Nokia Annual Report on Form 20-F 2024

As filed with the Securities and Exchange Commission on 13 March 2025

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 20-F

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended 31 December 2024

Commission file number 1-13202

Nokia Corporation

(Exact name of Registrant as specified in its charter)

Republic of Finland
(Jurisdiction of incorporation)
Karakaari 7 FI-02610 Espoo, Finland
(Address of principal executive offices)
Johanna Mandelin, Global Head of Corporate Legal, Telephone: +358 (0) 104 488 000, Facsimile: +358 (0) 104 481 002, Karakaari 7, FI-02610 Espoo, Finland
(Name, Telephone, E-mail and/or Facsimile number and Address of Company Contact Person)

Securities registered pursuant to Section 12(b) of the Securities Exchange Act of 1934 (the "Exchange Act"):

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
American Depositary Shares	**NOK**	New York Stock Exchange
Shares		New York Stock Exchange[1]

(1) Not for trading, but only in connection with the registration of American Depositary Shares representing these shares, pursuant to the requirements of the Securities and Exchange Commission.

Securities registered pursuant to Section 12(g) of the Exchange Act: **None**

Securities for which there is a reporting obligation pursuant to Section 15(d) of the Exchange Act: **None**

Indicate the number of outstanding shares of each of the registrant's classes of capital or common stock as of the close of the period covered by the annual report. Shares: 5 605 850 345.

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Exchange Act. Yes ☐ No ☒

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Exchange Act during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" or "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer ☒	Accelerated filer ☐
Non-accelerated filer ☐	Smaller reporting company ☐
Emerging growth company ☐	

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing:

U.S. GAAP ☐

International Financial Reporting Standards as issued by the International Accounting Standards Board ☒

Other ☐

If "Other" has been checked in response to the previous question, indicate by check mark which financial statement item the registrant has elected to follow. Item 17 ☐ Item 18 ☐

If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

Form 20-F Item Number		Form 20-F Heading	Section in Document
ITEM	1	IDENTITY OF DIRECTORS, SENIOR MANAGEMENT AND ADVISERS	N/A
ITEM	2	OFFER STATISTICS AND EXPECTED TIMETABLE	N/A
ITEM	3	KEY INFORMATION	
	3A	[Reserved]	
	3B	Capitalization and Indebtedness	N/A
	3C	Reasons for the Offer and Use of Proceeds	N/A
	3D	Risk Factors	Operating and financial review and prospects—Risk factors
ITEM	4	INFORMATION ON THE COMPANY	
	4A	History and Development of the Company	Cover page; Business overview; Introduction and use of certain terms; Business overview—Our history; Operating and financial review and prospects—Liquidity and capital resources; Operating and financial review and prospects—Shares and shareholders—Shares and share capital; General facts on Nokia—Alternative performance measures; Operating and financial review and prospects—Significant subsequent events; Other information—Investor information
	4B	Business Overview	Business overview—Nokia in 2024; Business overview—Our strategy; Business Overview—Business groups; Operating and financial review and prospects— Operating and financial review—Results of segments; Financial statements—Notes to the consolidated financial statements—Note 1.1. Corporate information; Financial statements—Notes to the consolidated financial statements—Note 2.2. Segment information; Financial statements—Notes to the consolidated financial statements—Note 2.6. Discontinued operations; General facts on Nokia—Government regulation
	4C	Organizational Structure	Business overview—Nokia in 2024; Financial statements—Notes to the consolidated financial statements—Note 1.1. Corporate information; Financial statements—Notes to the consolidated financial statements—Note 2.2. Segment information; Financial statements—Notes to the consolidated financial statements—Note 2.6. Discontinued operations; Financial statements—Notes to the consolidated financial statements—Note 6.2. Principal Group companies; Financial statements—Notes to the consolidated financial statements—Note 6.3. Significant partly-owned subsidiaries
	4D	Property, Plants and Equipment	Financial statements—Notes to the consolidated financial statements—Note 4.2. Property, plant and equipment; Financial statements—Notes to the consolidated financial statements—Note 4.3. Leases; Business overview—Supply chain, sourcing and manufacturing
	4A	UNRESOLVED STAFF COMMENTS	None
ITEM	5	OPERATING AND FINANCIAL REVIEW AND PROSPECTS	
	5A	Operating Results	Business overview—Our strategy; General facts on Nokia—Government regulation; Financial statements—Notes to the consolidated financial statements—Section 2. Results for the year; Financial statements—Notes to the consolidated financial statements—Note 5.4. Financial risk management; Operating and financial review and prospects—Operating and financial review
	5B	Liquidity and Capital Resources	Operating and financial review and prospects—Liquidity and capital resources; Financial statements—Notes to the consolidated financial statements—Note 5.2. Financial assets and liabilities; Financial statements—Notes to the consolidated financial statements—Note 5.3. Derivative and firm commitment assets and liabilities; Financial statements—Notes to the consolidated financial statements—Note 6.1. Commitments, contingencies and legal proceedings; Financial statements—Notes to the consolidated financial statements—Note 5.4. Financial risk management
	5C	Research and Development, Patents and Licenses etc.	Business overview—Our strategy; Business overview—Business groups—Nokia Technologies; Operating and financial review and prospects—Results of operations; Operating and financial review and prospects—Results of segments
	5D	Trend Information	Business overview—Nokia in 2024; Business overview—Our strategy
	5E	Critical Accounting Estimates	N/A
ITEM	6	DIRECTORS, SENIOR MANAGEMENT AND EMPLOYEES	
	6A	Directors and senior management	Corporate governance—Corporate Governance Statement
	6B	Compensation	Corporate governance—Remuneration; Financial statements—Notes to the consolidated financial statements—Note 6.4. Related party transactions; Financial Statements—Notes to the consolidated financial statements—Note 3.2. Remuneration of key management; Financial statements—Notes to the consolidated financial statements—Note 3.3. Share-based payments
	6C	Board Practices	Corporate governance—Corporate governance statement; Corporate governance—Remuneration—Remuneration governance

Form 20-F Item Number		Form 20-F Heading	Section in Document
	6D	Employees	Business Overview—Nokia in 2024; Operating and financial review and prospects—Operating and financial review—Results of operations—Cost savings program; Financial statements—Notes to the consolidated financial statements— Note 3.1. Summary of personnel expenses
	6E	Share Ownership	Corporate governance—Remuneration—Remuneration Report 2024; Corporate governance—Corporate governance statement; Financial statements—Notes to the consolidated financial statements—Note 3.3. Share-based payments
	6F	Disclosure of a registrant's action to recover erroneously awarded compensation	N/A
ITEM	7	MAJOR SHAREHOLDERS AND RELATED PARTY TRANSACTIONS	
	7A	Major Shareholders	Operating and financial review and prospects—Shares and shareholders
	7B	Related Party Transactions	Financial statements—Notes to the consolidated financial statements—Note 6.4. Related party transactions
	7C	Interests of Experts and Counsel	N/A
ITEM	8	FINANCIAL INFORMATION	
	8A	Consolidated Statements and Other Financial Information	Financial statements; Reports of independent registered public accounting firm; Operating and financial review and prospects—Shares and shareholders—Dividend and share buybacks; Financial statements—Notes to the consolidated financial statements—Note 6.1. Commitments, contingencies and legal proceedings
	8B	Significant Changes	Operating and financial review and prospects—Significant subsequent events; Financial statements—Notes to the consolidated financial statements—Note 6.5. Subsequent events
ITEM	9	THE OFFER AND LISTING	
	9A	Offer and Listing Details	Operating and financial review and prospects—Shares and shareholders; Financial statements—Notes to the consolidated financial statements—Note 1.1. Corporate information; Other information—Investor information—Stock exchanges
	9B	Plan of Distribution	N/A
	9C	Markets	Operating and financial review and prospects—Shares and shareholders; Financial statements—Notes to the consolidated financial statements—Note 1.1. Corporate information; Other information—Investor information—Stock exchanges
	9D	Selling Shareholders	N/A
	9E	Dilution	N/A
	9F	Expenses of the Issue	N/A
ITEM	10	ADDITIONAL INFORMATION	
	10A	Share capital	N/A
	10B	Memorandum and Articles of Association	Operating and financial review and prospects—Articles of Association; Other information—Exhibits
	10C	Material Contracts	N/A
	10D	Exchange Controls	General facts on Nokia—Controls and procedures—Exchange controls
	10E	Taxation	General facts on Nokia—Taxation
	10F	Dividends and Paying Agents	N/A
	10G	Statement by Experts	N/A
	10H	Documents on Display	Other information—Investor information—Documents on display
	10I	Subsidiary Information	N/A
	10J	Annual Report to Security Holders	N/A
ITEM	11	QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK	Business overview—Our strategy; Operating and financial review and prospects—Risk factors—Financial and tax-related uncertainties; Financial statements—Notes to the consolidated financial statements—Note 5.4. Financial risk management; Financial statements—Notes to the consolidated financial statements—Note 4.5. Trade receivables and other customer-related balances
ITEM	12	DESCRIPTION OF SECURITIES OTHER THAN EQUITY SECURITIES	

Form 20-F Item Number		Form 20-F Heading	Section in Document
	12A	Debt Securities	N/A
	12B	Warrants and Rights	N/A
	12C	Other Securities	N/A
	12D	American Depositary Shares	General facts on Nokia—American Depositary Shares; Introduction and use of certain terms
ITEM	13	DEFAULTS, DIVIDEND ARREARAGES AND DELINQUENCIES	None
ITEM	14	MATERIAL MODIFICATIONS TO THE RIGHTS OF SECURITY HOLDERS AND USE OF PROCEEDS	None
ITEM	15	CONTROLS AND PROCEDURES	Corporate governance—Corporate governance statement—Risk management, internal control and internal audit functions at Nokia; General facts on Nokia—Controls and procedures; Reports of independent registered public accounting firm
ITEM	16	[Reserved]	
	16A	AUDIT COMMITTEE FINANCIAL EXPERT	Corporate governance—Corporate governance statement—Board of Directors—Committees of the Board of Directors
	16B	CODE OF ETHICS	Corporate governance—Corporate governance statement—Regulatory Framework; Operating and financial review and prospects—Business integrity; Other information—Exhibits
	16C	PRINCIPAL ACCOUNTANT FEES AND SERVICES	Corporate governance—Corporate governance statement—Auditor fees and services; Corporate governance—Corporate governance statement—Audit Committee pre-approval policies and procedures
	16D	EXEMPTIONS FROM THE LISTING STANDARDS FOR AUDIT COMMITTEES	None
	16E	PURCHASES OF EQUITY SECURITIES BY THE ISSUER AND AFFILIATED PURCHASERS	Operating and financial review and prospects—Shares and shareholders—Purchases of equity securities by the Company and affiliated purchasers Corporate Governance—Remuneration
	16F	CHANGE IN REGISTRANT'S CERTIFYING ACCOUNTANT	N/A
	16G	CORPORATE GOVERNANCE	Corporate governance—Corporate governance statement—Regulatory framework
	16H	MINE SAFETY DISCLOSURE	None
	16I	DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS	N/A
	16J	INSIDER TRADING POLICIES	Corporate governance—Corporate governance statement—Main procedures relating to insider administration; Other information—Exhibits
	16K	CYBERSECURITY	Corporate governance—Corporate Governance Statement—Risk management, internal control and internal audit functions at Nokia; Corporate governance statement—Main corporate governance bodies of Nokia—Board of Directors—Board oversight of cybersecurity; Operating and financial review and prospects—Risk factors—Risks impacting our competitiveness
ITEM	17	FINANCIAL STATEMENTS	Financial statements
ITEM	18	FINANCIAL STATEMENTS	Financial statements
ITEM	19	EXHIBITS	Other information—Exhibits

Certain statements contained in this report constitute “forward-looking statements.” Forward-looking statements provide Nokia's current expectations of future events and trends based on certain assumptions and include any statement that does not directly relate to any current or historical fact. The words “believe,” “expect,” “expectations,” “anticipate,” “foresee,” “see,” “target,” “estimate,” “designed,” “aim,” “plan,” “intend,” “influence,” “assumption,” “focus,” “continue,” “project,” “should," "is to," "will,” "strive," "may,” "could,” “forecast,” or similar expressions as they relate to us or our management are intended to identify these forward-looking statements, as well as statements regarding:

a) business strategies, projects, market expansion, growth management, and future industry trends and megatrends and our plans to address them;

b) future performance of our businesses and any future distributions and dividends;

c) expectations and targets regarding financial performance, results, operating expenses, cash flows, taxes, currency exchange rates, hedging, cost savings and competitiveness, as well as results of operations including targeted synergies and those related to market share, prices, net sales, income and margins;

d) expectations, plans, timelines or benefits related to our ongoing transactions, investments and changes in our organizational and operational structure;

e) market developments in our current and future markets and their seasonality and cyclicality, including the communications service provider market, as well as general economic conditions, future regulatory developments and the expected impact, timing and duration of potential global pandemics and geopolitical conflicts on our businesses, our supply chain, our customers’ businesses and the general market and economic conditions;

f) our position in the market, including product portfolio and geographical reach, and our ability to use the same to develop the relevant business or market and maintain our order pipeline over time;

g) any future collaboration or business collaboration agreements or patent license agreements or arbitration awards, including income from any collaboration or partnership, agreement or award;

h) timing of the development and delivery of our products and services;

i) the outcome of pending and threatened litigation, arbitration, disputes, regulatory proceedings or investigations by authorities;

j) restructurings, investments, capital structure optimization efforts, divestments and our ability to achieve the financial and operational targets set in connection with any such restructurings, investments, and capital structure optimization efforts including our ongoing cost savings program;

k) future capital expenditures, temporary incremental expenditures or other R&D expenditures to develop or rollout new products; and

l) sustainability and corporate responsibility.

These statements are based on management’s best assumptions and beliefs in light of the information currently available to it and are subject to a number of risks and uncertainties, many of which are beyond our control, which could cause actual results to differ materially from such statements. These statements are only predictions based upon our current expectations and views of future events and developments and are subject to risks and uncertainties that are difficult to predict because they relate to events and depend on circumstances that will occur in the future. Risks and uncertainties that could affect these statements include but are not limited to the risk factors specified under the section “Risk factors” of this report and in our other filings or documents furnished with the U.S. Securities and Exchange Commission. 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. We do 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.

Nokia Corporation ("Parent Company") is a public limited liability company incorporated under the laws of the Republic of Finland and registered to the Finnish Trade Register since 1896. In this Annual Report on Form 20-F, any reference to "we," "us," "Nokia Group," "the Group," "the company" or "Nokia" means Nokia Corporation and its consolidated subsidiaries and generally Nokia's continuing operations, except where we separately specify that the term means Nokia Corporation or a particular subsidiary or business segment only or our discontinued operations. References to "our shares," matters relating to our shares or matters of corporate governance refer to the shares and corporate governance of Nokia Corporation.

Nokia Corporation has published its consolidated financial statements in euro for periods beginning on or after 1 January 1999. In this Annual Report on Form 20-F, references to "EUR," "euro" or "€" are to the common currency of the European Economic and Monetary Union, references to "dollars," "US dollars," "USD" or "$" are to the official currency of the United States, references to "Chinese yuan" or "CNY" are to the official currency of the People's Republic of China, references to "INR" or "Indian rupee" are to the official currency of the Republic of India and references to "GBP" or "British pound" are to the official currency of the United Kingdom.

Additional terms are defined in the "Glossary."

The information contained in, or accessible through, the websites linked throughout this Annual Report on Form 20-F is not incorporated by reference into this document and should not be considered a part of this document.

Nokia Corporation furnishes Citibank, N.A., as Depositary, with its consolidated financial statements and a related audit opinion of our independent auditors annually. These financial statements are prepared in accordance with IFRS Accounting Standards as issued by the International Accounting Standards Board (IASB) and as adopted by the European Union (EU). In accordance with the rules and regulations of the SEC, we do not provide a reconciliation of our consolidated financial statements to the generally accepted accounting principles in the US, or US GAAP.

We also furnish the Depositary with quarterly reports containing unaudited financial information prepared in accordance with IAS 34, Interim Financial Reporting, as well as all notices of shareholders' meetings and other reports and communications that are made available generally to our shareholders. The Depositary makes these notices, reports and communications available for inspection by record holders of American Depositary Receipts (ADRs), evidencing American Depositary Shares (ADSs), and distributes to all record holders of ADR notices of shareholders' meetings received by the Depositary.

In addition to the materials delivered to holders of ADRs by the Depositary, holders can access our consolidated financial statements, and other information included in our annual reports and proxy materials, at nokia.com/financials. This Annual Report on Form 20-F is also available at nokia.com/financials as well as on Citibank's website at https://app.irdirect.net/company/49733/hotline/. Holders may also request a hard copy of this annual report by calling the toll-free number 1-877-NOKIA-ADR (1-877-665-4223), or by directing a written request to Citibank, N.A., Shareholder Services, PO Box 43077, Providence, RI 02940-3081, United States. With each annual distribution of our proxy materials, we offer our record holders of ADRs the option of receiving all of these documents electronically in the future.

In this report

Business overview

We act together, to amplify our impact

Each of our business groups brings technology leadership and best-in-breed networking expertise. By working together with our customers and our partners, we deliver outsized impact for customers, for the advancement of technology, and for the world.

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

This is what drives us. We put the world's people, machines and devices in sync to create a more sustainable, productive and accessible future.

This is the fundamental role we play at the heart of the digital world – and we're not doing it by ourselves. We believe that the digital services and applications of the future will be built through collaboration. When businesses, technologies and innovators act together to build on each other's expertise, real transformation happens.

Pioneering networks that sense, think and act

As a B2B technology innovation leader, we are driving the next evolution of networking to enable people, machines and devices to interact in real time, like never before.

Networks that sense, think and act bring superior performance, efficiency and adaptability – exactly the secure, future-ready networking technology customers need to capture the opportunities of digitalization, AI and cloud.

As a B2B technology innovation leader, we are pioneering networks that sense, think and act by leveraging our work across mobile, fixed and cloud networks. In addition, we create value with intellectual property and long-term research, led by the award-winning Nokia Bell Labs.

Delivering value for customers

We're focused on driving business growth through the success of our customers – enabling them to invest in secure, future-proof technology, simplify to reduce costs, expand into new opportunity areas – and drive sustainable efficiency. When they succeed, we do too.

We bring three distinctive strengths that enable our customers to realize the full potential of digital.

Trusted performance across all network domains
Delivering resilient, superior performance across all critical parts of the network, built on cutting-edge innovations and high standards of security, sustainability and ethics.

Networks as platforms for automation and monetization
Enabling our customers to innovate and unlock new value by connecting to ecosystems of applications and services, with next-generation networks that are AI-driven, autonomous and programmable.

Truly open network architectures
Open architectures which seamlessly integrate into any customer or partner's ecosystem – across any server, CPU, RAN, cloud or software stack.

Nokia in 2024

Financial highlights

Dividends paid

EUR 714m

Share buyback program executed

EUR 680m

For the year ended 31 December

EURm	2024	2023	2022
Net sales	**19 220**	21 138	23 761
Gross profit	**8 864**	8 546	10 101
Gross margin	**46.1%**	40.4%	42.5%
Operating profit	**1 999**	1 661	2 299
Operating margin	**10.4%**	7.9%	9.7%
Profit from continuing operations	**1 711**	649	4 202
Profit for the year	**1 284**	679	4 259
Free cash flow[(1)]	**2 021**	665	873
EUR			
Earnings per share from continuing operations, diluted	**0.31**	0.11	0.74
Earnings per share, diluted	**0.23**	0.12	0.75
Proposed dividend per share[(2)]	**0.14**	0.13	0.12

At 31 December

EURm	2024	2023	2022
Net cash and interest-bearing financial investments[(1)]	**4 854**	4 323	4 767

(1) Non-IFRS measure. For the definition and reconciliation of non-IFRS measures to the most directly comparable IFRS measures, refer to the "Alternative performance measures" section.
(2) The Board of Directors proposes to the Annual General Meeting to be authorized to decide in its discretion on the distribution of an aggregate maximum of EUR 0.14 per share as dividend from the retained earnings and/or as assets from the reserve for invested unrestricted equity.

Innovation highlights

R&D investment since 2000

EUR 150bn+

Patent families declared as essential to 5G standard

7 000+

Nobel Prizes awarded for ground-breaking achievements in global innovation

10

Nokia in 2024 continued

Global reach

Our technology solutions enable critical networks for communications service providers (CSPs) and enterprises around the world.

