Networks – Grow share in CSP, enterprise and webscale

SP Total Routing Market Share*

<table>
<thead>
<tr>
<th>Quarter</th>
<th>3Q17</th>
<th>3Q18</th>
<th>3Q19</th>
<th>3Q20</th>
<th>3Q21</th>
<th>3Q22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market</td>
<td>21%</td>
<td>22%</td>
<td>23%</td>
<td>24%</td>
<td>25%</td>
<td>26%</td>
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Accelerate & Scale

- Addressable market growth: 3% CAGR (2022 – 2025)
- Gain share in CSP edge routing helped by FP5 ramp
- Continue strong double-digit growth in enterprise verticals
- Grow meaningful share in the webscale and data center markets

Aspiration

**Net sales:** Grow faster than market; **Operating margin:** Sustain high-teens operating margin

*Dell’Oro 4 quarter rolling global excluding China*
Fixed Networks - Fiber deployment remains strong
Broadband access potential: Europe and APAC (w/o China) to drive demand

FTTH Penetration Status (2022)

Source: IDATE World FTTX market, Dec 2022.

Home connected: Home with BB services over fiber. Home passed: Home in an area where fiber exists and can be connected to the BB service
Fixed Networks - Continued technology leadership

Lightspan MF-14
First platform ready for 10G-25G-50G-100G for residential and non-residential services

Fastmile 5G mmWave CPE
First affordable mmWave solution for long-reach scenarios

25G
100G

Pioneering FTTH evolution
First 25G solution
First 100G proof-of-concept
Fixed Networks – Continued faster than market growth

Fiber (OLT) market share*

37%  
17Q3 18Q3 19Q3 20Q3 21Q3 22Q3

42%

Accelerate & Scale

Addressable market growth: 4% CAGR (2022 – 2025)

Gain share based on technology leadership

Position to benefit from government funding and neutral host builds

Aspiration

**Net sales:** Grow faster than market; **Operating margin:** Sustain mid-teens operating margin

*Dell’Oro 4 quarter rolling global excluding China
Optical Networks - Scale made simple

**Nokia Optical Networks**

**Scalable Capacity**
Transponders
Photonic Line Systems

**Differentiated Features**
Coherent Routing
Network Synchronization, Secure Connectivity

**Automation**
Basics: Planning, Management, Control
Revenue Opportunities, Operational Excellence
Optical Networks - Share gain aspiration as we make scale simple

Optical Networking market share*

15% 15%

#3 Globally ex. China
#2 in EMEA

17Q3 18Q3 19Q3 20Q3 21Q3 22Q3

Accelerate & Scale

Addressable market growth: 2% CAGR (2022 – 2025)

Expand market share as technology competitiveness improves

Improving scale drives meaningful operating margin potential

Target double-digit from current low-single digit

Aspiration

Net sales: Grow faster than market; Operating margin: Expand to double-digit operating margin

*OMDIA 4 quarter rolling global excluding China
Submarine Networks – Opportunity to improve margins

Aspiration

- **Net sales:** Grow in-line with market;
- **Operating margin:** Improve margins to high-single digit

**Accelerate & Scale**

- Addressable market growth: single-digit CAGR (2022 – 2025)
- Grow with the market maintaining market leadership
- On path to improving margins towards high-single digit

**Internet traffic through submarine cables** 99%

**Hyperscaler investment in recent years** ~2x

**Nokia leadership position, expertise, experience and capability** #1

**Continuous actions to retain leadership**
- Delivery capacity
- Innovation
- Digitalization

**Aspiration**

**Net sales:** Grow in-line with market; **Operating margin:** Improve margins to high-single digit
**Mobile Networks – Back on track**

**Operating Margin – CMD ‘21 recap**

- 2023 target from CMD ‘21: 5 – 8%
- Current 2023 assumption: 7 – 10%

**Aspiration**

**Net sales:** Grow faster than market; **Operating margin:** Expand to double-digit operating margins
The 5G market has an extended peak
Private Wireless Networks market growing at 27% CAGR

Radio technology product and services market* revenue trend

Overall Mobile Networks market* growth 2022-25

1% CAGR

2022: €51bn*  2025: €52bn*

Private Wireless Networks market* growth 2021-30

27% CAGR

Source: Nokia Business Intelligence estimate
Radio Access Network market share was stabilized and is on upswing.