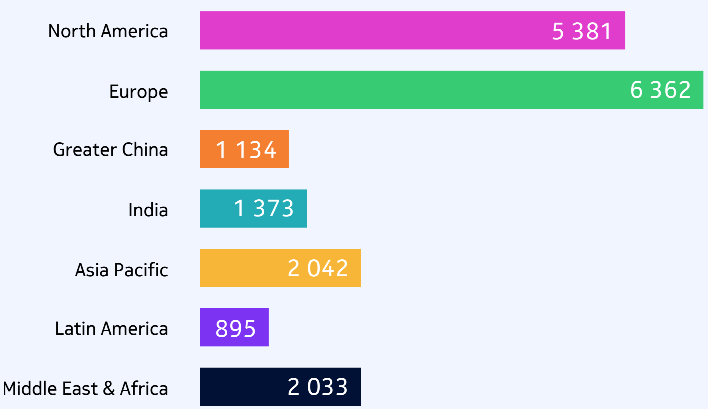
Countries of operation

~130

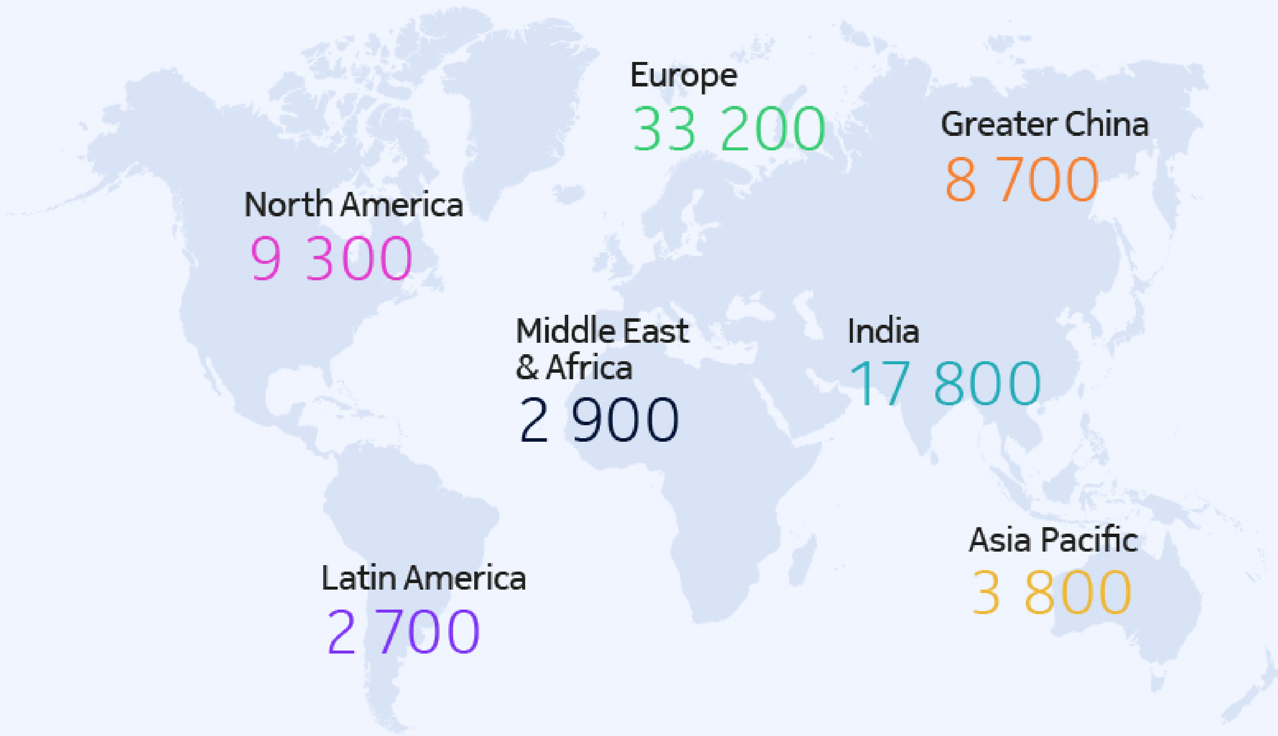
Average number of employees in 2024[1]

~78 400

Regional split of net sales (EURm)[1]



Regional split of employees[1]



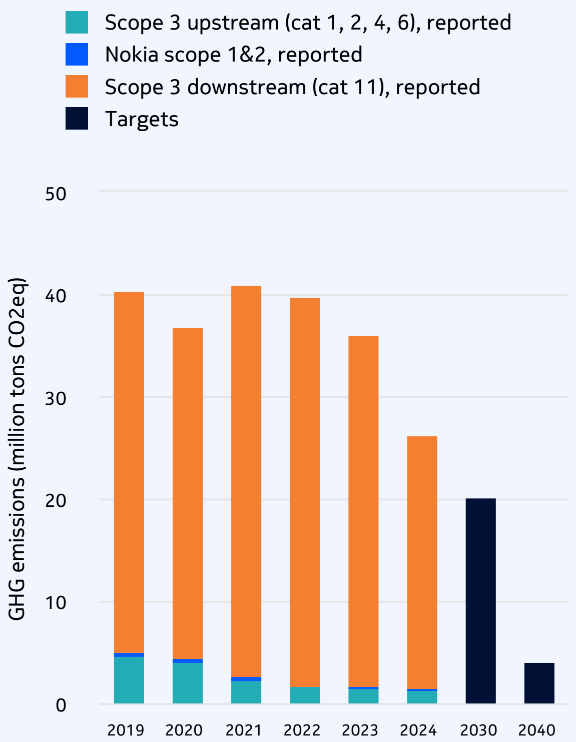
(1) For continuing operations only.

Nokia in 2024 continued

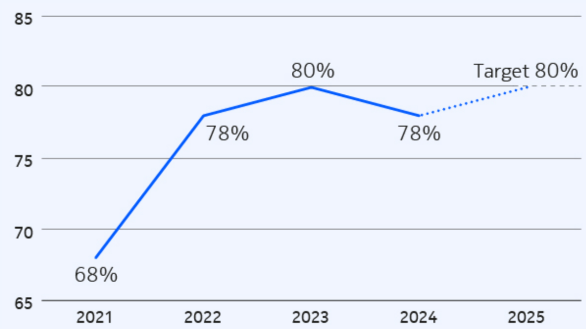
Sustainability highlights for 2024

We have gathered a visual summary of our sustainability highlights and a view of our recognitions from external ratings organizations.

Reported and targeted GHG emissions



Share of suppliers achieving a satisfactory sustainability score[(1)] from supplier performance evaluation[(2)]
%



(1) Based on aggregated weighted share.
(2) Based on Corporate Responsibility onsite audit programs, EcoVadis, CDP, Conflict minerals.

ESG Rankings and ratings	Score	Latest result
2025 World's Most Ethical Companies Ethisphere	Recognized as one of the 2025 World's Most Ethical Companies[(1)]	2025 Mar
ISS ESG Corporate ESG Performance Prime	Prime, B (A+/D-)	2025 Feb[(2)]
Clean200™	31st out of 200	2025 Feb[(2)]
Global 100	#44	2025 Jan[(2)]
Morningstar Sustainalytics	11.1 (Low risk of experiencing material financial impacts from ESG factors)	2024 Oct
MSCI ESG Ratings AAA	AAA (AAA/CCC)	2024 Aug
FTSE4Good	ESG Score 4.9/5.0	2024 Jun
ecovadis Platinum	Top 1% - Platinum	2024 May
CDP Discloser 2024	A-[(3)]	2024 Feb[(3)]
KnowTheChain	22 out of 60 companies	2024 Jan

(1) "World's Most Ethical Companies" and "Ethisphere" names and marks are registered trademarks of Ethisphere LLC.
(2) Refers to 2024 result, received in January/February 2025.
(3) 2024 final score pending, expected in April 2025.

Nokia in 2024 continued

Our business groups

Nokia has four business groups with each of them aiming to become a technology and market leader in their respective sector.

Network Infrastructure

FEDERICO GUILLÉN
President,
Network Infrastructure

Network Infrastructure delivers fixed access, IP routing and optical transport for business-critical and mission-critical applications for CSP, enterprise and webscale customers.

Segment net sales (EURm)
-6%

2022	7 897
2023	6 917
2024	6 518

Segment operating margin
-300 bps

2022	13.5%
2023	14.7%
2024	11.7%

READ MORE ON PAGES 21 TO 22 →

Mobile Networks

TOMMI UITTO
President,
Mobile Networks

Mobile Networks creates products and services covering all 3GPP mobile technology generations. Its portfolio includes products for radio access networks (RAN) and microwave radio links for transport networks, solutions for network management, as well as network planning, optimization, network deployment and technical support services.

Segment net sales (EURm)
-21%

2022	10 671
2023	9 797
2024	7 725

Segment operating margin
-210 bps

2022	8.8%
2023	7.4%
2024	5.3%

READ MORE ON PAGES 23 TO 24 →

Cloud and Network Services

RAGHAV SAHGAL
President, Cloud and
Network Services

Cloud and Network Services provides open, secure, automated and scalable software and solutions that accelerate the journey of service providers and enterprises to autonomous networks and new value creation.

Segment net sales (EURm)
-6%

2022	3 351
2023	3 220
2024	3 022

Segment operating margin
+30 bps

2022	5.3%
2023	7.9%
2024	8.2%

READ MORE ON PAGES 25 TO 26 →

Nokia Technologies

PATRIK HAMMARÉN
President,
Nokia Technologies

Nokia Technologies is responsible for managing Nokia's patent portfolio and monetizing Nokia's intellectual property, including patents and technologies.

Segment net sales (EURm)
+78%

2022	1 595
2023	1 085
2024	1 928

Segment operating margin
+1 090 bps

2022	75.7%
2023	67.6%
2024	78.5%

READ MORE ON PAGES 27 TO 28 →

Repositioning for growth

This was a year of good strategic execution in a volatile market to achieve our full-year guidance while pursuing growth opportunities in our focus areas of data centers, private wireless and industrial edge and defense.

Challenging market conditions in the first half of 2024 led to our full-year net sales declining, but we delivered a strong finish to the year with improving net sales and excellent profitability to achieve a full-year comparable operating profit[(1)] of EUR 2.6 billion, at the mid-point of our guidance of EUR 2.3 to 2.9 billion.

We delivered a strong cash performance throughout 2024, ending with full-year free cash flow[(1)] of EUR 2.0 billion. This means we have a strong balance sheet supporting our business, with net cash and interest-bearing financial investments[(1)] of EUR 4.9 billion at the end of the year, even after returning EUR 1.4 billion to shareholders through dividends and share buybacks. As a result, the Board is proposing an increase in the dividend to EUR 0.14 per share in respect of the financial year 2024.

"I'm proud of the work we have done in re-establishing Nokia's competitiveness and technology leadership and in positioning the company for growth."

PEKKA LUNDMARK,
PRESIDENT AND CEO

(1) Non-IFRS measure. For the definition and reconciliation of non-IFRS measures to the most directly comparable IFRS measure, refer to the "Alternative performance measures" section.

Gaining share and expanding into new markets

Thanks to improving market trends and the determination of the Nokia team, we ended the year with excellent deal momentum, gaining share in many key markets and winning entirely new communication service provider (CSP) and enterprise customers.

For instance, our **Network Infrastructure** business, which is a market leader in fixed, IP and optical networks, secured a strategic deal with AT&T to deploy next-generation fiber broadband in the US. Network Infrastructure also continued its expansion in the data center market, winning significant deals including Microsoft, CoreWeave and Nscale, as well as announcing new go-to-market partnerships with Kyndryl and Lenovo.

Over the course of 2024, our **Mobile Networks** business won 12 new CSP and 9 new enterprise customers, as well as gained share with 10 existing CSP customers. As a result, Mobile Networks added 18 000 base station sites, on a net basis, to build share in a challenging market with notable highlights, including a large-scale commercial O-RAN rollout with Deutsche Telekom in Germany. Mobile Networks also expanded its AirScale portfolio with new market-leading, energy-efficient Massive MIMO radios to support mobile traffic growth and accelerate mass 5G rollouts.

Cloud and Network Services continued to rebalance its portfolio and strengthen its technology leadership, ending the year with 123 5G Standalone Core customers, the highest in the industry. By the end of 2024 we also had a market-leading 850 private wireless customers.

Nokia Technologies filed a record-breaking 3 000 patents in 2024 and passed the milestone of 7 000 patent families essential to 5G. Our patent-licensing business successfully concluded its smartphone renewal cycle and made further progress in its growth areas of automotive, consumer electronics, Internet of Things (IoT) and multimedia.

Strategic moves to accelerate growth

Nokia continued to lead the telecom industry's transition to AI-RAN, Cloud RAN and cloud-native core networks, helping CSPs cloudify, automate and monetize their networks to capitalize on the opportunities that AI and cloud are bringing.

We believe that programmable networks, through application programming interfaces (APIs), are central to unlocking monetization opportunities for our customers and partners. As well as continuing to expand the reach of our Network as Code platform, we acquired US tech firm Rapid's technology and R&D unit this year. This acquisition gives us the world's largest API hub, used by thousands of developers globally, and strengthens our R&D capabilities. It also meant that by the end of 2024, we had 48 network API partners, including Orange, Telefonica and Google.

We also undertook significant strategic moves to accelerate progress in our new focus areas of data centers, private wireless and industrial edge, and defense.

For instance, the sale of the Submarine Networks business and the acquisition of optical networking supplier Infinera have reshaped our Network Infrastructure business around three leading pillars, have strengthened our optical position, particularly in the US, and will help to accelerate our progress in the data center market. To support that ambition, at the fourth quarter results, we announced our intention to invest up to an additional EUR 100 million in annual operating expenses in data center IP networking, with a view to driving incremental net sales of EUR 1 billion by 2028.

Mobile Networks' acquisition of tactical communications specialist Fenix Group broadens our defense portfolio, and the launch of Nokia 5G Banshee Flex Radio at the end of the year is a sign of things to come as we start to apply our expertise in fast, secure and reliable 5G connectivity to a range of defense scenarios.

Looking ahead

Given the market volatility in 2024, our performance demonstrated Nokia's responsiveness and capacity to execute in all market conditions. I am grateful to the Nokia team for their commitment, hard work and drive in delivering on our guidance and creating a strong foundation for growth this year.

This will be my last annual report as President and CEO of Nokia. In February 2025 we announced a leadership transition, with Justin Hotard becoming the next President and CEO of Nokia on 1 April. I had earlier indicated to the Board that I wanted to move on from executive roles when the repositioning of the business was at a more advanced stage, and when the right successor had been identified. With both of those conditions met, I decided it is the right time to step down.

I'm proud of the work we have done in re-establishing Nokia's competitiveness and technology leadership and in positioning the company for growth.

It has been a privilege to lead Nokia and to have worked with one of the best teams in the industry.

PEKKA LUNDMARK
PRESIDENT AND CEO

Our customers

We serve three customer segments: communications service providers, enterprises and licensees.

Networks play an increasingly important role in the economy and in society. As a result, we serve a growing number of customers who provide critical services to end-users. We distinguish two primary customer segments that we serve with our hardware, software and services portfolio: communications services providers and enterprises, including enterprise verticals and webscalers. In addition, we license our intellectual property to industries that benefit from our fundamental innovations, primarily in the mobile devices, automotive, consumer electronics and IoT industries.

Our analysis of the evolution of these segments is set out below.

1 Communications service providers (CSPs)

The CSPs estimated total addressable market (TAM) declined 5% to EUR 86 billion from 2023 to 2024.

A communications service provider offers telecommunications services such as voice and/or data services through fixed and/or mobile connectivity to consumers, enterprises, governments and other communications service providers. Nokia maintains a consolidated view of the Nokia total addressable market based on multiple external analyst reports, customer and key competitor reported and announced insights as well as Nokia internal insights. We estimate that in 2024, the CSPs estimated total addressable market (excluding Russia and Belarus) for Nokia was EUR 86 billion, having declined by 5%, excluding the impact of changes in foreign currency exchange rates from 2023 to 2024. This reduced spending was driven by the macro-environment, high interest rates and inventory ramp-down, although market dynamics started to improve in the second half of 2024.

We expect it to grow moderately, at a 2% compound annual growth rate (CAGR) between 2024 and 2029 excluding the impact of changes in foreign currency exchange rates.

We expect that fixed wireless access, fiber, IP routing and optical networks will grow faster than the overall CSP market, driven by the continuous demand for higher speed access technologies at homes and workplaces. We expect RAN investments to remain in line with the overall CSP market, as 5G adoption and expansion continues around the world. The 5G cycle will also yield growth in software, namely in 5G Core and in all software segments supporting 5G operability and monetization.

CSPs have kept their capital expenditure intensity flat, but increased their earnings through automation, digitalization, shifts in channel mix, outsourcing and asset sales. We expect them to remain focused on the monetization of their connectivity strengths and on cost optimization. They are also considering divesting from passive infrastructure and transitioning towards network sharing models. In areas where the network is built for coverage, this might reduce demand for network vendor equipment. We have also seen the first examples of CSPs relying on webscalers to lead the transition to cloud-based operational and business models. When combined with open RAN standards that aim at splitting a base transceiver station into subcomponents with open interfaces, this may allow for new entrants into the market and increase competition. Conversely, it should also serve to accelerate innovation and create opportunities for market share gains for those investing in the technology, including for Nokia.

Geopolitics and environmental criteria increasingly influence investment and vendor decisions. Security and sovereignty have become important factors across the vendor landscape. Government-funded broadband initiatives also provide additional funding for investments, for example in rural areas. Sustainability considerations such as green energy use, energy consumption reduction plans and circular economy approaches also shift the criteria for vendor selection.

2 Enterprises

Enterprise estimated TAM grew by 4% to EUR 25 billion from 2023 to 2024.

Enterprise TAM includes enterprise verticals and webscaler markets. In 2024, the estimated enterprise TAM (excluding Russia and Belarus) was EUR 25 billion, having grown by 4% from 2023 to 2024, excluding the impact of changes in foreign currency exchange rates. We forecast this market to grow strongly, at 8% CAGR until 2029, excluding the impact of changes in foreign currency exchange rates, with the private wireless market reaching 22% CAGR.

Enterprise verticals

An enterprise vertical represents a grouping of companies by an industry that offers products and services that meet specific needs. We primarily focus on transportation and logistics, energy, manufacturing and public sector verticals. This reflects our assessment that these sectors are seeing the most significant digitalization over the coming years, as they automate many aspects of their operations. We project that growth will mainly be driven by private wireless and wireline networks in manufacturing, as well as in the public sector and in energy. We estimate that IP routing and optical networks will also continue to grow moderately in these segments.

Our customers continued

Webscalers

Webscaler refers to companies that provide cloud-based, scalable solutions and services. Alphabet (Google Cloud Platform), Amazon (Amazon Web Services) and Microsoft (Azure) are the largest cloud players – also referred to as hyperscalers – operating on a global scale. Our TAM for webscalers consists mainly of optical networks and IP routing. Within optical networks, we expect that data center interconnect (DCI) will be a strong growth driver, while the increasing webscaler data traffic requires adoption of higher bit rate technologies also in IP routing.

The largest global webscalers are also assuming an increasingly important role within the telecommunications domain. They target edge computing as the next growth engine for industrial automation workloads and low-latency applications. They also partner with CSPs to co-locate edge stacks on-premises and at metro sites. Additionally, they aim to run telecommunications network workloads on their cloud infrastructure. As such, webscalers are customers and partners, as well as potential competitors in some areas.

3 Licensees

Licensees refers to companies that have agreed licenses to use Nokia's intellectual property. This includes the licensing of Nokia's patent portfolio, the licensing of technologies for integration into consumer devices and the licensing of the Nokia brand. The majority of Nokia Technologies' revenues comes from patent licensing where we have agreements with most major smartphone vendors as well as licensing programs for consumer electronics, video services, automotive and the wider IoT domain. In total, we have more than 200 licensees across all our programs, including companies like Apple, Samsung and Lenovo.

1 CSPs

Focus on connectivity strengths

and using cost optimization via automation and asset carve outs to fund both fiber and 5G investments.

Favoring cloud strengths

in vendor and partner ecosystem.

Network monetization

targeting enterprise and edge use cases.

2 Enterprise

Enterprise verticals

Digitalization and automation

of operations in industrial segments.

Transition to software-centric

operations and adoption of industrial operational technology (OT) edge and on-premise clouds.

Energy and manufacturing

as early adopters of private wireless and automation solutions.

Federal, state government and cities

network modernization acceleration.

Webscalers

Edge computing

as a growth engine – industrial automation workloads across on-premise, edge, public cloud.

Partnering with CSPs

to co-locate edge stacks and building an ecosystem for low-latency apps.

Targeting telco and network

workloads to run on their cloud infrastructure.

Collaborating with CSPs

in the transformation of network operations.

3 Licensees

Patent portfolio with long lifetime

The vast majority of Nokia's patents still in force in ten years' time.

New inventions every year

In 2024, we filed patent applications on a record number of more than 3 000 new inventions in areas such as 5G and upcoming 6G networks, Wi-Fi connectivity, next-generation video coding, and more.

Annual number of patent filings expected to grow

due to continued investments in R&D and standardization.

Entire industries powered by our fundamental cellular and multimedia inventions

providing us with the opportunity to expand our licensing coverage; we are making good progress in our growth areas of consumer electronics, automotive and IoT.

Our strategy

Networks are the key enabler for the digitalization of industries and the realization of the broader potential of the metaverse.

In 2021, Nokia set out its strategy to deliver sustainable, profitable growth by becoming a B2B technology innovation leader, accompanied by a new purpose and operating model. In 2023, Nokia made an evolution in this strategy and how we deliver against it with the introduction of six strategic pillars.

These pillars are the key objectives that will define Nokia's success in the future and enable it to achieve its long-term ambitions. During 2024, Nokia continued to execute against these strategic pillars, more details of which will be shared in the following Business Group sections.

The six pillars are:

1 Grow CSP business faster than market

CSPs will continue to be our biggest customer segment. We will leverage our strong technological position, investment in technology leadership and emerging opportunities to grow our share in key markets, with geopolitical considerations supporting this ambition.

2 Expand the share of enterprise in our business

Enterprise verticals and webscalers are deploying campus networks, wide area private wireless networks, enterprise physical networks and data centers at an accelerated rate to digitalize their operations. Being a technology leader in all these domains, we pursue these opportunities to grow our enterprise business.

3 Actively manage our portfolio

Maintaining our portfolio segments at number one or number two position, through several routes including active portfolio management, is critical for a profitable and sustainable business. There may be cases where a leadership position is not possible, and for these cases, we will consider alternatives.

4 Secure business longevity in Nokia Technologies

We are investing to ensure the sustained competitiveness of our patent portfolio. We will continue to pursue opportunities from sectors outside mobile devices, such as automotive, consumer electronics, IoT and video services.

5 Build new business models

To broaden our customer base and change our margin profile, we see potential in new platform business models within the broader ecosystem. We engage with service providers, webscalers, industrial giants and emerging players, like app developers and start-ups, to drive the creation of new products, services, and solutions, and to explore new business models including Cloud RAN, Network as Code and as-a-Service.

6 Develop ESG into a competitive advantage

ESG is increasingly important for customers, investors, regulators, partners and Nokia employees. There is space in our industry to become the 'trusted provider' and Nokia aims to claim this position. Our ESG strategy lays out how we will do this and our specific areas of focus.

The six pillars are underpinned by four enablers:

1 Develop future-fit-talent

We have launched and are executing a new people strategy focused on growth, skills and development. We build the right future skills for our employees in the technical domains identified in our technology vision and strategy, and the commercial skills to support our expansion into new domains.

2 Invest in long-term research

Sustained technology leadership is a key driver of our success: it requires us to anticipate, shape and invest in the next technology waves and breakthroughs. We continue to invest in long-term research to ensure a leadership position in line with our Technology Vision 2030. We are also deeply engaged in leading and influencing standards and developing standard essential patents.

3 Digitalize our own operations

We are increasing the digitalization of our own operations to lead by example with a set of ambitious, company-wide strategic initiatives to increase the company's performance and competitiveness, focused on efficiency, productivity and agility in internal operations, customer experience and R&D.

4 Refresh our brand

To ensure Nokia is recognized as a B2B technology innovation leader, we refreshed our brand in 2023. Our new visual identity is emblematic of an energized, dynamic and modern Nokia.

Our strategy continued

Strong progress on strategic execution

Actively managing our portfolio

Acquisitions

Through 2024, Nokia made a number of strategic acquisitions which will strengthen our position in markets where we see significant future growth potential.

Nokia announced its intention to acquire Infinera, a global supplier of innovative open optical networking solutions and advanced optical semiconductors. Nokia and Infinera see a significant opportunity in merging to improve scale and profitability, enabling the combined business to accelerate the development of new products and solutions to benefit customers. The transaction aligns strongly with Nokia's strategy, as it is expected to strengthen our technology leadership in optical and increase exposure to webscale customers, the fastest growing segment of the market. This will create a highly scaled and truly global optical business with increased in-house technology capabilities and vertical integration. This will also strengthen Nokia's optical position, specifically in North America. The combination with Infinera is projected to accelerate Nokia's journey to a double-digit operating margin in its Optical Networks business. The acquisition of Infinera was completed in February 2025.

Nokia completed the acquisition of Fenix Group in 2024 in order to strengthen its position in the defense industry. This acquisition will add Fenix's innovative broadband tactical communications products into our portfolio. The acquisition closed in May 2024 and we have moved quickly to accelerate product roadmaps, even now launching a 5G tactical radio solution.

Nokia also acquired Rapid's technology and R&D unit. This acquisition gives Nokia the world's largest API hub used by thousands of developers globally along with strengthening our R&D capabilities. This will bolster our R&D capacity in Network as Code. Taken together with our autonomous networks application suite, we are enabling operators to fully automate and monetize their network.

Divestments

In 2024, Nokia sold its wholly owned subsidiary Alcatel Submarine Networks (ASN), a global submarine communication networks leader, to the French state. Nokia will retain a 20% shareholding with board representation to ensure a smooth transition until targeted exit, at which point it is planned for the French state to acquire Nokia's remaining interest. The transaction demonstrates Nokia's active management of its business portfolio and focus on key strategic assets.

Both the acquisition of Infinera and the sale of the Submarine Networks business allow Nokia to focus its Network Infrastructure portfolio on growth opportunities in its core markets and further improve profitability of the Network Infrastructure business group. For more details on the sale of the Submarine Networks business and the acquisition of Infinera, please refer to Note 2.6. Discontinued operations and Note 6.5. Subsequent events in our consolidated financial statements.

Providing business groups with greater autonomy

In 2021, Nokia significantly streamlined its operating model, moving from a matrix organization and creating four P&L-responsible business groups structured around unique customer offerings. In 2024, Nokia accelerated its strategy execution through providing its four business groups with increased operational autonomy and agility along with embedding sales teams directly into the business rather than the central sales organization the company has utilized until now. This enables the business groups to better address opportunities in their distinctive markets with our existing and new customers. They will be empowered to diversify faster, build new ecosystem partnerships, implement new business models and invest for technology leadership. Sales teams will collaborate across Nokia to ensure customers continue to benefit from the breadth of all Nokia offers.

Nokia's lean corporate center will act as a strategic architect, providing oversight in key areas, including target setting and performance management and portfolio development along with governance and compliance. The company will continue its commitment to long-term research through Nokia Bell Labs.

Accompanying the move towards more autonomous business groups and to provide investors with greater transparency in assessing their financial performance, Nokia began reporting regional net sales for its business groups.

Our path to continued technology leadership

As one of the industry's leading investors in communication technology research and development (R&D), we drive innovation across a comprehensive portfolio of network equipment, software, services and licensing opportunities.

Nokia's world-leading research and development

We have a global network of R&D centers, each with specialties and ecosystems built around both competencies and technologies. Most of our near- to mid-term R&D is conducted within the business groups' structures and is further elaborated in the business group-specific sections of this report.

Laying the path for Nokia's future technology innovation and identifying the most promising areas for new value creation

Beyond the R&D of our business groups, Nokia's dedicated Strategy and Technology (S&T) organization is focused on longer-term technology cycles. S&T is responsible for formulating Nokia's corporate strategy and establishing a technology and architecture vision across the company. It also oversees the implementation of this vision and strategy in partnership with Nokia's business groups.

S&T drives company-wide internal technology alignment and, through the transfer of technologies to the business groups, contributes to the evolution of Nokia's portfolio to enable continued technology leadership.

Nokia Bell Labs

As Nokia's industrial research lab, Nokia Bell Labs solves human needs through the power of human intellect. It celebrates its centennial in 2025 by highlighting its past, present and future technology innovations and the impact these have had on society.

Over the past 100 years, Nokia Bell Labs has been bringing together the brightest minds in mathematics, physics, computing and engineering to work on the world's biggest scientific challenges. In 2024, we celebrated alumnus Louis Brus' Nobel Prize in Chemistry for his research on quantum dots, our 10th Nobel Prize for work completed at Bell Labs.

Nokia Bell Labs' primary research areas are network fundamentals, automation, semiconductors and devices, and AI and software systems. As an industrial research lab, we innovate with purpose, pursuing responsible, sustainable technologies that will have a demonstrable impact on society.

Nokia Bell Labs started its 6G research in 2018. After several years of exploration research with some world-first proof-of-concepts, we have now transitioned from vision to action, with a focus on technology leadership and future 6G product differentiation. We are guided by our vision that 6G will fuse the physical, digital and human worlds, opening the door to extrasensory experiences. Intelligent knowledge systems will be combined with robust computation capabilities, merging network, application and processor roles. Nokia is also leading Hexa-X-II, the second phase of the European Commission's

Our strategy continued

flagship 6G initiative for research into the next generation of wireless networks. In addition, together with partners like Bosch, we are progressing the concept of 6G integrated communication and sensing (ICAS) in evaluating different use cases with our prototype system.

We launched UNEXT, a new research initiative for a future Network Software System that creates a unified networking experience for autonomous service creation, leveraging distributed computing and new business environments. This new UNEXT system includes knowledge and security services that are natively designed into it. In 2024, we realized a first prototype showing the foundational capabilities of UNEXT-Operator or UNOP, a key building block of the system. Just as Bell Labs' invention of UNIX transformed computing, our UNEXT research initiative is poised to transform networking, by breaking down barriers that have traditionally prevented network elements from interoperating.

In the area of optical networks, we reached a new world record of 300+ GBaud/s transmission rate on a single wavelength carrier. We achieved a 50 000x acceleration of fiber sensing, which opens new application opportunities for network infrastructure monitoring and geophysical research. We also evaluated our 100G Flexible rate Passive Optical Network (PON) in technical trials with several service providers.

Nokia Bell Labs believes that the best research is done in an inclusive, collaborative manner, taking diverse points of view into account. We have worked with NTT and DOCOMO and SKT to explore a technology that implements a proof-of-concept air interface. This joint AI-native proof-of-concept was awarded the Future Award category in World Communication Awards 2024, and the Best Industrial AI Use Case of the Year at the AI Gala.

In 2024, we continued our research on quantum, showcasing how these technologies encompass far more than just quantum computing. Quantum networking and quantum security are all key areas of established research, and they are all areas in which Nokia has proved considerable expertise.

We have also put our mark on Industry 5.0 with our unique contributions to advancements in AI, cloud and connectivity. The goal is to increase the digitalization of industries, facilitate greater productivity, efficiency and safety and enable simpler and more intuitive human-machine interactions.

Innovation leadership
Spearheaded by Nokia Bell Labs.

EUR 150bn+
invested in cutting-edge R&D since 2000

EUR 4.5bn+
invested in R&D across Nokia during 2024

Standards leadership
Ecosystem leadership through standardization. Nokia holds key positions across all major standardization and industry groups.

7 000+
patent families declared as essential to 5G standards

6G
leadership in Hexa-X, Hexa-X-II, SUSTAIN-6G and 6G-ANNA projects

Patent leadership
Constant renewal of industry-leading portfolio.

~20 000
patent families with vast majority still in force in ten years' time

3 000+
patents filed for new inventions in 2024

Nokia Bell Labs is also at the forefront of non-traditional network research with a focus on AI and machine learning that is needed for future advanced communication capabilities. We believe it is important to develop AI in an ethical, responsible and sustainable way, and this led us to create a cross-organizational AI Center of Excellence.

Nokia Bell Labs has had recent success in collaborating with government agencies and businesses on distinct commercial contracts. This includes additional funded agreements with the US government for the future of space communication and lunar communication architecture studies. Nokia Bell Labs was chosen by DARPA for the LunA-10 Capability Study to design an integrated multi-service architecture to support a thriving economy on the moon in the next decade and beyond.

Nokia Bell Labs is regarded as a leading industry and thought leader on lunar surface communication networks, which NASA recognized with a FY2023 NASA Langley Research Center Large Business Prime Contractor of the Year Award. Nokia Bell Labs successfully completed a System Engineering and Integration (SE&I) study for NASA to investigate and outline how cellular communication technologies could be used to support the Artemis missions and provide a high-level system architecture and design to meet the requirements for the Artemis V mission.

We announced a partnership with Axiom Space to deliver a spacesuit-integrated cellular communications system that will allow Artemis III astronauts to communicate via voice and video with NASA Mission Control as well as send telemetry information back to Earth, while they explore the lunar surface. We continued our testing and validation work of the Nokia Lunar Surface Communication System (LSCS) with Intuitive Machines and Lunar Outpost engineers in preparation to deliver and deploy the first cellular network on the lunar surface as part of the IM-2 mission, scheduled for 2025.

Our strategy continued

Nokia Bell Labs signed a multi-year research agreement with Vale, a Brazil-based global mining company, to implement a cognitive, AI-based mining program to boost productivity and worker safety. We also collaborated with Qualcomm on AI interoperability technology that boosts wireless capacity and performance, and with Vodafone on the world's first trial of L4S technology over an end-to-end PON network.

Nokia Bell Labs continues to explore new concepts that could lead to growth in both neighboring and nascent markets. In 2024, we initiated our Entrepreneurs in Residence (EIR) program in which we partner with entrepreneurs to rapidly translate groundbreaking research into commercially successful ventures.

Nokia Standards

Across the larger S&T organization, we continue our heritage of pioneering significant innovations in the essential technologies driving communication networks and systems. Many of the fundamental technologies that are used in 5G standards were invented at Nokia, and now we are focused on technology leadership beyond 5G, playing a key role in setting the 3GPP standards. We completed the standardization work for the first release of the 5G-Advanced era, known as 3GPP Release 18, in June 2024, and are currently working on the upcoming Release 19. In December 2024, we kickstarted the work on completing 5G-Advanced with 3GPP Release 20. This will be the final release of 5G and will also prepare for 6G.

Spectrum availability is a fundamental enabler of wireless communications. So, after a successful WRC-23 event, Nokia continued to engage with regulators and partners around the globe to make harmonized mid-band spectrum available for 6G. With Nokia at the forefront of 6G research, our 2024 Brooklyn 6G Summit, organized jointly with New York University, focused on the ongoing 6G shift from the research to standardization stage.

We were also selected to lead a new European project on 6G sustainability. In coordinating the SUSTAIN-6G lighthouse project, Nokia will lead the consortium's efforts of 24 partners to find solutions for these specific areas of sustainable development: energy smart grids, e-health and telemedicine and agriculture. We are also engaged in sustainability standardization activities at the ITU-T, ETSI, ISO and CEN-CENELEC. In 2024, we led the endeavor to incorporate circular processes into the ITU-T L.1410 LCA standard.

Nokia Ventures

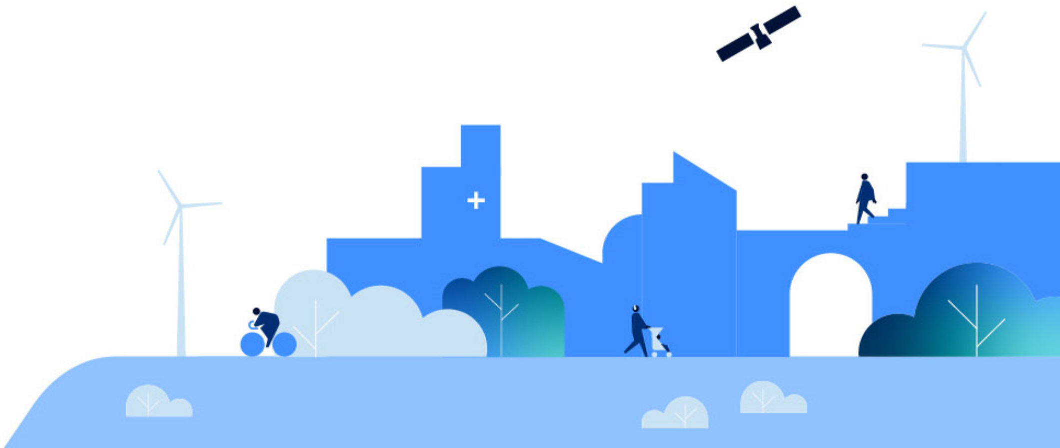
We pursue future growth and value generation through investment in the in-house incubation and commercialization of venture projects, selected spinouts and licensing of technologies, and through investment with our NGP Capital partner. Our internal incubation program is leveraging breakthrough technologies from Nokia Bell Labs to define minimal viable products, test new business models, and then scale the business development and sales. Some examples include the following:

Nokia's Autonomous Industrial Monitoring Service (AIMS) has transformed the traditional inventory counting process, with its autonomous drones flying in warehouses. Nokia AIMS also won the Industrial Innovation category at the Supply Chain Excellence Awards USA.

Nokia's Real-time eXtended Reality Multimedia (RXRM) is a breakthrough solution in real-time 360° video and 3D spatial audio capture. The RXRM solution is an application that brings added value to network investment for enterprises. With a growing customer base, RXRM is enhancing industrial productivity, safety and sustainability, and creating immersive experiences in the entertainment sector. A newly launched, and world's first, ruggedized 5G 360 camera that is designed for harsh conditions, completes the full turnkey solution for RXRM customers. RXRM also won the iF Design Award in 2024 for its UX Design.

We also demonstrated a groundbreaking digital twin solution that can create a Cognitive Digital Mine (CDM). This solution is an industrial real-time AI platform for faster, predictive and better decisions to boost mine resource planning, asset usage, scheduling, and operational safety. It won the 2024 Fierce Network Innovation Award in the IoT category.

The Sustainable Energy Management (SEM) venture offered its first general availability product release in 2024. The offering consists of digital tools to plan flexibility, local energy generation and storage to optimize energy economics. An example of an external spinout, Cambridge Future Tech entered a relationship with Nokia Bell Labs and Nokia Ventures & Partnerships to establish OmniBuds LTD for the commercialization of the Nokia Bell Labs OmniBuds platform. OmniBuds is the world's first ear-worn AI/ML platform to track your health in real time.



Our strategy continued

Our Technology Vision and Technology Strategy 2030

The Nokia Technology Vision describes how Nokia sees the technology trends shaping the world of the future. The Nokia Technology Vision represents our prediction of the state of technology beyond ten years from the unique standpoint we have in the industry and the extraordinary technical expertise Nokia has through its leading research and wide product portfolio. Building on our Technology Vision, Nokia's Technology Strategy outlines the insights, priorities and actions necessary for businesses to remain proactive in response to accelerating technological advancements and the digital economy interplay and how, together with our customers and the industry, we must evolve networks to meet the challenges of tomorrow and beyond.

This year's title for the Nokia Technology Vision is "Digital acceleration toward the quantum era." It describes the increasing intersection of the digital, physical and human worlds to a smart world ahead that feels more human. The primary engine of innovation over the next decade will be AI that allows the digital world to interact with the physical and the human worlds. Evolving device technologies enhanced with enablers, such as spatial computing and artificial intelligence powered digital twins, provide solutions that are of a high-quality personalized experience. This trajectory requires the underlying technologies, such as hardware and software, to further develop to fulfill the requirements of the new world.

The technologies are influenced through the different macrotrends including geopolitics and climate change, which call increasingly for trustworthy technology suppliers. To enable this future, the networks need to continue to develop. The development of both evolutionary and disruptive network technologies, as well as changes to how networks are deployed and used, are needed for the networks to fulfill the requirements of the future.

Where the Nokia Technology Vision describes the trends of the future, the Nokia Technology Strategy defines how the company will develop and implement technologies to transform networks and drive business growth. It aligns product innovation with future market trends, ensuring scalable, reliable networks that serve as a foundation for the hyper-digital era and growth opportunities for our customers and the industry in general. By 2030 and beyond, the hyper-digital world will drive transformative changes in society.

Our 2024 edition of the Technology Strategy focuses on four pillars – network cloud continuum, ubiquitous advanced networking, AI and next-generation devices – as the foundational elements required to create highly agile, scalable and efficient digital ecosystems that telecommunications and enterprises need to evolve and thrive in a hyper-digital world. This evolution will enhance customer value, create new business models and deliver innovative services. Future networks must be programmable, exposable and easily monetized to support the next-generation digital experiences of the hyper-digital world.

Our Technology Strategy is built upon our commitment to making Nokia a technology leader in the industry. In line with our corporate strategy, defining our Technology Strategy allows us to be fully prepared for the next five to seven years. It focuses on our core business of providing critical technologies to enhance the evolution of networks for our customers and support them in meeting their advancing needs. The Strategy and Technology team have worked closely with Nokia's business groups to develop the Technology Strategy, which was finalized after multiple rounds of review and alignment with Nokia global technology and business leaders.

The hyper-digital world beyond 2030

Beyond 2030, the hyper-digital world will be characterized by a deep integration of the digital, physical and human worlds, resulting in transformative changes across digital society. The future represents a profound blend of digital intelligence and human experience. This sets the stage for our Technology Strategy, which has been developed to position us at the center of this transformation and drive value creation for Nokia and our customers. Critical to realizing future use cases will be the advancement of networks, which will play a pivotal role in connecting and orchestrating the various technologies involved.

A strategic shift for the telecommunications industry

To thrive in this evolving landscape, telecommunication services must transform from being mere connectivity providers to becoming enablers of digital ecosystems, offering a broader range of services beyond traditional offerings. A platform-based approach is essential, integrating cloud services, edge computing, IoT and AI-driven value-added services. This strategy leverages network infrastructure more effectively, enabling differentiated services that enhance customer retention, growth and new revenue opportunities.

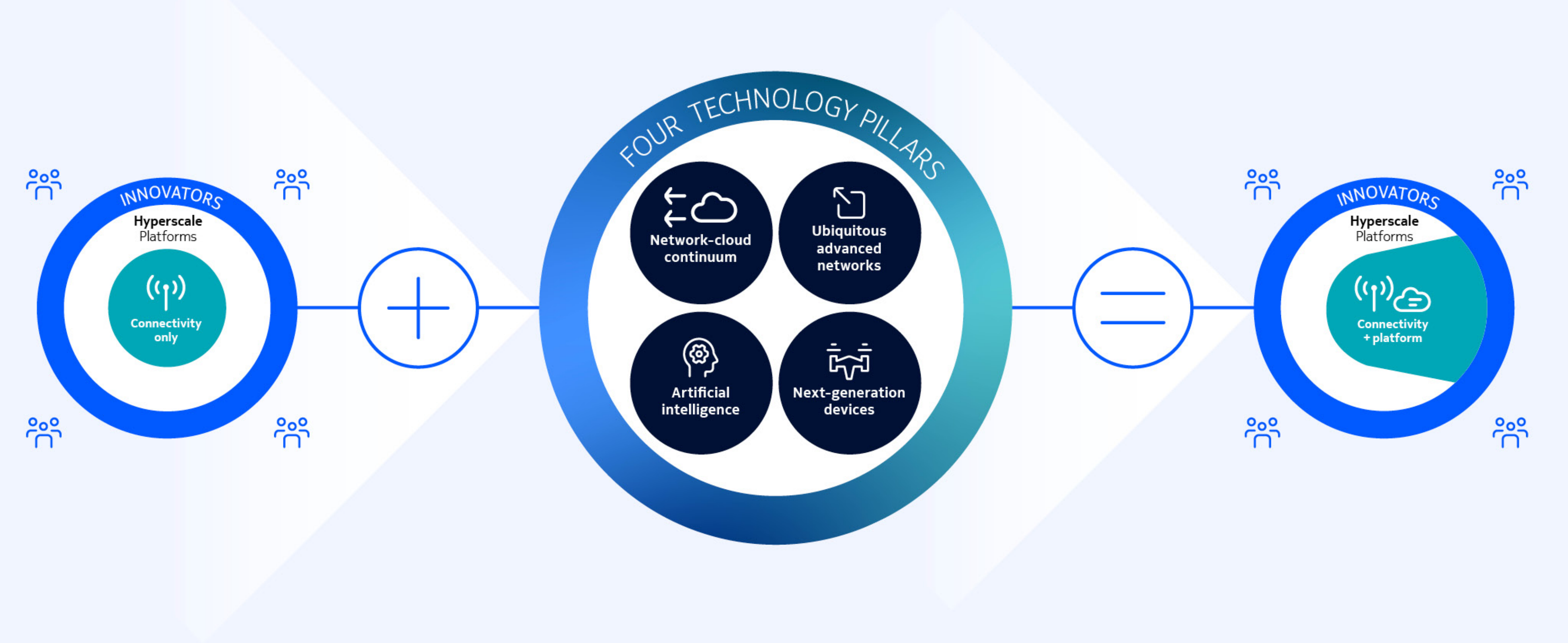
Our strategy continued

By unifying and integrating diverse resources, communications service providers can create dynamic platforms that drive multi-sided value, moving beyond linear business models. These platforms allow various stakeholders – developers, enterprises, consumers and partners – to interact, transact and innovate together. This model fosters efficiency and innovation and opens new monetization avenues, such as on-demand services, data-driven insights and industry-specific applications.