Since early 2019, we have won 41 new CSP RAN customers and increased share with 28 existing RAN customers.

5G conversion rate (excl. China)
Long-term aspiration for Mobile Networks
Gain market share and improve profitability to 10%+

Opportunities to gain share – we’ve turned the corner

Nokia 4G/5G excluding China market share 2019 – 2022*

- 2019: 28%
- 2020 Q3: 25%
- 2021 Q1-Q3: 24%

Long-term opportunities to expand margins to 10+%:

**Scale**
- Convert Nokia 4G CSP customers to 5G
- Win new CSP customers and grow
- Continue winning in Enterprise segment

**Product competitiveness**
- Further key steps on roadmap in 2023
- Reduce product and service cost further
- Invest in 5G-A and 6G preparedness

**Product maturity**
- Margins can improve as demand moves from coverage to capacity investment
- Prior cycles saw significant improvement

**Maintain efficient cost base**
- Continued refinements to operating model
- Digitization to maintain efficient cost base
- Continue improving R&D productivity

* Dell’Oro Mobile RAN reports 2019 - 2022
Cloud and Network Services performance

**Operating Margin – CMD ‘21 recap**
- 2023 target from CMD ‘21: 8 – 11%
- Current 2023 assumption: 5.5 – 8.5%

**Aspiration**

**Net sales:** Grow faster than market; **Operating margin:** Expand to double-digit operating margin
Driving growth, shifting business models, and creating new value

Engage full Digital Ecosystem

CSPs, Enterprises, Hyperscalers, & Developers

Disrupt in new Opportunity Areas

Network Monetization Platform

4G/5G Core

Monetization

Analytics and AI

Digital Operations

Enterprise Campus Edge

Win aggressively in 6 Growth Areas

Autonomous Operations

Innovate with new Business Model

SaaS
Cloud and Network Services - Longer term value creation

**Campus edge opportunity**
- By the end of the decade about half of campus revenue will come from our edge platform (Mission Critical Industrial Edge).

**New monetization opportunity**
- By the end of the decade about a quarter of CNS revenue will be generated through new monetization of the digital ecosystem.

**SaaS transition**
- By the end of the decade more than half of CNS revenue will be generated through as-a-service models.

Note: All targets are not mutually exclusive.
Nokia Technologies proven track record with good execution

Patent business net sales and key deals

Proven assets
Strong IP assets with their value proven through the legal system

Expert team
Strong patent creation, licensing, and litigation teams

Licensee-friendly
Compelling licensing offering incl. patents, technology, and brand

Cash inflows to net sales ratio

<table>
<thead>
<tr>
<th>Year</th>
<th>Cash inflows to net sales ratio</th>
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<tbody>
<tr>
<td>05</td>
<td>3.5</td>
</tr>
<tr>
<td>06</td>
<td>0.4</td>
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<tr>
<td>07</td>
<td>1.0</td>
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<tr>
<td>08</td>
<td>1.8</td>
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<td>09</td>
<td>0.9</td>
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<td>10</td>
<td>0.8</td>
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<td>11</td>
<td>0.6</td>
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<tr>
<td>12</td>
<td>0.6</td>
</tr>
<tr>
<td>13</td>
<td>0.4</td>
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</tbody>
</table>

Aspiration
Largely stable operating profit and continue to renew & sign new agreements

NOTE: A limited subset of example deals is presented here for illustration purposes only and may include past and/or current licensees and do not imply future license renewals. Patent business net sales are illustrated using a 3-year moving average (centered). Cash inflows to net sales ratio shown is for Nokia Technologies.
## Nokia strategic aspirations across business groups