Emerging technologies and digital platforms

To enable the telecommunications industry to transition from offering connectivity-only services to providing rich digital platform services that integrate new capabilities and move up the value chain, we prioritize investment in these four pillars. These capabilities can be offered to Nokia customers in several different business models, for instance, as-a-service, as a white-label solution or simply technology products and solutions.

A service provider's transition from a connectivity-only to a connectivity-plus platform strategy



Our history

Over 150 years of innovation

Nokia has been adapting to the needs of an ever-changing world for over 155 years.

Key
i = Innovation

1865

1865
Founded as a single paper mill operation

i 1926
Brought sound to motion pictures*

i 1947
Developed the transistor, a tiny device that revolutionized the entire electronics industry*

i 1954
Created the solar cell, enabling the conversion of the sun's energy into electricity*

i 1958
Developed the laser, creating the foundation for fiber optics*

1960

1960s
Nokia became a conglomerate comprising rubber, cable, forestry, electronics and power-generation businesses

i 1962
Launched the first communications satellite, Telstar 1, into orbit, enabling the first ever broadcast of live television between the US and Europe*

i 1969
Developed UNIX, the software system that made the large-scale networking of diverse computing systems and the internet practical*

i 1982
Introduced both the first fully digital local telephone exchange in Europe and the world's first NMT car phone

i 1991
Enabled the first GSM call using a Nokia phone over the Nokia-built network of Finnish communications service provider Radiolinja

i 1998
Became technology leader and the world's largest manufacturer of mobile phones

i 2001
Invented MIMO (Multiple-Input and Multiple-Output), a key element of a large number of modern wireless systems that allows for greater throughput without increasing bandwidth requirements*

2006

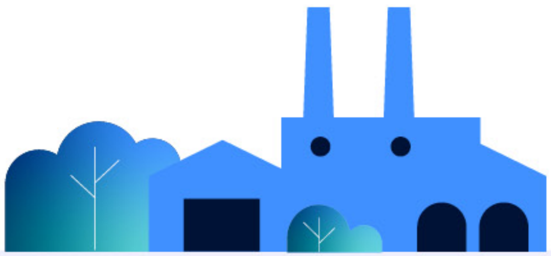
i 2006
Developed Softrouter, a routing architecture permitting the development of a programmable, open network infrastructure to allow easier deployment of new services that make use of exposed network capabilities*

2007
Entered a joint venture with Siemens, combining mobile and fixed-line phone network equipment businesses and creating Nokia Siemens Networks (NSN)

2011
Entered a strategic partnership with Microsoft to address increasing competition from iOS and Android operating systems

Acquired the wireless network equipment division of Motorola

*Bell Telephone Laboratories (1925-1984). Following its acquisition by Nokia in 2016, it was renamed Nokia Bell Labs.



Our history continued

2013

2013

Purchased Siemens' stake in NSN

2014

Sold the Devices and Services business to Microsoft

- Developed XG-FAST technology, enabling service providers to generate fiber-like speeds of more than 10Gbps over short distances using existing copper infrastructure

2016

Acquired Alcatel-Lucent, including Bell Labs, creating an innovation leader in next-generation technology and services

2017

- Developed Probabilistic Constellation Shaping, an innovative technology to get the most out of each fiber, irrespective of its length and capabilities

Additional acquisitions enhancing our technology leadership: Deepfield, the US-based leader in real-time analytics for IP network performance management and security, and Comptel, a Finland-based telecommunications software company

2018

Acquired Unium, a Seattle-based software company that specializes in solving complex wireless networking problems for use in mission-critical and residential Wi-Fi applications

2019

Opened the world's first live end-to-end 5G lab, the Future X Lab in Murray Hill, New Jersey, US

2020

2020

- Selected by NASA to build and deploy the first end-to-end LTE solution on the lunar surface
- Enabled commercial deployment of the world's first 5G liquid cooling solution
- Set the 5G speed world record

Acquired Elenion, a US-based company focusing on silicon photonics technology

2021

Developed the Resh programming language to take control of and manage a fleet of robots

2022

Showcased the first 100Gb/s fiber broadband technology in the US

Launched the Advanced Security Testing and Research (ASTaR) lab in Dallas – the first end-to-end 5G testing lab in the US focused solely on cybersecurity

Introduced the 6 pillars of Responsible AI

2023

Renewed the Nokia brand to establish a clear position for Nokia as a B2B technology innovation leader

- Achieved two key 6G technological milestones: the implementation of AI and machine learning into the radio air interface, and proof-of-concept of 6G joint communication and sensing capability

Continued to actively manage its business portfolio, e.g., through the agreed sale of its Device Management and Service Management Platform businesses, and the divestment of its VitalQIP products. Announced the acquisition of Fenix Group

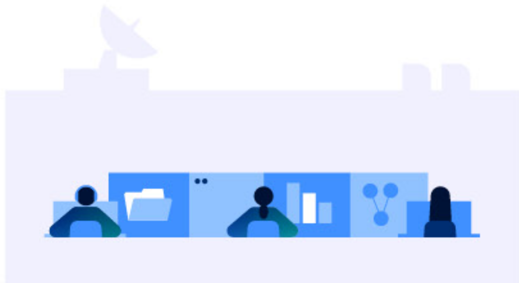
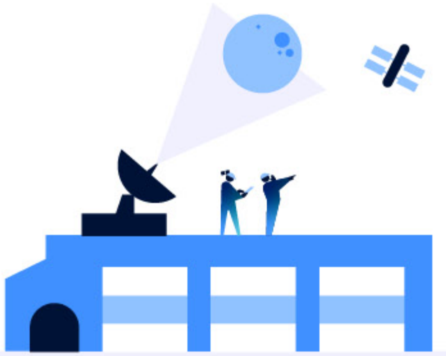
- Added our 10th Nobel Prize for work completed at Bell Labs, with the Nobel Prize in Chemistry awarded to our alumnus Louis Brus
- World-record 2.4 Tb/s optical transmission over a single wavelength

2024

2024

Divested our Submarine Networks business and announced our plans to acquire Infinera, a leader in optical networks

- Made the world's first immersive voice and audio call over a cellular network using a codec which enables 3D spatial sound in real-time
- Partnered with Axiom Space to enable high-speed cellular network capabilities in next-generation lunar spacesuits

Business groups

Network Infrastructure

Network Infrastructure delivers fixed access, IP routing and optical transport for business-critical and mission-critical applications for CSP, enterprise and webscale customers.

"Network Infrastructure is supporting the world's growing demand for connectivity, capacity, security and efficiency. And – through innovations in technology and network management – we are helping our customers navigate this landscape successfully."

FEDERICO GUILLÉN
PRESIDENT, NETWORK INFRASTRUCTURE

8 500km
distance between London and Chicago covered by the Colt, Windstream and Nokia ultra-fast 800GbE trial

40%
potential reduction in operational effort enabled by the new Event-Driven Automation platform

2024 in brief

In 2024, Network Infrastructure's net sales declined by 6% from 2023. We faced challenges across our business units in the first half of the year, with a strong return to year-on-year growth in the fourth quarter. Against this backdrop, focused cost management contributed to a segment operating margin of 11.7%.

- Divested our Submarine Networks business, and announced our plans to acquire Infinera – a leader in optical networks with a complementary geographical and customer segment fit.
- Strengthened our role as a key supplier for Microsoft Azure's cloud infrastructure with a new five-year deal in support of the customer's ongoing footprint expansion to manage surging demand for general compute.
- Signed a strategic deal with AT&T to accelerate future-ready fiber broadband growth.
- Launched Event-Driven Automation platform: the most modern data center platform in the industry, built for the AI era.
- Introduced a toolkit to boost the Corteca developer ecosystem.
- Launched a new portfolio of application-optimized optical network solutions.

Business groups continued

Market overview

Network Infrastructure faced headwinds in the first part of the year, but returned strongly to growth in all three business units (Submarine Networks is now reported as a discontinued operation) in the fourth quarter of 2024. Increasing sales were partly driven by new technologies, including AI. Along with cyclical recovery in the network infrastructure market, this confirms our belief in a recovery in investment from customers in all business units for 2025.

We have made a strategic decision to increase our focus on data center networking solutions and on the continued expansion of broadband, and to reshape our portfolio with the divestment of our Submarine Networks business and the acquisition of Infinera, which was closed in February 2025.

Business strategy overview and organization

Network Infrastructure's strategy is to support its customers in deriving value from their network investments; enable them to achieve lower total cost of ownership; or assist them in both. We aim to be the most trusted partner in our market.

Our business units are: Fixed Networks, IP Networks and Optical Networks. In June, we announced an agreement with the French State regarding the sale of our Submarine Networks business. The sale was concluded on 31 December 2024.

Fixed Networks is a leading provider of access infrastructure, in-home Wi-Fi solutions, cloud solutions and virtualization, with the global number one position in XGS PON (fast-becoming the dominant global volume technology) for the fifth consecutive year[1]. In 2024, we extended our technology leadership in broadband, including by working with nbn on the world's first demonstration of 10G, 25G, 50G and 100G speeds over a live fiber broadband network; supporting HKBN in its launch of Asia's first 25G PON broadband service; and – with Google Fiber – making the first US trial of 50G PON speeds over a live fiber broadband network. With AT&T we are accelerating future-ready fiber broadband growth. We are proud of our efforts to connect the underserved: in South Africa, we will expand broadband access with Fibertime. In 2024, we introduced Lightspan MF-8 – a high-capacity fiber platform supporting 10/25/50G and future 100G PON services – and extensions to our popular Corteca portfolio to help customers monetize their network investments. With 400+ fiber customers in 130 countries, we are well placed to enable continued broadband rollout and to support coming upgrade waves.

IP Networks delivers IP routing and data center networking solutions to customers in the enterprise, webscale, cloud and service provider segments. We led the market in 2024 for the fourth year in a row in IP edge routing, and in the third quarter of 2024 achieved the number one position in total routing in North America for the first time[2]. Some of our customers include NL-ix, for which we are creating high-performance 800 Gigabit Ethernet routing; Globe Telecom, for which we are modernizing the BNG network; and e& UAE, which selected Nokia's cloud interconnect solution to provide connectivity services to hyperscalers. Our focus on data centers is already beginning to bear fruit. In November, Nokia announced a multi-year supply arrangement with Microsoft Azure for data center switching. In September, CoreWeave announced it will deploy Nokia IP and optical platforms to interconnect data centers across the US and Europe in support of high-performance AI workloads, and in the same month we introduced our Event-Driven Automation platform – the industry's most modern data center infrastructure automation platform, built for the AI era.

Optical Networks has established itself among the industry leaders in optical transport networks for long-haul, regional and metro applications, holding the number one position in India and number two position in Europe and MEA[3]. Our latest photonic service engine – PSE-6s – continues to set new speed, capacity and distance records and, in 2024, we expanded our portfolio with optical network solutions, enabling network operators to scale capacity with lower power per bit, and to provide higher capacity service speeds to the metro edge. Our service provider customers include Türk Telekom, with which we broke the 800Gbps transmission world record on a long-haul commercial network, and Colt Technology Services, for which we collaborated with Windstream Wholesale and our colleagues in IP Networks to complete the world's first ultra-fast 800GbE optical and IP service trial, connecting London and Chicago. We are also working with SURF (an organization for IT collaboration in education and research) to prepare for a massive upgrade to CERN's Large Hadron Collider.

↗ EDA – a data center platform for the AI era.

The acquisition of leading optical network provider Infinera will further boost Optical Networks' ambitions by adding scale, accelerating our ability to innovate and further diversifying our customer base, particularly into North America and the webscale segment.

Competition

Our competitors include Huawei and ZTE, along with Calix and Adtran (Fixed Networks), Cisco, Arista and Juniper (IP Networks) and Ciena (Optical Networks).

(1) Dell'Oro, Q3 2024
(2) Dell'Oro, Q3, 2024
(3) Rolling four quarters, Omdia, Q3 2024

Business groups continued

Mobile Networks

Mobile Networks creates products and services covering all 3GPP mobile technology generations. Its portfolio includes products for radio access networks (RAN) and microwave radio links for transport networks, solutions for network management, as well as network planning, optimization, network deployment and technical support services. Customers include Communication Service Providers (CSP), industrial enterprises, governments and the defense sector.

"Despite the continued CSP market decline in 2024, Mobile Networks has successfully grown market share with many of our existing RAN customers and has also won completely new CSP customers. This is a testament to our strong technology, portfolio and customer relationships."

TOMMI UITTO
PRESIDENT, MOBILE NETWORKS

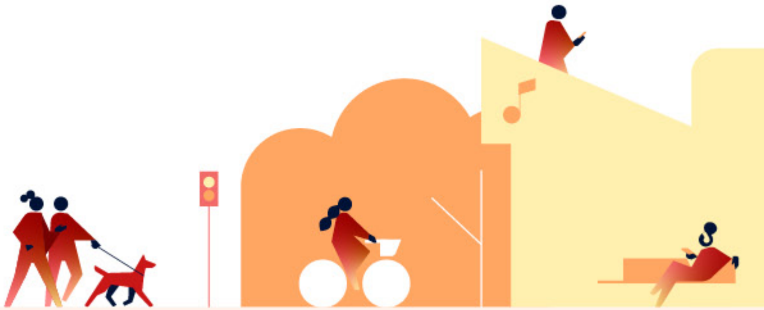
12
new CSP RAN customers in 2024

334
commercial 5G deals

2024 in brief

In 2024, Mobile Networks net sales declined 21% year-on-year to EUR 7.7 billion. Despite the lower net sales, we delivered a segment operating margin of 5.3% driven by favorable business and market mix as well as improved cost competitiveness, cost control measures and strong execution. We also concluded an agreement with AT&T which decided to continue with another RAN vendor for commercial reasons, leading to an accelerated revenue of EUR 150 million offsetting higher variable pay.

- We now have 334 commercial 5G deals and more than 850 private wireless customers, with 193 in 5G.
- Expanded our AirScale portfolio with new market-leading, energy-efficient Massive MIMO radios to support mobile traffic growth and accelerate mass 5G rollouts.
- Collaborated with Nvidia, T-Mobile and SoftBank to steer the AI transformation and develop AI-RAN to leverage platform synergies.
- Closed the acquisition of Fenix Group in the US for addressing tactical wireless communication in the defense segment.



Business groups continued

Small cells complement the macro coverage of CSP networks and fulfill the specific requirements of industrial and office environments.

Market overview

Despite the continued market decline in 2024, Mobile Networks significantly improved gross margin and secured important deals to first stabilize and then increase market share. While the market continues to be challenging, we see a substantial need for operators to further invest in 5G globally with only approximately 30% of potential mid-band 5G high-capacity base stations so far deployed outside China. We also see opportunities to grow in Private Wireless networks for enterprise segments, Cloud RAN, and 3GPP RAN solutions for the defense segment.

Business strategy overview and organization

Mobile Networks, strategy is centered on investing in technology leadership to bring the best network performance and monetization capabilities to our customers, backed up by a smooth transition to open, cloud-based networks and 6G. While protecting and increasing our R&D output, we have worked to re-baseline our operations for a sustainable cost structure to meet the market reality during investment cycles. We have renewed our go-to-market model to increase closeness to customers, improve customer intimacy, and improve accountability, while supporting our strategy to build further scale in the CSP segment and accelerate diversification to enterprise and defense segments.

In line with aspiration for scale, Mobile Networks announced a number of deals, where we have increased our market share with existing CSP customers or won completely new ones. Among the most important 5G deals in 2024 there were, for example, NTT DOCOMO and KDDI in Japan, Vodafone Idea and Bharti Airtel in India, Viettel and VNPT Vinaphone in Vietnam, TIM in Brazil, Deutsche Telecom in Germany, Iliad Group in France and Italy, Indosat Ooredoo Hutchison in Indonesia, Eolo in Italy, MEO in Portugal, Spark in New Zealand, Perfectum in Uzbekistan, 5G InfraCo in Ghana, and Telecom Egypt. In many of these deals, we won market share from all of our key competitors, while some are greenfield networks. In Private Wireless, highlights of 2024 included deals in the US with Southern California Edison (SCE) in California, and the City of Brownsville in Texas, with our partner NTT Data. In our new, strategic focus segment of defense, we closed the acquisition of Fenix Group in the US to expand our capabilities in tactical wireless communication, in addition to Private Wireless solutions for home bases and forward bases of defense forces.

In 2024, Mobile Networks expanded its AirScale portfolio with new market-leading energy-efficient Habrok Massive MIMO radios to support mobile traffic growth and accelerate mass 5G rollouts. We also introduced compact Tuuli outdoor baseband solutions, supporting double the cell capacity while reducing energy consumption by 40%. Our products are ready for the evolution to 5G-Advanced and beyond. Our portfolio also serves the growing demand from enterprises, public safety and defense.

Our innovative all-in-one 5G small cell solution, Kolibri, complements CSP macro coverage and fulfills enterprise requirements for cost efficiency and scalability. We also expanded our Wavence microwave transport portfolio with new products for both rural and dense urban deployments.

We introduced a new ‘extreme deep sleep’ power-saving mode for AirScale radios, which helps our customers reduce energy consumption and costs. We also launched Virtual Power Plant, a unique near-real-time control solution that enables CSPs to monetize base station backup batteries in energy markets, including frequency regulation market.

We completed pilots of our commercial Cloud RAN solution, verifying its feature parity, performance consistency and interoperability with purpose-built RAN based on our anyRAN approach. Alongside cloudification, AI will be the next transformational step for RAN evolution. Nokia is a founding member of the AI-RAN Alliance and collaborates with leading companies such as Nvidia, T-Mobile and SoftBank to steer this transformation and develop AI-RAN to leverage platform synergies.

We have AI capabilities in our market-leading MantaRay portfolio for intelligent network management and autonomous optimization. Examples of AI in our services include predictive hardware analytics with up to 90% fault prediction accuracy, Nokia AI Digital Assistant, the industry’s first conversational AI chatbot, and the Hazard Detection Lens, an AR application for enhancing safety at deployment sites.

Competition

The RAN market is a highly consolidated market. Our main competitors are Huawei, Ericsson, Samsung and ZTE, but there are also a number of smaller competitors competing in specific technology or regional sub-segments, such as NEC, Fujitsu, Mavenir, Rakuten Symphony and JMA Wireless. In microwave, our key competitors include Ceragon, Aviat and ZTE alongside Huawei and Ericsson.

Business groups continued

Cloud and Network Services

Cloud and Network Services provides open, secure, automated, and scalable software and solutions that accelerate the journey of service providers and enterprises to autonomous networks and new value creation. Cloud and Network Services invests in technologies that are critical to our customers' growth: 5G core, secure autonomous networks, private wireless, industrial edge and network APIs. These solutions, increasingly available in a SaaS model, help customers capture the unfolding opportunities of digitalization, AI and cloud.

"We made considerable progress in driving our strategy forward in 2024; winning new 5G Core standalone customers; furthering our leadership position in private wireless and industrial edge; and expanding the network API ecosystem with our Network as Code platform – all demonstrating the benefits of the focused investment we have made in recent years to drive technology leadership and growth."

RAGHAV SAHGAL
PRESIDENT, CLOUD AND NETWORK SERVICES

Nokia had the most CSP customers of 5G Standalone Core in the industry, with

123

at the end of 2024

Nokia continued to have marketplace leadership in private wireless networking with

850

customers, of which

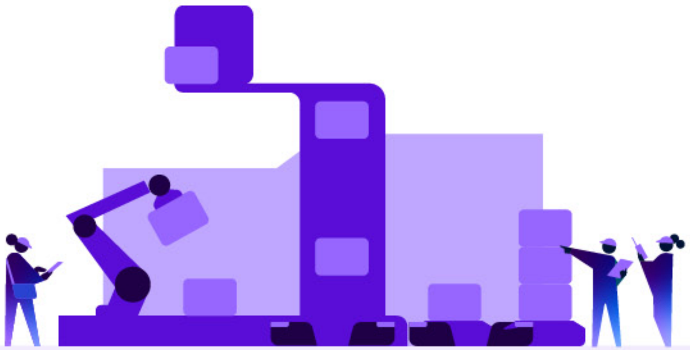
182

are 5G

2024 in brief

Our net sales decreased by 6% year-on-year while our segment operating margin slightly increased. These results were accompanied by a host of customer wins and deployments, including the following key developments:

- Partnered with Infobip to enable the global developer community to better leverage network APIs.
- Acquired Rapid's technology and R&D unit to strengthen development of Nokia network API solutions and ecosystem.
- Deployed 5G standalone core with O2 Telefónica Germany on Amazon Web Services in the cloud.
- Strengthened Vodafone Idea's network security with Nokia NetGuard Endpoint Detection and Response.
- Collaborated with Swisscom Broadcast to deploy the largest Drones-as-a-Service network in Switzerland.
- Announced a strategic partnership with Dell to advance network cloud transformation and private 5G.



Business groups continued

Market overview

The estimated addressable market in which Cloud and Network Services competes is composed broadly of communication service providers (CSP) and enterprise private wireless companies. This market was approximately EUR 21.8 billion in 2024, excluding China and Russia.

The CSP market was relatively flat in 2024. Nonetheless, this market is experiencing an important shift to automation across core and applications, network programmability and monetization, security, and software subscription service models.

The enterprise private wireless market saw strong, year-on-year growth in 2024, covering campus edge verticals such as manufacturing, logistics, energy and natural resources; and the Enterprise WAN market, comprised of verticals such as utilities, railways and the public sector.

Business strategy overview and organization

In 2024, Cloud and Network Services continued to invest in the strategic growth areas of 5G Core, Private Wireless, Digital Operations, AI and Analytics, Security, and Monetization to drive the digital ecosystem that is essential to 5G value creation. We are focused on differentiators that have the potential to bring new capabilities to our CSP and enterprise customers, including:

- Network Monetization Platform: Our Network as Code platform enables application developers and CSPs to accelerate the work of producing software applications for new enterprise, industrial and consumer use cases, and monetizing 5G and 4G network assets beyond basic connectivity.
- Autonomous Networks: Our Autonomous Networks Fabric and Application Suite reduce the cost and complexity of managing the network, enable faster rollout of new apps and use cases, and provides a foundation for API programmability and monetization.
- Private Wireless: Nokia continues to be considered the leading vendor of private wireless networks to enterprises. Our Private Wireless Campus Edge solution remains unique in the market with its extended portfolio, enabling enterprises to advance beyond connectivity into mission-critical edge cloud, AI, and Industry 4.0 digital transformation.
- Software-as-a-Service (SaaS): Cloud and Network Services is investing to make our go-forward products SaaS native. Nokia continues to increase the percentage of recurring revenue through new business models in Enterprise Campus Edge and SaaS.

Competition

The market in which Cloud and Network Services competes has vendors and other industry participants which may on occasion be a customer, a partner, or a direct competitor, depending on the nature of the commercial engagement. Cloud and Network Services regularly builds and nurtures alliances with partners such as IT vendors, hyperscalers, and systems integrators, which are increasingly influential in this space.

The competitive environment comprises many networking companies, infrastructure and application software suppliers, services specialists, hyperscalers, cloud providers and a wide range of industry segment businesses.

In 2024, Nokia was rated #1 again by Appledore in AIOps and Cross Domain Orchestration[1]; rated #1 again by Analysys Mason in Automated Assurance[2]; named a Leader in the 2024 Gartner® Magic Quadrant™ for CSP 5G Core Network Infrastructure Solutions[3]; ranked at the top of a GigaOm industry report for Nokia's extended detection response market (XDR) security platform, NetGuard Cybersecurity Dome[4]; rated #1 by Global Data in core automation and cloud[5]; ranked as a Leader again by Global Data in Managed Infrastructure Services[6]; and ranked #1 by Omdia for the number of 5G Core live networks and #1 in Core SaaS[7].

(1) Appledore Research - Leading Suppliers in Network Automation Software, July 2024
(2) Analysys Mason - Automated Assurance: worldwide market shares 2023, October 2024
(3) Gartner 2024 CSP 5G Core Magic Quadrant, July 2024
(4) GigaOm XDR Radar, April 2024
(5) Global Data 5G Mobile Core: Competitive Landscape Assessment, February 2024
(6) Global Data Managed Infrastructure Services, April 2024
(7) Omdia Core Vendor Market Landscape, July 2024

↗ Our private wireless solutions ensure secure, high-performance connectivity tailored to industrial needs.

Business groups continued

Nokia Technologies

Nokia Technologies is responsible for managing Nokia's patent portfolio and monetizing Nokia's intellectual property, including patents and technologies.

"We are in a strong position with the completion of our smartphone renewals and the momentum we have built in our growth areas. But we have not seen the best from us yet."

PATRIK HAMMARÉN
PRESIDENT, NOKIA TECHNOLOGIES

7 000+
patent families declared as essential to the 5G standard

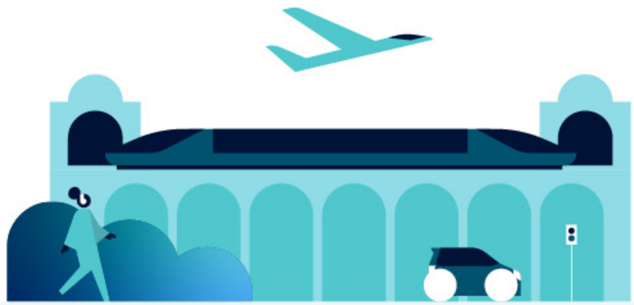
~40
new patent licensing deals signed

3 000+
new patent applications filed

2024 in brief

Net sales for the full year increased 78% to EUR 1 928 million and segment operating profit increased 106% to EUR 1 514 million. The smartphone license renewal cycle was completed and significant progress was made in patent licensing growth areas:

- Drove innovation, filing over 3 000 new inventions, and reaching 7 000 patent families declared as essential to the 5G standard.
- Signed around 40 new patent license agreements and completed our smartphone license renewal cycle.
- Signed first agreements with direct-to-consumer video streaming platforms.
- Made significant progress in China, signing our first two deals in automotive and with a point-of-sales (POS) manufacturer PAX.
- Made the world's first immersive voice and audio call using the new 3GPP Immersive Voice and Audio Services (IVAS) codec.
- Signed an agreement with HP covering the use of our video technologies while courts in Germany and Brazil ruled in our favor in our dispute with Amazon.



↗
In June 2024, Nokia made the world's first immersive voice and audio call over a cellular network using the IVAS codec, which enables 3D spatial sound in real time.

Market overview

Nokia Technologies is responsible for managing Nokia's patent portfolio and monetizing Nokia's intellectual property, including patents and technologies, building on Nokia's continued innovation leadership, long-term investment into research and development, and decades of driving technology standard development. Licensees pay royalty fees for the use of our technology, which we re-invest, along with additional investment, in developing the next generation of inventions.

Net sales for the full year increased 78% to EUR 1 928 million and segment operating profit increased 106% at EUR 1 514 million. We signed several significant agreements across our patent licensing programs, including new deals with OPPO, vivo, HP, GoPro and Verifone. We concluded our smartphone patent license renewal cycle which began in 2021. As a result, Nokia Technologies has entered a period of stability. We made significant progress in our patent licensing growth areas, multimedia and IoT, with our first two deals with video streaming platforms, and first ever agreements with a Chinese point-of-sales (POS) device manufacturer PAX and two Chinese car makers. In total, we signed around 40 new patent license agreements across our licensing programs in 2024.

Business strategy overview and organization

Nokia Technologies has three business areas: Patent Licensing of Nokia's patent portfolio; Technology Licensing of Nokia's technologies for integration into consumer devices; and brand partnerships for licensing the Nokia brand.

Our long-term strategy is built on Nokia's technology leadership. Given the enabling nature of Nokia inventions in wireless communications and in multimedia, our patent portfolio remains highly relevant across multiple sectors and value chains. The emergence of new form factors and new value chains continues to open new licensing opportunities for us.

We manage the Nokia patent portfolio, working with other Nokia business groups, and continue to grow our patent licensing and monetization activities, which drive most of Nokia Technologies' net sales. The core of our business is the mobile devices licensing program, where we have agreements with most major smartphone vendors. We also have patent licensing programs for automotive, consumer electronics, IoT devices and solutions, video services, and gaming.

Innovation and standards leadership

Nokia is a leader in open standardization and has defined many of the fundamental technologies used in virtually all mobile devices. Since 2000, Nokia has invested over EUR 150 billion in research and development (R&D). As a result, we own one of the broadest and strongest patent portfolios in the telecommunications sector with a leading share of cellular Standard Essential Patents (SEPs), including over 7 000 patent families declared as essential to 5G. Our portfolio also covers significant multimedia assets, particularly in video compression technology. The work of Nokia's inventors in video research and standardization has been recognized with five Technology & Engineering Emmy® Awards. Our inventors also continue to lead in audio communication. In June 2024, Nokia made the world's first immersive voice and audio call over a cellular network using the new 3GPP Immersive Voice and Audio Services (IVAS) codec, which allows consumers to hear 3D spatial sound in real time. Nokia is a leading contributor to IVAS which is part of the upcoming 5G Advanced standard.

Our patent portfolio has a long lifetime, with the vast majority of patents still in force in ten years' time. In 2024, we filed patent applications on a record number of more than 3 000 new inventions.

Supply chain, sourcing and manufacturing

Nokia's supply chain is essential for our customers, our business and for managing customer demand and supply for our hardware, software and contract manufactured products.

Our end-to-end operations include sourcing, demand and supply planning, manufacturing, distribution and logistics. In 2024, we purchased over EUR 10 billion worth of products and services from around 9 000 different suppliers.

While the volatile geopolitical operating environment remained challenging in 2024, we continued to focus on further developing risk and cost management capabilities and building resilience through robust partnerships and a regional approach.

Focus on risk and cost management through digitalization, automation and inventory management

In 2024, global demand for our equipment continued to fluctuate, primarily driven by the overall macroeconomic climate and continued inventory digestion by some customers. To help us navigate the complexities of market fluctuations and supply chain disruptions, we continued to work closely with our customers to form the best possible forecast outlook in the mid- and long-term to effectively manage risk, prioritize cost efficiency and enhance resilience. In addition, we maintained a strong focus on inventory management to offset potential excess risks.

Furthermore, we continued to develop our risk management capabilities, supported by increased digitalization and automation to navigate the rapidly changing business environment. Inventories and safety buffers were largely kept upstream on a component level, increasing the flexibility to react to any potential short-term product type changes.

Building resilience through strong partnerships and a regional approach

As we continue to develop a robust and sustainable supply chain that can best serve our customers, maintaining our focus on resilience is critical.

We continuously optimize our manufacturing, distribution and supplier network across the regions where we operate, ensuring we have more than one manufacturing source for our key volume products. We also further leverage AI and machine learning capabilities to better develop our supply chain and factory network.

Our geographically dispersed manufacturing network consists of both our own manufacturing (4% of the network, based on number of sites, excluding ASN) and contract manufacturing partners to minimize geographic and geopolitical risks. Our network is strategically located around the world, and each year our spending percentage will vary depending on our regional demand. In 2024 our spend spread was: Europe 28%, Asia Pacific, Japan/India 44%, China 16% and the Americas 12%.

Our regional approach will not only enable us to deliver a more rapid response to our customers' needs, but also reduce transportation costs and CO_2 emissions.

Sustainability enablement and innovation

We expect our suppliers to adhere to our Third-party Code of Conduct and we provide them with Nokia Supplier Requirements that include adherence to the latest Responsible Business Alliance (RBA) Code of Conduct. The requirements cover topics such as environment, health, safety and security, privacy, risk management, labor and human rights, modern slavery, and ethics. We also run suppliers' assessments and audits and provide training to ensure they meet our requirements and can continuously improve. We work with them on remediation actions and push to raise the bar on standards across our ecosystem.

In 2024, we implemented 606 supply chain audits, including 101 on-site in-depth audits on corporate responsibility topics, 36 on-site audits against our Supplier Requirements and 469 supplier assessments using the EcoVadis scorecards.

This year, the number of audits requested by our customers increased, which shows the positive trend on responsible supply chain practices in our industry. We are committed to cutting 50% of our absolute scope 1, 2 and 3 greenhouse gas emissions by 2030, and in 2024, we announced our commitment to an overall net-zero target for 2040 across our value chain (scopes 1, 2 and 3). In 2024, we reached a 99% share of renewable energy in our own factories.

In 2024, we continued intensive work with our electronics manufacturing services (EMS) suppliers to track their decarbonization roadmaps as we look to achieve the mutually agreed target that the Nokia portion of their manufacturing reaches zero emissions by 2030. We have also set a 50% reduction target by 2030 for other suppliers, and close collaboration continued to reduce the emissions specially by supplier categories with high emission intensity such as suppliers of integrated circuits, semi-discretes and printed wiring boards. We recognized supplier climate and circularity innovations via our annual Supplier Diamond Award under the Sustainability category.

As part of our circularity program with suppliers, we aim to increase recycled material content in our mechanical parts with specific targets for 2030 and actions driven by sourcing in collaboration with R&D. Moreover, as part of the Mobile Networks' Talent Program for Women, we launched a radio site waste circularity project to develop a global framework to improve waste management across all markets.

"Design for Environment" is an integral part of our supply chain sustainability strategy. It aims to ensure Nokia products and packaging are in line with our policies and goals for product stewardship and environmental sustainability. We have continued to collaborate with our suppliers to encourage sustainable packaging, using alternative materials and optimized designs to deliver sustainable product packaging, reducing use of plastic, and increasing recycled content materials. For example, we have deployed FiberFlute and honeycomb cardboard solutions to replace plastic cushions in some product deliveries and are trialing bio-based packaging materials to further reduce plastic.

As part of our Responsible Minerals Sourcing program, we expanded the scope to include aluminum and copper, and we started due diligence activities with our key suppliers related to these minerals.

Nokia's target is to have 98% 3TG (tin, tantalum, tungsten, gold) traceability and conflict-free status to smelter level in our supply chain, and we aim for an extended due diligence status for cobalt, mica, aluminum, and copper by 2025.

In our supply chain logistics, we look for innovative ways to reduce our carbon footprint together with our Logistics Service Providers (LSPs). As an example, replacement of traditional truckload services between Hungary and the Netherlands with the rail pocket wagon service reduced GHG emissions on this route by 87% annually. Additionally, initiatives to increase containers fill rates delivered savings by reducing the number of containers to be transported. We aim to increase the share of Sustainable Aviation Fuel (SAF) and multimodal transportation globally.

We are committed to prioritizing and strengthening resilience and sustainability across the end-to-end supply chain to help us deal effectively with challenges that arise.

Own manufacturing

As of 31 December 2024, the production capacity for sites owned by us is noted below:

Country	Location and products[1]	Productive capacity, net (m^2)[2]
Finland	Oulu: base stations	10 000
India	Chennai: base stations, radio controllers and transmission systems, fixed networks	15 500

(1) We consider the production capacity of our manufacturing network to be sufficient to meet the requirements of our business. The extent of utilization of our manufacturing facilities varies from plant to plant and from time to time during the year. None of these facilities is subject to a material encumbrance.
During 2024, Nokia disposed of the following sites:
1) Calais: submarine cables (France), 61 000 m^2 net productive capacity
2) Greenwich: submarine cables (United Kingdom), 11 000 m^2 net productive capacity
3) Hannover: radio frequency systems (Germany), 23 500 m^2 net productive capacity
4) Suzhou: radio frequency systems (China), 13 500 m^2 net productive capacity.
During 2023, Nokia disposed of the following sites:
1) Trignac: radio frequency systems (France), 7 300 m^2 net productive capacity
2) Meriden: radio frequency systems (USA), 31 000 m^2 net productive capacity
3) Bydgoszcz: remanufacturing, product integration (Poland), 15 200 m^2 net productive capacity.
During 2022, manufacturing activities ended at the following site:
1) Kilsyth, radio frequency systems (Australia), 5 400 m^2 net productive capacity.

(2) Production capacity equals the total area allotted to manufacturing and to the storage of manufacturing-related materials.

Corporate governance

Corporate governance statement

"In 2024, we continued delivering on Nokia's commitment to strong corporate governance and related practices. To do that, the activities of the Board of Directors are structured to develop the Company's strategy and to enable the Board to support and oversee management on its delivery within a transparent governance framework."

Select highlights in our corporate governance during 2024

- At the 2024 Annual General Meeting our shareholders continued to show remarkably strong support for the Board's proposals. We continued applying the individual director election method, and for the first time, our shareholders elected a sustainability reporting assurer, in line with the regulation implementing the EU Corporate Sustainability Reporting Directive.
- The Board established a new Strategy Committee for the purpose of assisting the Board with respect to various strategic initiatives related to developing our corporate and business strategies and capturing the strategic opportunities identified under them.
- To ensure the innovative and responsible use of AI, we established a comprehensive AI governance framework at Nokia in 2024, including a central steering committee and a separate AI governance board for the group-level policies and procedures, incident reporting, coordination and for related communications.
- During the year, we had the pleasure to host several meetings with our largest shareholders to discuss Nokia's approach to sustainability, remuneration and governance, and their expectations in these areas.

This corporate governance statement is prepared in accordance with Chapter 7, Section 7 of the Finnish Securities Markets Act (2012/746, as amended) and the Finnish Corporate Governance Code 2025 (the "Finnish Corporate Governance Code").

Regulatory framework

Our corporate governance practices comply with Finnish laws and regulations, our Articles of Association approved by the shareholders and corporate governance guidelines ("Corporate Governance Guidelines") adopted by the Board of Directors. The Corporate Governance Guidelines reflect our commitment to strong corporate governance. They include the directors' responsibilities, the composition and election of the members of the Board and its Committees, and certain other matters relating to corporate governance. We also comply with the Finnish Corporate Governance Code adopted by the Securities Market Association.

We follow the rules and recommendations of Nasdaq Helsinki and Euronext Paris as applicable to us due to the listing of our shares on these exchanges. Furthermore, as a result of the listing of our American Depositary Shares on the New York Stock Exchange (NYSE) and our registration under the U.S. Securities Exchange Act of 1934, we follow the applicable U.S. federal securities laws and regulations, including the Sarbanes-Oxley Act of 2002 as well as the rules of the NYSE, in particular the corporate governance standards under Section 303A of the NYSE Listed Company Manual. We comply with these standards to the extent such provisions are applicable to us as a foreign private issuer.

To the extent compliance with any non-domestic rules would conflict with the laws of Finland, we are obliged to comply with Finnish laws and applicable regulations. There are no significant differences in the corporate governance practices applied by Nokia compared with those applied by U.S. companies under the NYSE corporate governance standards with the exception that Nokia complies with Finnish law with respect to the approval of equity compensation plans. Under Finnish law, stock option plans require shareholder approval at the time of their launch. All other plans that include the delivery of company stock in the form of newly issued shares or treasury shares require shareholder approval at the time of delivery of the shares unless shareholder approval has been granted through an authorization to the Board, a maximum of five years earlier. The NYSE corporate governance standards require that equity compensation plans are approved by the company's shareholders. Nokia aims to minimize the necessity for, or consequences of, conflicts between the laws of Finland and applicable non-domestic corporate governance standards.

In addition to the Corporate Governance Guidelines, the Committees of the Board have adopted charters that define each Committee's main duties and operating principles. The Board has also adopted the Code of Conduct that applies to directors, executives, and employees of Nokia, as well as employees of Nokia's subsidiaries and affiliated companies (such as joint ventures) in which Nokia owns a majority of the shares or exercises effective control. Furthermore, the Board has adopted the Code of Ethics and Executive Officer Clawback Policy applicable to our key executives, including the President and CEO, CFO and Corporate Controller.

Corporate governance statement continued

Corporate governance framework

Main corporate governance bodies of Nokia

Pursuant to the provisions of the Finnish Limited Liability Companies Act (2006/624, as amended) (the "Finnish Companies Act"), the legislation under which Nokia operates, and Nokia's Articles of Association, the control and management of Nokia are divided among shareholders at a general meeting, the Board, the President and CEO and the Group Leadership Team, chaired by the President and CEO.

General Meeting of Shareholders

Nokia's shareholders play a key role in corporate governance, with our Annual General Meeting offering a regular opportunity to exercise their decision-making power in Nokia. In addition, at the meeting the shareholders may exercise their right to speak and ask questions.

Each Nokia share entitles a shareholder to one vote at general meetings of Nokia. The Annual General Meeting decides, among other things, on the election and remuneration of the Board, the adoption of annual accounts, the authorization for the Board to distribute dividend or other assets, discharging the members of the Board and the President and CEO from liability, as well as on the election and fees of the external auditor and the sustainability reporting assurer. The Remuneration Policy is presented to the general meeting at least every four years and the Remuneration Report annually. Resolutions of the general meeting regarding the policy and the report are advisory in nature.

In addition to the Annual General Meeting, an Extraordinary General Meeting may be convened when the Board considers such a meeting to be necessary, or when the provisions of the Finnish Companies Act mandate that such a meeting must be held.

The Finnish Companies Act was amended in 2022 to enable and promote limited liability companies to hold hybrid and virtual-only general meetings. A virtual general meeting, as defined by the Finnish Companies Act, is a meeting held without a physical meeting venue, where shareholders must be able to exercise their shareholder rights in full by virtual means, including voting in real time and asking questions orally during the meeting. The Finnish legislation can be considered a leading example of protecting shareholders' rights in virtual general meetings.

Once reliable technical methods for the virtual meeting and automated foreign shareholder identification become available in Finland, virtual general meetings are expected to improve the position of nominee-registered private shareholders residing outside of Finland, who may have been unable to attend the general meeting in person or be represented by proxy. The reduced carbon footprint is also one of the benefits of virtual general meetings.

Annual General Meeting 2024 and 2025

The Annual General Meeting 2024 took place at the Helsinki Expo and Convention Centre, on 3 April 2024. We were pleased to see the high number of votes cast as well as the strong shareholder support received for the Board's proposals. For the third consecutive year, the turnout for the vote stood at a record-high level.

A total of 77 606 shareholders representing approximately 3 305 million shares and 58.88% of all the shares and votes in the Company participated the Annual General Meeting. On the other hand, after the COVID-pandemic, we once again saw a lower number of shareholders attending in person than in previous years. To facilitate shareholder participation and options to follow the meeting in alternative ways, the Company offered the opportunity to cast votes in advance and to follow the meeting and ask questions through a live webcast.

Nokia Corporation's Annual General Meeting 2025 is planned to be held on 29 April 2025. The Board's proposals to the Annual General Meeting 2025 were published on 30 January 2025.

Board of Directors

The operations of Nokia are managed under the direction of the Board, within the framework set by the Finnish Companies Act, Nokia's Articles of Association and any complementary rules of procedure as defined by the Board, such as the Corporate Governance Guidelines and the charters of the Board's Committees.