<table>
<thead>
<tr>
<th>Addressable Market growth*</th>
<th>Nokia relative opportunity</th>
<th>Nokia sales growth aspiration</th>
<th>Operating margin - 2022</th>
<th>Operating margin – aspiration</th>
<th>Key Competitors</th>
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</thead>
<tbody>
<tr>
<td><strong>NI - IP Networks</strong></td>
<td>3% CAGR</td>
<td>Grow share in CSP, grow in enterprise verticals and further penetrate the webscale market through continued technology leadership</td>
<td>Grow faster than the market</td>
<td>High-teens</td>
<td>High-teens</td>
</tr>
<tr>
<td><strong>NI – Fixed Networks</strong></td>
<td>4% CAGR</td>
<td>Continue gaining share with 18-month technology leadership</td>
<td>Grow faster than the market</td>
<td>Mid-teens</td>
<td>Mid-teens</td>
</tr>
<tr>
<td><strong>NI – Optical Networks</strong></td>
<td>2% CAGR</td>
<td>Build towards technology leadership driving market share gains</td>
<td>Grow faster than the market</td>
<td>Low-single digit</td>
<td>Double-digit</td>
</tr>
<tr>
<td><strong>NI – Submarine Networks</strong></td>
<td>Single-digit CAGR</td>
<td>Continue executing on substantial contract backlog and driving innovation in subsea cable</td>
<td>Grow with the market</td>
<td>Low-single digit</td>
<td>High-single digit</td>
</tr>
<tr>
<td><strong>Mobile Networks</strong></td>
<td>1% CAGR</td>
<td>Technology leadership and geopolitical opportunities to drive share higher</td>
<td>Market +2-3% per year</td>
<td>8.8%</td>
<td>Double-digit</td>
</tr>
<tr>
<td><strong>Cloud and Network Services</strong></td>
<td>4% CAGR</td>
<td>Drive market transition towards cloud and aaS business model</td>
<td>Grow faster than the market</td>
<td>5.3%</td>
<td>Double-digit</td>
</tr>
<tr>
<td><strong>Nokia Technologies</strong></td>
<td>Largely stable operating profit and continue to renew &amp; sign new agreements</td>
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*Source: Nokia Business Intelligence; 2022-2025 CAGR at constant currency
Agenda

31. Progress on operational model
34. Capital allocation policy
35. Long-term modelling assumptions
Streamlined organization implemented within 6 months
Still in continuous review to ensure evolution as industry evolves

From complex matrix organization...

...to streamlined accountability through business groups in 6 months

Maintaining a lean corporate center
Continued focus on value creation through

Technology leadership
Capital allocation
Performance management

Four empowered and P/L accountable Business Groups, with management and employee incentives aligned with fundamental value creation

ROCE > WACC
Responsibility for portfolio management and go-to-market will support growth
Focus on free cash flow generation and working capital efficiency
Operating margin targets consistent with strategy to create value
Delivering improving returns with a robust balance sheet
Capital allocation policy leads to strong capital structure and technology leadership

Our primary focus
To deploy our capital towards organic or inorganic investments to ensure technology leadership in areas where we have a clear path towards creating shareholder value, while maintaining a strong capital structure and prudent financial strategy.

Our next priority
To provide shareholders with capital returns.

Dividend policy
We target recurring, stable and over time growing ordinary dividend payments, taking into account the previous year’s earnings as well as the company’s financial position and business outlook.

R&D spend 2022
EUR 4.4bn

2022 dividend proposal
EUR 0.12 per share

On-going share buyback program announced last year
EUR 600mn over 2 years
### Long term planning assumptions

#### Business Group
- **Nokia Technologies operating profit**
  - Largely stable
- **Group common and other operating loss**
  - EUR 300-350mn

#### Below operating profit
- **Financial income and expenses**
  - EUR 0 to -100mn
- **Tax rate**
  - ~25%

#### Cash flow
- **Cash taxes**
  - EUR 700mn
- **Capex**
  - EUR 600mn
Six pillars of our strategy to deliver our targets

1. Grow CSP business faster than market
2. Expand the share of enterprise
3. Take leadership position in every area we compete
4. Secure business longevity in Nokia Technologies
5. Build new business models
6. Develop ESG into a competitive advantage
IR Calendar for 2023
Steady stream of updates on progress

- **Earnings**
  - Q4 22 Earnings
  - Q1 23 Earnings
  - Q2 23 Earnings
  - Q3 23 Earnings
  - Jan
  - Apr
  - July
  - Oct

- **BG Updates / Industry Events**
  - Mobile World Congress (Sun 26 Feb)
  - NI Progress Update
  - BG Progress Update
  - BG Progress Update
Q&A
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