Election and composition of the Board of Directors
Pursuant to our Articles of Association, we have a Board that is composed of a minimum of seven and a maximum of 12 members. The members of the Board are elected at least annually at each Annual General Meeting. The candidates are considered individually and those receiving the most votes shall be elected pursuant to the Finnish Companies Act. The term of the Board members begins at the close of the general meeting at which they were elected and expires at the close of the following Annual General Meeting. The Annual General Meeting convenes by 30 June annually.

Our Board's leadership structure consists of a Chair and Vice Chair elected annually by the Board and confirmed by the independent directors of the Board upon the recommendation of the Corporate Governance and Nomination Committee. The Chair of the Board has certain specific duties as stipulated by Finnish law and our Corporate Governance Guidelines. The Vice Chair assumes the duties of the Chair of the Board in the event the Chair is prevented from performing his or her duties.

The independent directors of the new Board confirm the election of the members and chairs for the Board's Committees from among the Board's independent directors upon the recommendation of the Corporate Governance and Nomination Committee and based on each Committee's qualification standards. These elections take place at the Board's assembly meeting following the general meeting.

The Corporate Governance and Nomination Committee aims to continually renew the Board to have an efficient Board of international professionals with a diverse mix of skills, experience and other personal qualities in line with the diversity principles established by the Board. The Committee considers potential director candidates based on the short- and long-term needs of the Company. In the process of identifying and selecting the candidates matching these needs and desired profiles, the Committee engages recruitment firms and external advisers.

Board independence
In accordance with the Corporate Governance Guidelines adopted by the Board of Directors, the Nokia Board shall have a majority of directors who meet the criteria for independence as defined by the Finnish Corporate Governance Code (independent of both the Company and any significant shareholders who hold at least 10% or more of the total shares or voting rights of the Company) and the rules of the NYSE. Furthermore, all of the members of the Board Committees shall be independent Directors under the relevant criteria for independence required by the Finnish Corporate Governance Code and the applicable rules of the NYSE.

The Board will monitor its compliance with these requirements for director independence on an ongoing basis. Each independent director is expected to notify the Chair of the Corporate Governance and Nomination Committee, as soon as reasonably practicable, in the event that his or her personal circumstances change in a manner that may affect the Board's evaluation of such director's independence. The Board of Directors evaluates the independence of its members annually and, in addition to this, on a continuous basis with the assistance of the Corporate Governance and Nomination Committee.

Board diversity
The Board has adopted principles concerning Board diversity describing our commitment to promoting a diverse Board composition and how diversity is embedded into our processes and practices when identifying and proposing new Board candidates, as well as when proposing re-election of current Board members.

At Nokia, diversity is not a static concept but rather a relevant mix of required elements for the Board as a whole that evolves with time based on, among other things, the relevant business objectives and future needs of Nokia. Board diversity is treated as a means of improvement and development rather than an end in itself. Diversity of our Board is considered from a number of aspects including, but not limited to, skills and experience, tenure, age, nationality, ethnicity, cultural and educational backgrounds, gender, as well as other individual qualities.

Corporate governance statement continued

We report annually on our objectives relating to equal representation of genders and the progress we make. For many years, we have met our target of having at least 40% of the Director positions held by members of underrepresented gender in the Board composition. In the current Board composition, 40% of the Board members are female and also in the Board composition proposed to the Annual General Meeting 2025, 40% of the Board members are female.

We currently have a diverse Board composition in line with the Board's diversity principles. There are six different nationalities and a rather wide age and tenure range represented on the Board. Each Board member has a unique skill set that supports Nokia's business and relevant areas of expertise close to the business. These primary areas of expertise of the current and proposed new Board members that are relevant to our business have been highlighted in the skills matrix.

Current members of the Board of Directors
The Annual General Meeting held on 3 April 2024 elected ten members to the Board for a term ending at the close of the next Annual General Meeting. Timo Ahopelto, Sari Baldauf, Elizabeth Crain, Thomas Dannenfeldt, Lisa Hook, Thomas Saueressig, Søren Skou, Carla Smits-Nusteling and Kai Öistämö were re-elected as Board members. Mike McNamara was elected as a new Board member. Following the meeting, the Board re-elected Sari Baldauf to serve as Chair and re-elected Søren Skou as Vice Chair of the Board for the same term.

The current members of the Board are all non-executive and for the term that began at the Annual General Meeting 2024, all Board members were determined to be independent of Nokia and its significant shareholders under the Finnish Corporate Governance Code and the NYSE rules, as applicable.

In addition to biographical information of the Board members, the table in the upper right corner sets forth the number of shares and American Depositary Shares (ADSs) held by the Board members. As at 31 December 2024, they held a total of 1 056 085 shares and ADSs in Nokia, representing approximately 0.02% of our total shares and voting rights excluding shares held by the Nokia Group.

Biographical details of the Board members

	Gender	Year of Birth	Nationality	Tenure[1]	Independent of the company and major shareholders	Shares[2]	ADSs[2]
Sari Baldauf (Chair)	Female	1955	Finnish	6	Independent	343 568	
Søren Skou (Vice Chair)	Male	1964	Danish	5	Independent	114 397	
Timo Ahopelto	Male	1975	Finnish	1	Independent	45 350	
Elizabeth Crain	Female	1964	American	1	Independent		47 843
Thomas Dannenfeldt	Male	1966	German	4	Independent	144 948	
Lisa Hook	Female	1958	American	2	Independent		59 558
Mike McNamara	Male	1964	Irish	0	Independent		23 932
Thomas Saueressig	Male	1985	German	2	Independent	56 928	
Carla Smits-Nusteling	Female	1966	Dutch	8	Independent	160 475	
Kai Öistämö	Male	1964	Finnish	2	Independent	59 086	

(1) Terms as Nokia Board member before the Annual General Meeting on 3 April 2024.
(2) The number of shares or ADSs includes shares and ADSs received as director compensation as well as shares and ADSs acquired through other means. Stock options or other equity awards that are deemed as being beneficially owned under the applicable SEC rules are not included.

Experience and primary skills of the Board members

	Business Exec. role with P&L responsibility	External boardroom roles/ Governance	Finance and accounting	Legal/Public policy/ Compliance	Communications service provider market segment	Enterprise market segment	Technology	Cybersecurity	Environmental/ Social issues
Current Board members									
Sari Baldauf	✓	✓		✓	✓		✓		✓
Søren Skou	✓	✓		✓		✓			✓
Timo Ahopelto	✓	✓				✓	✓	✓	
Elizabeth Crain	✓	✓	✓	✓					
Thomas Dannenfeldt		✓	✓		✓	✓	✓		
Lisa Hook	✓	✓		✓	✓	✓	✓	✓	
Mike McNamara	✓	✓				✓	✓	✓	
Thomas Saueressig	✓	✓			✓	✓	✓	✓	✓
Carla Smits-Nusteling		✓	✓	✓	✓				
Kai Öistämö	✓	✓			✓		✓	✓	✓
Proposed new Board members									
Pernille Erenbjerg	✓	✓	✓		✓		✓	✓	✓
Timo Ihamuotila	✓	✓	✓				✓		

Corporate governance statement continued

Director time commitments

The Corporate Governance and Nomination Committee monitors closely the time commitments of the Board members and annually reviews the Directors' attendance rate at the Board and Committee meetings to ensure they are able to devote the appropriate time to the Company to carry out their duties and responsibilities.

The Corporate Governance Guidelines of the Board include numerical limits and a process for pre-clearance of new roles in public companies. Directors should not serve on more than four other boards of public companies in addition to the Nokia Board, and on no more than three other boards of public companies in addition to the Nokia Board, in cases where they serve as board chair or lead independent director outside the Nokia Board. The Audit Committee members should not serve on more than two other audit committees of public companies in addition to the Nokia Audit Committee.

No positions in excess of these limits may be held without prior consent by the Chair of the Board and the Chair of the Corporate Governance and Nomination Committee determining that such positions would not impair the Director's service on the Nokia Board or Audit Committee.

The Corporate Governance and Nomination Committee will annually, ahead of preparing the proposal on the Board composition, review and assess the Directors' current and planned time commitments outside the Company to seek affirmation that all Directors acknowledge the time commitment principles set forth in the Corporate Governance Guidelines of the Board.

The Committee also reviews under its related guidelines and procedure the proposed new Director candidates' time commitments during the proposed term to ensure that they are able to dedicate sufficient time to their responsibilities on the Nokia Board.

As part of the assessment, the proposed new Directors may have been required to reduce their current commitments during a short transition period before the next Annual General Meeting following their appointment.

Proposed members of the Board of Directors

Proposals of the Board of Directors to the Annual General Meeting 2025 were published on 30 January 2025. On the recommendation of the Corporate Governance and Nomination Committee, the Board proposes to the Annual General Meeting that the number of Board members be ten. Søren Skou and Carla Smits-Nusteling have informed the Committee that they will no longer be available to serve on the Nokia Board of Directors after the Annual General Meeting.

Consequently, on the recommendation of the Corporate Governance and Nomination Committee, the Board proposes that the following eight current Board members be re-elected as members of the Nokia Board of Directors for a term ending at the close of the next Annual General Meeting: Timo Ahopelto, Sari Baldauf, Elizabeth Crain, Thomas Dannenfeldt, Lisa Hook, Mike McNamara, Thomas Saueressig and Kai Öistämö.

Furthermore, the Board proposes, on the recommendation of the Corporate Governance and Nomination Committee, that Pernille Erenbjerg, Danish citizen, former CEO and President of TDC Group; and Timo Ihamuotila, Finnish citizen, Chief Financial Officer of ABB Ltd, be elected to the Board for a term ending at the close of the next Annual General Meeting. Pernille Erenbjerg has a strong background in financial management, corporate leadership, and board governance as well as broad experience from the telecoms, media and tech industries. Timo Ihamuotila is a former Chief Financial Officer of Nokia 2009–2016 and a member of the Nokia Group Leadership Team 2007–2016, with a total of more than 20 years of work experience at Nokia. Timo Ihamuotila will bring extensive financial expertise, strategic leadership, and a deep understanding of global markets to the Board, along with experience in the communications, software and services industries. The candidates' complementary skills will enhance the Board's ability to navigate complex financial landscapes, drive strategic initiatives, and ensure robust corporate governance.

The Corporate Governance and Nomination Committee will propose in the assembly meeting of the new Board of Directors that Sari Baldauf be re-elected to serve as Chair of the Board and Timo Ihamuotila be elected to serve as Vice Chair of the Board, subject to their election to the Board of Directors.

The Board composition proposed to the Annual General Meeting 2025 has representation of five nationalities and 40% of the proposed members are female.

The proposed members of the Board are non-executive and for the term beginning at the Annual General Meeting 2025 they have been determined to be independent of Nokia and its significant shareholders under the Finnish Corporate Governance Code and the rules of the NYSE. Any possible changes impacting the independence assessment would be assessed as of the date of the Annual General Meeting. The Corporate Governance and Nomination Committee has prepared the composition of the Board of Directors to the Annual General Meeting 2025 after assessing proposed Directors' external time commitments, and taken into account shareholders' expectations in this regard. Timo Ihamuotila has confirmed to the Corporate Governance and Nomination Committee that he will be reducing his mandates in public companies by one position before the next Annual General Meeting following his appointment to the Nokia Board.

Nokia is proud to continue to be among the first Finnish listed companies providing its shareholders with the opportunity to consider each Director candidate individually since our Annual General Meeting 2023, in line with the global market practice.

Corporate governance statement continued

Biographical details of our current Board members

Chair Sari Baldauf
b. 1955

Chair of the Nokia Board since 2020. Nokia Board member since 2018. Member of the Corporate Governance and Nomination Committee, the Personnel Committee and the Strategy Committee.

Master of Business Administration, Helsinki School of Economics and Business Administration, Finland. Bachelor of Science, Helsinki School of Economics and Business Administration, Finland. Honorary doctorates in Technology (Helsinki University of Technology, Finland) and Business Administration (Turku School of Economics and Business Administration and Aalto University School of Business, Finland).

Executive Vice President and General Manager, Networks Business Group, Nokia 1998–2005. Various executive positions at Nokia in Finland and in the United States 1983–1998.

Chair of the Board of the Finnish Climate Leadership Coalition (CLC). Senior Advisor of DevCo Partners Oy.

Member of the Board of Technology Industries of Finland 2021–2023. Member of the Board of Directors of Aalto University 2018–2023. Member of the Supervisory Board of Mercedes-Benz Group AG 2008–2023. Member of the Supervisory Board of Deutsche Telekom AG 2012–2018. Chair of the Board of Directors of Fortum Corporation 2011–2018. Member of the Board of Directors of Akzo Nobel 2012–2017.

Vice Chair Søren Skou
b. 1964

Vice Chair of Nokia Board since 2022. Nokia Board member since 2019. Chair of the Corporate Governance and Nomination Committee and member of the Strategy Committee.

MBA (honours), IMD, Switzerland. Bachelor of Business Administration, Copenhagen Business School, Denmark. Maersk International Shipping Education (M.I.S.E.).

Chief Executive Officer of A.P. Møller – Mærsk A/S 2016–2022. Chief Executive Officer of Maersk Line 2012–2016. Chief Executive Officer of Maersk Tankers 2001–2011. Variety of executive roles, senior positions and other roles at A.P. Møller – Mærsk since 1983.

Chair of the Board of the Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping (a not-for-profit foundation). Chair of the Board of HES International. Chair of of the Board of Controlant hf. Chair of the Board of Bygma A/S. Member of the Board of CV Obel A/S. Senior Advisor to Global Infrastructure Partners (GIP), Chair of GIP portfolio Companies VTG GmbH and Skyborn Renewables GmbH.

Timo Ahopelto
b. 1975

Founding Partner of Lifeline Ventures. Nokia Board member since 2023. Member of the Personnel Committee and the Technology Committee.

Master's degree in Industrial Management, Helsinki University of Technology, Finland.

Head of Strategy and Business Development, Blyk 2006–2009. Founding CEO, Vice President of Worldwide Commercial Operations, CRF Health 2000–2006. Consultant, McKinsey & Company 1999–2000.

Chair of the Board of Directors of Canatu Plc (former Lifeline SPAC I Plc). Chair of the Board of Finnish Startup Community. Member of the Board of Directors of Solidium Oy and various other board positions in private companies.

Member of the Board of Directors of Digital Workforce Services Plc 2016–2025. Member of the Board of Finnish Business and Policy Forum EVA and Research Institute for Finnish Economy (ETLA) 2015–2024. Member of the Board of Directors of Tietoevry Corporation 2017–2023. Chair of the Board of Slush Conference 2018–2023 and member of the Board 2013–2018. Member of the Board of Business Finland 2014–2020. Member of the Board, Startup Foundation 2015–2018.

Elizabeth Crain
b. 1964

Nokia Board member since 2023. Chair of the Strategy Committee and member of the Personnel Committee.

MBA, the Wharton School at the University of Pennsylvania, United States. Bachelor of Science in Economics, Arizona State University, United States.

Advisory Partner, the Consello Group. Co-Founder of Moelis & Company; served as the Chief Operating Officer 2007–2023. Managing Director, Office of the CEO at UBS Investment Bank 2005–2007. Chief Operating Officer and Chief Administrative Officer of the UBS Investment Banking Department Americas franchise 2001–2005. Investment Principal, McCown De Leeuw & Company 2000–2001. Investment Principal, Morgan Stanley Capital Partners 1997–2000. Vice President, Investment Banking, Merrill Lynch & Co. 1994–1997. Associate, Investment Banking, J.P. Morgan Securities 1992–1994. Analyst, Merrill Lynch & Co. 1988–1990.

Trustee Emeritus, The Royal Academy Trust, London.

Member of the Board of Directors of Exscientia Plc 2021–2024. Member of the Board of Directors of Moelis & Company 2017–2021.

Committee key:

- **A**udit
- **C**orporate Governance and Nomination
- **P**ersonnel
- **S**trategy
- **T**echnology

Corporate governance statement continued

Biographical details of our current Board members continued

Thomas Dannenfeldt

b. 1966

Nokia Board member since 2020. Chair of the Personnel Committee and member of the Audit Committee and the Strategy Committee.

Degree in Mathematics, University of Trier, Germany.

Chief Financial Officer of Deutsche Telekom AG 2014–2018. Chief Financial Officer of Deutsche Telekom's German operations 2010–2014. Various operational positions (sales, marketing, customer care, finance and procurement in fixed and mobile business, national and international positions) at Deutsche Telekom 1992–2010.

Chair of the Supervisory Board of Ceconomy AG and Chair of the Presidential Committee and Strategy Committee. Member of the Board of Advisors at axxessio GmbH.

Member of the Board of Directors of T-Mobile US Inc. 2013–2018. Member of the Board of Directors of Buy-In 2013–2018. Chair of the Board of Directors of T-Systems International 2013–2018. Chair of the Board of Directors of EE Ltd. 2014–2016.

Lisa Hook

b. 1958

Nokia Board member since 2022. Member of the Audit Committee, the Corporate Governance and Nomination Committee and the Strategy Committee.

Juris Doctorate, Dickinson School of Law at Pennsylvania State University, United States. Bachelor's degree in Public Policy, Duke University, United States.

President and CEO of Neustar, Inc. 2010–2018 and COO 2008–2010. President and CEO of Sunrocket, Inc. 2006–2007. Executive positions at America Online, Inc. 2000–2004. Previous positions as Partner at Brera Capital Partners, managing director of Alpine Capital Group, LLC., various executive positions at Time Warner, Inc., legal adviser to the Chairman of the Federal Communications Commission, and General Counsel of the Cable Group at Viacom International, Inc.

Member of the Board of Directors of FIS Global Inc. Lead Independent Director of the Board of Directors of Philip Morris International. Member of the Board of Zayo Group. Chair of Advisory Board of Trilantic Capital Partners. Member of the US National Security Telecommunications Advisory Committee.

Member of the Board of Directors of Ritchie Bros. Auctioneers Inc. 2021–2023, Ping Identity Holding Corp. 2019–2022, Partners Group Holdings 2020–2021, Unisys Corp. 2019–2021, Neustar, Inc. 2010–2019 and RELX Plc 2006–2016.

Mike McNamara

b. 1964

Nokia Board member since 2024. Member of the Audit Committee and the Technology Committee.

Bachelor of Engineering, University College Dublin, Ireland.

Strategic Advisor, Target Corporation 2022–2023. Executive Vice President and Chief Information Officer, Target Corporation 2015–2022. Chief Information Officer, Tesco 2011–2015. Director of Operations Development and IT, Tesco 2006–2011. Chief Technology Officer Tesco.com, Tesco 1999–2006. Senior Manager, Accenture 1991–1998. Computer Programmer, British Telecom 1989–1991.

Member of the Board of Directors of Hawaiian Holdings, Inc. 2020–2024.

Committee key:

- **A** udit
- **C** orporate Governance and Nomination
- **P** ersonnel
- **S** trategy
- **T** echnology

Corporate governance statement continued

Biographical details of our current Board members continued

Thomas Saueressig
b. 1985

Member of the Executive Board of SAP SE and Global Head of SAP Product Engineering. Nokia Board member since 2022. Member of the Technology Committee.

Degree in Business Information Technology, University of Cooperative Education in Mannheim, Germany. Joint Executive MBA from ESSEC, France and Mannheim Business School, Germany.

Chief Information Officer of SAP SE 2016–2019, Vice President, Global Head of IT Services of SAP SE 2014–2016. Held various positions at SAP in Germany since 2007, including assignment in the SAP Labs Silicon Valley in Palo Alto, California, the United States.

Member of the Young Global Leaders of the World Economic Forum. Member of the Industry Advisory Board of the Munich Institute of Robotics and Machine Intelligence (MIRMI).

Carla Smits-Nusteling
b. 1966

Nokia Board member since 2016. Chair of the Audit Committee and member of the Corporate Governance and Nomination Committee.

Master's Degree in Business Economics, Erasmus University Rotterdam, the Netherlands. Executive Master of Finance and Control, Vrije University Amsterdam, the Netherlands.

Member of the Board of Directors and Chief Financial Officer of KPN 2009–2012. Various financial positions at KPN 2000–2009. Various financial and operational positions at TNT/PTT Post 1990–2000.

Member of the Board and Chair of the Audit Committee of CVC Capital Partners plc. Member of the Board of Directors of the Stichting Continuïteit Ahold Delhaize (SCAD) foundation.

Member of the Board of Directors of Allegro.eu SA 2020–2024. Chair of the Board of Directors of TELE2 AB 2013–2023. Lay Judge in the Enterprise Court of the Amsterdam Court of Appeal 2015–2022. Member of the Supervisory Board and Chair of the Audit Committee of ASML 2013–2021. Member of the Management Board of the Unilever Trust Office 2015–2019.

Kai Öistämö
b. 1964

President and CEO of Vaisala Corporation. Nokia Board member since 2022. Chair of the Technology Committee and member of the Corporate Governance and Nomination Committee.

PhD in computer science, Tampere University of Technology, Finland.

Chief Operating Officer of InterDigital, Inc. 2018–2020. Executive Partner of Siris Capital Group 2016–2018. EVP, Chief Development Officer at Nokia 2010–2014. EVP, Devices at Nokia 2008–2010. EVP, Mobile Phones Business Group at Nokia 2006–2008. Several previous positions at Nokia 1991–2006.

Venture Partner of Kvanted Oy.

Chairman of the Board of Fastems Group 2014–2022. Member of the Board of Directors of Sanoma Group 2010–2021. Chairman of the Board of Helvar Oy Ab 2014–2020. Member of the Board of Directors of Mavenir Plc 2017–2018. Member of the Board of Directors of Digia / Qt Group Oyj 2015–2018. Member of the Board of Directors of InterDigital, Inc. 2015–2018. Member of the Board of Directors of oikian solutions Oy 2014–2018. Chairman of the Board, Tampere University 2013–2017. Chairman of the Board of Directors, Tekes 2012–2014. Member of the Board of Directors of Nokian Renkaat Plc 2008–2010.

Committee key:
- **A** udit
- **C** orporate Governance and Nomination
- **P** ersonnel
- **S** trategy
- **T** echnology

Corporate governance statement continued

Operations of the Board of Directors
The Board represents and is accountable to the shareholders of Nokia. While its ultimate statutory accountability is to the shareholders, the Board also takes into account the interests of Nokia's other stakeholders. The Board's responsibilities are active, not passive, and include the responsibility to evaluate the strategic direction of Nokia, its management policies and the effectiveness of the implementation of such by the management on a regular basis. It is the responsibility of the members of the Board to act in good faith and with due care, so as to exercise their business judgment on an informed basis, in a manner that they reasonably and honestly believe to be in the best interests of Nokia and its shareholders. In discharging this obligation, the members of the Board must inform themselves of all relevant information reasonably available to them. The Board and each Board Committee also have the power to appoint independent legal, financial or other advisers as they deem necessary. The Company will provide sufficient funding to the Board and to each Committee to exercise their functions and provide compensation for the services of their advisers.

The Board has the responsibility for appointing and discharging the President and Chief Executive Officer, Chief Financial Officer and Chief Legal Officer. The Board is ultimately responsible for, and its duties include, monitoring and reviewing Nokia's financial reporting process, the effectiveness of related control and audit functions and the independence of Nokia's external auditor, as well as monitoring the Company's statutory audit. The Board's responsibilities also include overseeing the structure and composition of our top management and monitoring legal compliance and the management of risks related to our operations. In doing so, the Board may set annual ranges and/or individual limits for capital expenditures, investments and divestitures and other financial and non-financial commitments that may not be exceeded without a separate Board approval.

In risk management, the Board's role includes risk analysis and assessment in connection with financial, strategy and business reviews, updates and decision-making proposals. Risk management policies and processes are an integral part of Board deliberations and risk-related updates are provided to the Board on a recurring basis. For a more detailed description of our risk management policies and processes, refer to the "Risk management, internal control and internal audit functions at Nokia—Risk management principles" section.

The Board approves and the independent directors of the Board confirm the compensation and terms of employment of the President and CEO, subject to the requirements of Finnish law, upon the recommendation of the Personnel Committee of the Board. The compensation and terms of employment of the other Group Leadership Team members are approved by the Personnel Committee upon the recommendation of the President and CEO.

Board oversight of environmental and social activities and governance practices
Under our Corporate Governance Guidelines, the Board evaluates Nokia's environmental and social activities and governance practices (ESG), related risks and target setting as well as their implementation and effectiveness across the Company. In 2024, the Board reviewed our sustainability strategy and targets, approved the targets on climate change in the long-term incentive plan, approved the targets on health and safety and diversity included in the short-term incentive plan and monitored them and other ESG targets, as well as the evolving ESG requirements and expectations, investor feedback, our disclosure approach, and Nokia's net-zero commitment and roadmap.

In addition, the Board Committees monitor environmental and social developments and activities in the Company in their respective areas of responsibilities. The Audit Committee reviews sustainability disclosures annually, as well as the information on the use of conflict minerals in Nokia's products presented in the annual reports and the related regulatory filings. During 2024, the Audit Committee's responsibilities included the continued implementation planning of new climate- and other sustainability reporting requirements, including the double materiality assessment, preparing the proposal for election of the auditor carrying out the assurance of the sustainability reporting, and oversight of the ethics and compliance program.

The Personnel Committee oversees human capital management, including personnel policies and practices related to Nokia's culture, physical safety, employee well-being, diversity, recruiting, development and retention. In 2024, the Personnel Committee focused, among other things, on a people risk review, including physical safety and succession planning.The Committee has also recommended to the Board to include carbon emission reduction in the metrics of the long-term incentive plan as well as diversity and health and safety as metrics in the short-term incentive plan. The Corporate Governance and Nomination Committee assesses and advises the Board on ESG-related activities and practices, aiming to enhance the governance structure supporting them. The Technology Committee reviews how the Company's ESG strategy embeds into its technology strategy and roadmaps.

Board oversight of cybersecurity
Nokia group-level security is set up in four domains: product, service, information, and customer security. While the oversight of the security risks and their management, including cybersecurity, is a Board level responsibility in the Company, the detailed reviews of the different security domains are allocated to the Committees of the Board. These Committees are responsible for monitoring and assessing the security, including cybersecurity-related risks and reporting to the Board in their respective areas of responsibilities. The responsibilities of the Audit Committee include oversight of the management and processes related to the IT and services security risks and maturity, including security-related controls, compliance, incident process, disclosures and risk management. The Technology Committee oversees the product and customer security risk management. The Committees report to the Board on a regular basis and prepare recommendations to the Board, whenever deemed necessary. The Board also receives regular updates on cybersecurity.

Board oversight of Artificial Intelligence (AI)
The proliferation of AI technologies is creating new opportunities for innovation. To ensure the responsible use of AI, particularly with respect to ethics, privacy, and security, we established a comprehensive AI governance framework in 2024 at Nokia, including a central steering committee and a separate AI governance board for the group-level policies and procedures, incident reporting, coordination and related communication. The Board's oversight of AI development is based on principles similar to those we apply to other advanced technologies. The Technology Committee of the Board has reviewed the AI governance framework before its adoption and is responsible for overseeing that compliance with all relevant regulatory frameworks for AI has been effectively arranged. The Technology Committee will also be updated to monitor and stay informed on the progress and challenges of using AI, both at a strategic and operational level. The Technology Committee reports to the Board on the AI governance at Nokia and on AI related topics on a regular basis.

Corporate governance statement continued

Key areas of focus for the Board's and its Committees' activities in 2024

The table below sets out a high-level overview of the key areas of focus for the Board's and its Committees' activities during the year. The Board also established a new Strategy Committee in April 2024. The Strategy Committee held seven meetings during the year 2024 to discuss various strategic initiatives related to developing Nokia's corporate and business strategies.

	January	February/March	April	May	June/July	September/October	November/December
Board	– Business and financial reviews – Q4 and 2023 financials – Strategy execution update – Annual General Meeting (AGM) proposals, including. profit distribution – Annual Policy and Charter review – Board evaluation – Review of CEO's performance, remuneration and targets	– Annual report and 20-F – Remuneration Report 2023	– AGM and appointing Board Chair, Vice Chair and Committee members – Business and financial reviews – Strategy execution update – Q1 financials	– Business and financial reviews – Strategy execution update – Geopolitical update – Macroeconomics update – Product and customer security update – Shareholder activism preparedness update – Litigation and compliance update	– Business and financial reviews – Q2 financials – Strategy execution update – Annual sustainability review	– Annual strategy meeting – Business and financial reviews – Geopolitical update – Innovation framework – People update – Q3 financials	– Business and financial reviews – Long-range forecast and annual target setting – Key risks review – Investors' feedback on governance, remuneration and sustainability – Digitalization and security update – Geopolitical update
Corporate Governance and Nomination Committee	– AGM proposals on Board composition and remuneration – Independence review – Corporate governance statement		– Committee compositions – Annual Clock and discussion on Committee work – Future Board composition	– Future Board composition – Management succession planning		– Corporate governance developments in regulation – Future Board composition – Board evaluation approach – Management succession planning	– Board remuneration review and benchmarking – Annual assessment of director commitments – Future Board composition – Annual Charter review
Personnel Committee	– Incentive achievements for 2023 – CEO and GLT performance – Incentive targets and objectives for 2024 – Long-term Incentive Plan (LTI) grant proposal for 2024 – Remuneration Report 2023			– AGM shareholder feedback – GLT remuneration – Culture update – Succession planning	– Remuneration Policy 2025 – LTI performance update – Human capital risk review, including physical safety – Committee adviser's market and benchmarking update – Succession planning	– Incentive Compensation Clawback Policy – Independent adviser review – LTI design for 2025 – Remuneration Policy 2025 including shareholder consultation – Workforce demographics	– LTI budget for 2025 – 2025 incentive targets – Investor feedback – Planning of Remuneration Report for 2024 – Succession planning – Executive shareholding assessment – Annual Charter review
Audit Committee	– Q4 and 2023 financials – Auditor reporting – Ethics and compliance, internal audit, treasury and internal controls updates – AGM proposals to the Board – Information and service security update – Annual Charter and Policy review	– Annual report and 20-F for 2023, including sustainability reporting – Auditor reporting – Internal controls update – Double materiality assessment	– Q1 financials – Auditor reporting – Ethics and compliance, internal audit and internal controls updates – Tax update – Treasury update – Conflict Minerals Report		– Q2 financials – Auditor reporting – Ethics and compliance, internal audit and internal controls updates	– Q3 financials – Auditor reporting – Ethics and compliance, internal audit and internal controls updates – ESG disclosure and reporting developments, processes and controls – Information and service security updates – Finance IT and digitalization update	– Treasury update – Pensions update – Audit, internal audit and internal controls updates – Privacy and cybersecurity update – Annual Charter and Policy review
Technology Committee		– Updates on innovation and technology trends – Review of strategic technology initiatives		– Updates on innovation and technology trends – Review of strategic technology initiatives		– Sustainability technology strategy – Updates on innovation and technology trends – Review of strategic technology initiatives – Product and customer security	– Updates on innovation and technology trends including AI – Review of strategic technology initiatives – Product and customer security and AI updates

Corporate governance statement continued

Board evaluation

In line with our Corporate Governance Guidelines, the Board conducts a comprehensive annual performance evaluation, which also includes evaluation of the Board Committees' work, the Board and Committee Chairs and individual Board members. The Board evaluation is conducted as a self-evaluation, typically with a detailed questionnaire, while an external evaluator is periodically engaged. Feedback is also requested from selected members of management as part of the Board evaluation process. The questions aim to measure and elicit feedback on the processes, structure, accountability, transparency, and effectiveness of the Board and to gain an overview of the issues that are areas of excellence, areas where the Board thinks greater focus is warranted and determining areas where the performance could be enhanced.

Each year, the results of the evaluation are discussed and analyzed by the entire Board and improvement actions are agreed based on such discussions. In 2024, the evaluation process was carried out as a thorough self-evaluation for a second consecutive year by using an external evaluation platform that included both numeric assessments and the possibility to provide more detailed written comments. The questionnaire comprised areas such as Nokia purpose and strategy, Board agenda and meetings, and Board composition and dynamics, as well as information, reporting and risk management.

Meetings of the Board of Directors

The Board of Directors constitutes a quorum if more than half of its members are present. The Board held 20 meetings excluding Committee meetings during 2024. In total 12 (60%) of these meetings were regular meetings in person or by video connection. The other eight meetings were held in writing.

Directors' attendance at the Board and Committee meetings in 2024 is set forth in the table below:

	Board meeting attendance		Board and Committee meeting attendance[(1)]	
Member	**Meetings**	**%**	**Meetings**	**%**
Sari Baldauf (Chair)	20/20	100%	38/38	100%
Søren Skou (Vice Chair)	19/20	95%	31/33	94%
Timo Ahopelto	18/20	90%	28/30	94%
Elizabeth Crain	20/20	100%	34/34	100%
Thomas Dannenfeldt	20/20	100%	37/38	97%
Lisa Hook	20/20	100%	37/37	100%
Jeanette Horan (until 3 April 2024)	3/4	75%	5/7	71%
Mike McNamara (as of 3 April 2024)	17/17	100%	24/24	100%
Thomas Saueressig	20/20	100%	24/24	100%
Carla Smits-Nusteling	17/20	85%	28/31	90%
Kai Öistämö	20/20	100%	29/29	100%
Average attendance (%)		**95%**		**95%**

(1) Any director who so wishes may attend, as a non-voting observer, meetings of committees of which they are not members. Figures exclude directors attending committee meetings as non-voting observers.

Directors meet without management in connection with each regularly scheduled meeting. According to Board practices, meetings without management present are only attended by non-executive directors. These meetings are chaired by the non-executive Chair of the Board. In cases where the non-executive Chair of the Board is unable to chair these meetings, the non-executive Vice Chair of the Board chairs the meeting. Additionally, the independent directors would meet separately at least once annually. In 2024, all members of the Board were non-executive and determined to be independent from Nokia and significant shareholders under the Finnish Corporate Governance Code and the rules of the NYSE.

Committees of the Board of Directors

In 2024, the Board of Directors established a new Strategy Committee and therefore had five Committees that assisted the Board in its duties pursuant to their respective Committee charters. The Board may also establish new or ad hoc committees for detailed reviews or consideration of particular topics to be proposed for the approval of the Board. Any director who so wishes may attend, as a non-voting observer, meetings of Committees of which they are not members.

Corporate governance statement continued

The Audit Committee

The following table sets forth the members of the Audit Committee and their meeting attendance in 2024:

	Attendance	
Member	**Meetings**	**%**
Carla Smits-Nusteling (Chair)	6/6	100%
Timo Ahopelto (until 3 April 2024)	2/2	100%
Elizabeth Crain (until 3 April 2024)	2/2	100%
Thomas Dannenfeldt	6/6	100%
Lisa Hook (as of 3 April 2024)	4/4	100%
Jeanette Horan (until 3 April 2024)	2/2	100%
Mike McNamara (as of 3 April 2024)	4/4	100%
Average attendance (%)		**100%**

The Committee consists of a minimum of three members of the Board who meet all applicable independence, financial literacy and other requirements as stipulated by Finnish law, the Finnish Corporate Governance Code and the rules of the NYSE. As of 3 April 2024, the Audit Committee has consisted of the following four members of the Board: Carla Smits-Nusteling (Chair), Thomas Dannenfeldt, Lisa Hook and Mike McNamara.

The Committee is responsible for assisting the Board in the oversight of:

- the quality and integrity of the Company's financial statements, related disclosures and sustainability reporting;
- the statutory audit of the Company's financial statements, related disclosures and sustainability reporting;
- the qualifications and independence of the external auditor and the sustainability reporting assurer;
- the performance of the external auditor and the assurer subject to the requirements of Finnish law;
- the performance of the Company's internal controls, risk management and the assurance function;
- the performance of the internal audit function;
- the Company's compliance with legal and regulatory requirements, including the performance of its ethics and compliance program;
- the monitoring and assessment of any related party transactions;
- the pension liabilities and taxation of the Company; and
- the processes and management related to the cybersecurity of the Company, including information and services security.

In discharging its oversight role, the Audit Committee has full access to all Company books, records, facilities and personnel. The Audit Committee also maintains procedures for the receipt, retention and treatment of complaints received by Nokia regarding accounting, internal controls, auditing or sustainability reporting matters and for the confidential, anonymous submission by our employees of concerns relating to accounting, auditing or sustainability reporting assurance matters. Nokia's disclosure controls and procedures, which are reviewed by the Audit Committee and approved by the President and CEO and the Chief Financial Officer, as well as the internal controls over financial reporting, are designed to provide reasonable assurance regarding the quality and integrity of Nokia's financial statements and related disclosures. For further information on internal control over financial reporting, refer to the section "Risk management, internal control and internal audit functions at Nokia—Description of internal control procedures in relation to the financial reporting process".

Under the Finnish Companies Act, an external auditor and a sustainability reporting assurer are elected by a simple majority vote of the shareholders at the Annual General Meeting for one year at a time. The Audit Committee prepares the proposal to the shareholders for the election of the nominees, upon its evaluation of the qualifications and independence of the external auditor and the sustainability reporting assurer. Under Finnish law, the fees of the external auditor and of the sustainability reporting assurer are approved by the shareholders by a simple majority vote at the Annual General Meeting. The Committee prepares the proposals to the shareholders in respect of the fees of the external auditor and the sustainability reporting assurer, and approves their annual fees under the guidance given by the Annual General Meeting. For information about the fees paid to Nokia's external auditor and sustainability reporting assurer, Deloitte Oy, during 2024 refer to the section "Auditor fees and services".

The Board has determined all current Committee members be 'financially literate' satisfying the applicable financial-sophistication requirement by the New York Stock Exchange. In addition, three Committee members, Carla Smits-Nusteling, Thomas Dannenfeldt and Lisa Hook, are determined to be 'audit committee financial experts' as defined in the requirements of Item 16A of the Annual Report on Form 20-F filed with the U.S. Securities and Exchange Commission (SEC). Carla Smits-Nusteling and each of the other members of the Audit Committee are "independent directors" as defined by Finnish law, the Finnish Corporate Governance Code and in Section 303A.02 of the NYSE Listed Company Manual.

The Audit Committee meets a minimum of four times a year. The Committee meets separately with the representatives of Nokia's management, heads of the internal audit, and ethics and compliance functions, and the external auditor in connection with each regularly scheduled meeting. The head of the internal audit function has, at all times, direct access to the Audit Committee, without the involvement of management.

Audit Committee pre-approval policies and procedures

The Audit Committee of the Board is responsible, among other matters, for oversight of the external auditor's independence, subject to the requirements of applicable legislation. The Audit Committee has adopted a policy regarding an approval procedure of audit services performed by the external auditors of the Nokia Group and permissible non-audit services performed by the principal external auditor of the Nokia Group (the "Pre-approval Policy").

Under the Pre-approval Policy, proposed services either: (i) may be pre-approved by the Audit Committee in accordance with certain service categories described in the Pre-approval Policy (general pre-approval); or (ii) require the specific pre-approval of the Audit Committee (specific pre-approval). The Pre-approval Policy sets out the audit, audit-related, tax and other services that have received the general pre-approval of the Audit Committee. All other audit, audit-related (including services related to internal controls and significant mergers and acquisitions projects), tax and other services are subject to specific pre-approval by the Audit Committee. All service requests concerning generally pre-approved services are submitted to an appointed Audit Committee delegate within management, who determines whether the services are within the generally pre-approved services. The Pre-approval Policy is subject to annual review by the Audit Committee.

The Audit Committee establishes budgeted fee levels annually for each of the categories of audit and non-audit services that are pre-approved under the Pre-approval Policy, namely, audit, audit-related, tax and other services. At each regular meeting of the Audit Committee, the auditor provides a report in order for the Audit Committee to review the services that the auditor is providing, as well as the cost of those services.

Corporate governance statement continued

The Corporate Governance and Nomination Committee
The following table sets forth the members of the Corporate Governance and Nomination Committee and their meeting attendance in 2024:

	Attendance	
Member	**Meetings**	**%**
Søren Skou (Chair)	5/5	100%
Sari Baldauf	5/5	100%
Lisa Hook	5/5	100%
Carla Smits-Nusteling	5/5	100%
Kai Öistämö	5/5	100%
Average attendance (%)		**100%**

The Committee consists of three to five members of the Board who meet all applicable independence requirements as stipulated by Finnish law, the Finnish Corporate Governance Code and the rules of the NYSE. As of 3 April 2024, the Corporate Governance and Nomination Committee has consisted of the following five members of the Board: Søren Skou (Chair), Sari Baldauf, Lisa Hook, Carla Smits-Nusteling and Kai Öistämö.

The Committee fulfills its responsibilities by:

- actively identifying individuals qualified to be elected members of the Board, as well as considering and evaluating the appropriate level and structure of director remuneration;
- preparing and evaluating the principles regarding Board diversity;
- preparing proposals to the shareholders on the director nominees for election at the general meetings, as well as director remuneration;
- monitoring and assessing the directors' current and planned time commitments outside the Nokia Board and their attendance at Nokia Board and Committee meetings;
- monitoring significant developments in the law and practice of corporate governance, including the sustainability-related governance trends and the directors' duties and responsibilities;
- assisting the Board and each Committee of the Board in its annual performance evaluation process, including establishing criteria to be applied in connection with such evaluations;
- developing and administering Nokia's Corporate Governance Guidelines and giving recommendations regarding them to the Board; and
- reviewing Nokia's disclosure in the corporate governance statement.

The Committee has the power and practice to appoint a recruitment firm to identify appropriate new director candidates.

The Personnel Committee
The following table sets forth the members of the Personnel Committee and their meeting attendance in 2024:

	Attendance	
Member	**Meetings**	**%**
Thomas Dannenfeldt (Chair)	5/5	100%
Timo Ahopelto (as of 3 April 2024)	4/4	100%
Sari Baldauf	5/5	100%
Elizabeth Crain (as of 3 April 2024)	5/5	100%
Lisa Hook (until 3 April 2024)	1/1	100%
Søren Skou (until 3 April 2024)	1/1	100%
Average attendance (%)		**100%**

The Committee consists of a minimum of three members of the Board who meet all applicable independence requirements as stipulated by Finnish law, the Finnish Corporate Governance Code and the rules of the NYSE. As of 3 April 2024, the Personnel Committee has consisted of the following four members of the Board: Thomas Dannenfeldt (Chair), Timo Ahopelto, Sari Baldauf and Elizabeth Crain.

The Committee has overall responsibility for evaluating, resolving and making recommendations to the Board regarding:

- preparing the Remuneration Policy and the Remuneration Report;
- compensation and terms of employment of the Company's senior management;
- human capital management;
- all equity-based plans;
- incentive compensation plans, policies and programs of the Company affecting executives; and
- possible other significant incentive plans.

The Committee is responsible for preparing the Remuneration Policy, including Nokia's compensation philosophy and principles and ensuring that the Company's compensation programs are performance-based, designed to contribute to long-term shareholder value creation in line with shareholders' interests, properly motivate management and are aligned with the Remuneration Policy, as well as supporting overall corporate strategies.

The Committee also oversees human capital management and periodically reviews the personnel policies and practices of Nokia related to human capital management and social responsibilities relating to its employees, including Company culture, physical safety, employee wellbeing, morale, diversity, equity and inclusion, talent management and development, succession planning, resourcing, recruiting, attrition, retention and employee engagement.

Corporate governance statement continued

The Strategy Committee

The following table sets forth the members of the Strategy Committee and their meeting attendance in 2024:

	Attendance	
Member	**Meetings**	**%**
Elizabeth Crain (Chair)	7/7	100%
Sari Baldauf	7/7	100%
Thomas Dannenfeldt	6/7	86%
Lisa Hook	7/7	100%
Søren Skou	6/7	86%
Average attendance (%)		**94%**

The Committee consists of a minimum of three members of the Board who meet all applicable independence requirements as stipulated by Finnish law, the Finnish Corporate Governance Code and the rules of the NYSE. As of 3 April 2024, the Strategy Committee has consisted of the following five members of the Board: Elizabeth Crain (Chair), Sari Baldauf, Thomas Dannenfeldt, Lisa Hook and Søren Skou.

The Committee is established by the Board primarily for the purpose of assisting the Board with respect to various strategic initiatives related to developing Nokia's corporate and business strategies and capturing the strategic opportunities identified under them.

The Committee's duties may include:

- overseeing the preparation of strategies related to strategic initiatives;
- reviewing the prospective alternatives for the strategic initiatives identified by management;
- acting as a preparatory body for assessing the specific strategic initiatives requiring the Board's decision;
- overseeing the implementation of the strategic initiatives; and
- evaluating the outcomes of the strategic initiatives, focusing on their implementation, financial results and long-term success.

The Technology Committee

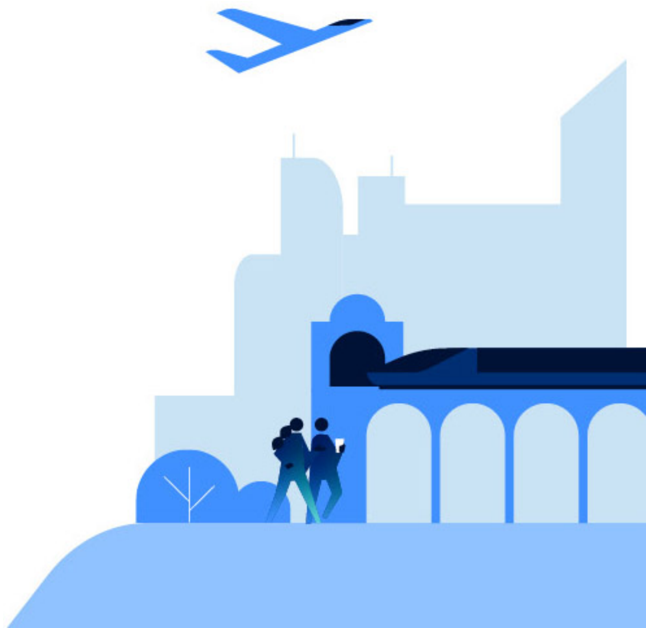
The following table sets forth the members of the Technology Committee and their meeting attendance in 2024:

	Attendance	
Member	**Meetings**	**%**
Kai Öistämö (Chair)	4/4	100%
Timo Ahopelto	4/4	100%
Sari Baldauf (until 3 April 2024)	1/1	100%
Jeanette Horan (until 3 April 2024)	0/1	0%
Mike McNamara (as of 3 April 2024)	3/3	100%
Thomas Saueressig	4/4	100%
Average attendance (%)		**83%**

The Committee consists of a minimum of three members of the Board who meet applicable independence requirements as stipulated by Finnish law, the Finnish Corporate Governance Code and the rules of the NYSE and have such skills in innovation, technology and science matters as the Board determines adequate from time to time. As of 3 April 2024, the Technology Committee has consisted of the following four members of the Board: Kai Öistämö (Chair), Timo Ahopelto, Mike McNamara and Thomas Saueressig.

In its dialogue with and provision of feedback and advice to the management, the Committee will periodically review:

- the Company's technological competitiveness and new strategic technology initiatives as well as market trends, considering both organic and inorganic options to retain or attain competitiveness;
- the Company's approach to major technological innovations;
- key technology trends that may result in disruptive threats or opportunities and the proposals on how to adequately address them;
- high-level risks and opportunities associated with the Company's Research and Development Programs;
- embedding sustainability in the technology roadmaps; and
- the processes and management related to the cybersecurity of the Company, including product and customer security.



Corporate governance statement continued

Group Leadership Team and the President and CEO

The Group Leadership Team is responsible for the operative management of Nokia. The Group Leadership Team is chaired by the President and CEO. The President and CEO's rights and responsibilities include those allotted to the President under Finnish law.

On 31 December 2024, the Group Leadership Team consisted of 11 members, including the President and CEO, representing six different nationalities. In total 18% of the Group Leadership Team members were female.

In addition to biographical information of the Group Leadership Team members, the table on the right sets forth the number of shares held by the members as at 31 December 2024, a total of 3 726 540 Nokia shares. These holdings represented approximately 0.07% of our total shares and voting rights excluding shares held by the Nokia Group. The number of shares includes shares received as compensation as well as shares acquired through other means. At 31 December 2024, no American Depositary Shares (ADSs) were held by the Group Leadership Team members. Stock options or other equity awards that are deemed as being beneficially owned under the applicable SEC rules are not included in the table.

Summary of changes in the Group Leadership Team in 2024

The following members stepped down from the Group Leadership Team:

- Amy Hanlon-Rodemich, Chief People Officer, as of 28 March 2024;
- Ricky Corker, Chief Customer Experience Officer, as of 13 June 2024;
- Jenni Lukander, President of Nokia Technologies, as of 18 October 2024; and
- Melissa Schoeb; Chief Corporate Affairs Officer, as of 18 October 2024.

Further, on 10 February 2025 Nokia announced that the current President and CEO Pekka Lundmark will step down on 31 March 2025.

The Group Leadership Team was complemented with four new appointments:

- Lorna Gibb, Chief People Officer, effective 13 June 2024;
- Louise Fisk, Chief Communications Officer, effective 18 October 2024;
- Patrik Hammarén, Acting President of Nokia Technologies, effective 18 October 2024 (President of Nokia Technologies as of 22 January 2025); and
- Mikko Hautala, Chief Geopolitical and Government Relations Officer, effective 1 November 2024.

Further, on 10 February 2025 Nokia announced Justin Hotard's appointment as President and CEO, effective 1 April 2025.

Name	Position	Gender	Year of birth	Nationality	On GLT since	Shares
Pekka Lundmark	President and CEO	Male	1963	Finnish	2020	1 573 826
Nishant Batra	Chief Strategy and Technology Officer	Male	1978	Indian	2021	335 869
Louise Fisk	Chief Communications Officer	Female	1976	British	2024	37 070
Lorna Gibb	Chief People Officer	Female	1976	British	2024	16 477
Federico Guillén	President of Network Infrastructure	Male	1963	Spanish	2016	480 262
Patrik Hammarén	Acting President of Nokia Technologies	Male	1982	Finnish	2024	21 955
Mikko Hautala	Chief Geopolitical and Government Relations Officer	Male	1972	Finnish	2024	2 800
Esa Niinimäki	Chief Legal Officer	Male	1976	Finnish	2023	49 903
Raghav Sahgal	President of Cloud and Network Services	Male	1962	American	2020	618 318
Tommi Uitto	President of Mobile Networks	Male	1969	Finnish	2019	268 619
Marco Wirén	Chief Financial Officer	Male	1966	Finnish/Swedish	2020	321 441

Corporate governance statement continued

Biographical details of the current members of the Nokia Group Leadership Team

Pekka Lundmark
b. 1963

President and Chief Executive Officer (CEO) since 2020. Rejoined Nokia in 2020.

Master's degree in Information Systems, Department of Technical Physics, Helsinki University of Technology, Finland.

President and CEO, Fortum Corporation 2015–2020. President and CEO, Konecranes Plc 2005–2015 and Group Executive Vice President 2004–2005. President and CEO, Hackman Oyj 2002–2004. Managing Partner, Startupfactory 2000–2002. Various executive positions at Nokia 1990–2000.

Member of the Board, Research Institute of the Finnish Economy (ETLA) and Finnish Business and Policy Forum (EVA). International Member of the Royal Swedish Academy of Engineering Sciences (IVA). Member of the European Round Table for Industry. Member of The Business Council (the United States).

Commissioner, Broadband Commission for Sustainable Development 2020–2024. Chairman of the Board, Confederation of Finnish Industries 2019–2020. Member of the Board, East Office of Finnish Industries 2009–2020. Chairman of the Board, Finnish Energy 2016–2018.

Nishant Batra
b. 1978

Chief Strategy and Technology Officer (CSTO). Group Leadership Team member since 2021. Joined Nokia in 2021.

MBA from INSEAD. Master's degrees in Telecommunications and in Computer Science, Southern Methodist University, Dallas, the United States. Bachelor's degree in Computer Applications, Devi Ahilya University, Indore, Madhya Pradesh, India.

Executive Vice President and Chief Technology Officer, Veoneer Inc. 2018–2021. Several senior positions at Ericsson 2006–2018, in the United States, Sweden and India.

Member of the Board of Directors, KPIT Technologies Ltd. Chair of the Board of ReOrbit Oy. Strategic Advisor, SoloPulse.

Member of the Board of Directors of Sensys Gatso Group 2020–2022.

Louise Fisk
b. 1976

Chief Communications Officer (CCO). Group Leadership Team member since 2024. Joined Nokia in 2020.

Advanced executive leadership development, DUKE University. Advanced global leadership, INSEAD business school. Post graduate diploma in PR & Journalism, University of Wales, College of Cardiff, Wales, United Kingdom. BA Hons in Communication, University of Wales, College of Cardiff, Wales, United Kingdom.

Vice President, Corporate Affairs Programs & Corporate Communications, Nokia 2020–2024. Global leadership team, Communications and Marketing Director, BAE Systems Applied Intelligence 2015–2019. Head of Global Communications, Investor Relations and Marketing, Innovation Group 2012–2015. Global PR Director & Deputy Communications Director, Logica 2006–2012. Partner & Associate Director, LEWIS Communications 1999–2006.

Trustee of the Williams Syndrome Foundation.

Lorna Gibb
b. 1976

Chief People Officer (CPO). Group Leadership Team member since 2024. Joined Nokia in 2020.

Diploma in Legal Practice, University of Edinburgh, Scotland. Bachelor of Laws, University of Glasgow, Scotland (combined with Master of Laws programme in the University of North Carolina, the United States).

Interim Chief People Officer, Nokia March–June 2024. Vice President, Labour & Employment, Nokia 2020–2024. Global Human Resources Director, Skyscanner 2017–2020. People Director, easyJet 2013–2017. Senior HR Business Partner, Direct Line Group (Royal Bank of Scotland Group) 2012–2013. Various employment legal/HR transformation consultancy roles in 2002–2012.

Young Enterprise UK: Board Trustee – HR, Remuneration and Nomination Committee.

Corporate governance statement continued

Biographical details of the current members of the Nokia Group Leadership Team continued

Federico Guillén
b. 1963

President of Network Infrastructure. Group Leadership Team member since 2016. Joined Nokia in 2016.

Degree in Telecommunications Engineering, ETSIT at Universidad Politécnica de Madrid, Spain. Master's degree in Switching & Communication Architectures, ETSIT at Universidad Politécnica de Madrid, Spain. Master's Degree in International Management, ESC Lyon and Alcatel, France.

President of Customer Operations, Europe, Middle East & Africa and Asia Pacific, Nokia 2018–2020. President of Fixed Networks, Nokia 2016–2018. President of Fixed Networks, Alcatel-Lucent 2013–2016. President and Chief Senior Officer of Alcatel-Lucent Spain and Global Account Manager Telefónica, Alcatel-Lucent 2009–2013. Vice President Sales of Vertical Market Sales in Western Europe, Alcatel-Lucent 2009. Head of Regional Support Center, Fixed Access Division for South Europe, Middle East & Africa, India and Caribbean & Latin America, Alcatel-Lucent 2007–2009. President and Chief Senior Officer, Alcatel Mexico and Global Account Manager, Telmex 2003–2007. Various R&D, portfolio and sales management positions with Telettra in Spain, and with Alcatel in Spain, Belgium and the United States 1989–2003.

Patrik Hammarén
b. 1982

Acting President of Nokia Technologies (President of Nokia Technologies as of 22 January 2025). Group Leadership Team member since 2024. Joined Nokia in 2007.

Master of Law, University of Helsinki, Finland. Master of Science (Information Networks), Aalto University, Finland.

Chief Licensing Officer Wireless Technologies, Nokia Technologies 2024–2024. Vice President, Head of IoT Licensing Program, Nokia Technologies 2022–2024. Head of Patent Licensing Greater China, Nokia Technologies 2020–2022. Director, Patent Licensing, Nokia Technologies 2018–2020. Manager, Patent Licensing, Nokia Technologies 2014–2018. Senior Legal Counsel, HERE, Nokia 2013–2014. Legal Counsel, HERE Nokia 2013–2013. Legal Counsel, Central and East Europe, Nokia 2012–2013. Legal Counsel, Central Europe, Nokia 2011–2012. Legal Counsel, MeeGo & Open Source, Nokia 2007–2011.

Mikko Hautala
b. 1972

Chief Geopolitical and Government Relations Officer. Group Leadership Team member since 2024. Joined Nokia in 2024.

Master of Social Sciences (Political history), University of Helsinki, Finland. Master of Philosophy (Slavic languages), University of Helsinki, Finland.

Ambassador, Head of Mission, Embassy of Finland, Washington DC 2020–2024. Ambassador, Head of Mission, Embassy of Finland, Moscow 2016–2020. Foreign Policy Adviser to the President, Office of the President of the Republic of Finland, Helsinki 2012–2016. Minister, Deputy Head of Mission, Embassy of Finland, Moscow 2011–2012. Diplomatic Adviser to the Minister of Foreign Affairs, Ministry for Foreign Affairs, Helsinki 2007–2011. First Secretary, Permanent Representation of Finland to the EU, Brussels 2002–2007. Attaché, Ministry for Foreign Affairs, Helsinki 2001–2002. Attaché, Embassy of Finland, Kyiv 1999–2001. Visa Officer, Embassy of Finland, Kyiv 1998–1999.

Board Member Support for Finnish Society (SYT) foundation. Chairman of the Council, The John Morton Center for North American Studies, University of Turku, Finland.

Esa Niinimäki
b. 1976

Chief Legal Officer (CLO) and Board Secretary. Group Leadership Team member since 2023. Joined Nokia in 2007.

Master of Laws, Fordham University, School of Law, New York, the United States. Master of Law, University of Helsinki, Finland.

Interim Chief Legal Officer, Nokia 2022–2023. Deputy Chief Legal Officer, Vice President, Corporate Legal and Board Secretary, Nokia 2018–2023. General Counsel, Global Services, Nokia 2015–2018. Head of Corporate Legal, Nokia Solutions and Networks and Head of Finance & Labor Legal, Nokia 2013–2015. Senior Legal Counsel, Legal and IP, India, Middle East and Africa, Nokia 2012–2013. (Senior) Legal Counsel, Corporate Legal, Nokia 2007–2011. Group Legal Counsel, Metsä Group 2005–2007. Associate Lawyer, White & Case LLP 2003–2005.

Chair of Legal Affairs Committee of the Confederation of Finnish Industries. Member of the Market Practice Board of Securities Market Association and the Policy Committee of the Directors' Institute Finland.

Corporate governance statement continued

Biographical details of the current members of the Nokia Group Leadership Team continued

Raghav Sahgal
b. 1962

President of Cloud and Network Services. Group Leadership Team member since 2020. Joined Nokia in 2017.

Master of Science in Computer Systems Management, University of Maryland, the United States. Bachelor of Science in Computer Engineering, Tulane University, New Orleans, the United States. Executive Business Certificate in General Management, Harvard University, the United States.

President of Nokia Enterprise 2020. Senior Vice President, Nokia Software 2017–2020. President, NICE Ltd. Asia Pacific and the Middle East 2010–2017. Advisory Board Member, Orga Systems 2010–2014. Vice President, Communications Business Unit, Asia Pacific & Japan, Oracle 2008–2010. Chief Business Officer, Comverse 2005–2006. Executive Vice President, Asia Pacific, CSG 2002–2005. Vice President, Software Products Group Asia Pacific, Lucent Technologies 2000–2002.

Tommi Uitto
b. 1969

President of Mobile Networks. Group Leadership Team member since 2019. Joined Nokia in 1996.

Master's degree in industrial management, Helsinki University of Technology, Finland. Master's degree in operations management, Michigan Technological University, the United States.

Senior Vice President (VP), Global Product Sales, Mobile Networks, Nokia 2016–2018. Senior VP, Global Mobile Broadband Sales, Customer Operations, Nokia Networks 2015–2016. Senior VP, West Europe, Customer Operations, Nokia Networks 2013–2015. Head of Radio Cluster (Senior VP), Mobile Broadband, Nokia Siemens Networks (NSN) 2012–2013. Head of Global LTE Radio Access Business Line (VP) and Quality, Mobile Broadband NSN, 2011–2012. Head of Product Management, Network Systems, NSN 2010. Head of Product Management, Radio Access, NSN 2009. Head of WCDMA/HSPA and Radio Platforms Product Management, NSN 2008. Head of WCDMA/HSPA Product Line Management, NSN 2007. General Manager, Radio Controller Product Management Nokia Networks, 2005–2007. Various other positions at Nokia since 1996.

Member of the Board of Directors at F-Secure Oyj. Member of the Board of Technology Industries of Finland.

Marco Wirén
b. 1966

Chief Financial Officer (CFO). Group Leadership Team member since 2020. Joined Nokia in 2020.

Master's degree in Business Administration, University of Uppsala, Sweden. Studies in management and strategic leadership, including at Duke Business School, Durham, the United States; IMD, Switzerland and Stockholm School of Economics, Sweden.

President, Wärtsilä Energy and Executive Vice President, Wärtsilä Group 2018–2020. Executive Vice President and CFO, Wärtsilä Group 2013–2018. Executive Vice President and CFO, SSAB Group 2008–2013. Vice President, Business Control, SSAB Group 2007–2008. CFO, Eltel Networks 2006–2007. Vice President of Business Development, Eltel Networks 2004–2005. Head of Service Division, Eltel Networks 2003–2004. Vice President, Corporate Development, Eltel Networks 2002–2003. Vice President, Strategy & Business Development, NCC Group 1999–2002. Head of Strategic Planning, NCC Group 1998–1999. Group Controller, NCC Group 1996–1998.

Vice Chair of the Board of Directors of Neste Corporation 2019–2023 and member of the Board 2015–2023.

Risk management, internal control and internal audit functions at Nokia

Risk management principles

We have a systematic and structured approach to risk management. It covers strategic, operational, financial, compliance and reputational risks and opportunities, including potentially material impacts to people and the environment. The principles documented in the Nokia Enterprise Risk Management (ERM) Policy, which is approved by the Audit Committee of the Board, require risk management and its elements to be integrated into key processes:

- **ERM is an integral part of Nokia's objective setting and key decision making**
  Key risks and opportunities are primarily identified against business targets either in business operations or as an integral part of strategy and financial planning. Those are monitored as part of the management and business performance information flow. Our overall risk management concept is based on managing the key risks that would prevent us from meeting our objectives, rather than focusing on eliminating all risks.
- **ERM is an integral part of Nokia's corporate governance**
  ERM accountability runs through the Company and is embedded into Nokia corporate governance. The Board of Directors and the Group Leadership Team are committed to effective risk management as a core management capability that supports Nokia in achieving strategic, tactical and operational business objectives and in managing business performance.
- **Risk ownership follows business ownership**
  Nokia ERM is aligned to the overall Nokia governance model, where Nokia's businesses are accountable for meeting approved plans and targets as agreed within Nokia. Each business or function head is an owner of the risks in their respective responsibility area and is responsible for identifying and managing key risks and capturing opportunities.
- **ERM is an area of continuous improvement**
  ERM is an area of continuous improvement for Nokia. The Chief Financial Officer, who also functions as the Chief Risk Officer, provides guidance and sponsors the development of ERM practices and ERM improvement.

In addition to the principles defined in the Nokia Enterprise Risk Management Policy, other key corporate level policies reflect the implementation of specific aspects of risk management.

Cybersecurity Risk Management

Nokia, along with its partners and contracted third parties, faces cybersecurity threats like ransomware, viruses, worms and other malicious software, unauthorized modifications, or illegal activities that may cause potential security risks and other harm to Nokia, its customers or consumers and other end-users of Nokia's products and services. The dynamic nature of IT technologies makes it challenging to fully mitigate these risks.

The cybersecurity incidents may lead to lengthy and costly incident response, remediation of the attack affecting business continuity, or breach and legal proceedings and fines imposed on us, as well as adverse effects to our reputation and brand value. Despite ongoing investments, preventing, detecting and containing cyber-attacks remain challenging. Additionally, the cost and operational consequences of implementing further information system protection measures, especially if prescribed by national authorities, could be significant. We may not be successful in implementing such measures in due time, which could lead to business disruptions. The regulatory framework around responding to and disclosing such events is in flux. We may not be able to comply with the regulations that must be implemented or such compliance may negatively impact our ability to deal with the underlying event.

We face a number of cybersecurity risks within our business. Although such risks have not materially affected us thus far, including our business strategy, results of operations, or financial condition, we have from time to time experienced threats to and breaches of our data and systems, including malware and computer virus attacks. We continue to address these challenges, but there is no guarantee against future attacks.

Nokia has well-established cybersecurity processes built into its overall security risk management framework. This integration is achieved through the implementation of a security program set on various processes, such as cybersecurity risk management, third-party security risk management, security incident management and disaster recovery planning. In evaluation of the effectiveness of our cybersecurity processes and their alignment with the industry best practices, we have engaged and may engage in the future with third party advisers and consultants.

The Chief Security Officer, who has the authority to establish and oversee the Nokia information security program, keeps Nokia's executive leadership informed on program outcomes and highlights information security risks which may affect Nokia business and customers. Nokia's executive leadership provides direction and support and has the responsibility to execute the program within their own domains. Key principles are communicated through the Nokia Information Security Policy, applicable also to third parties and collaborators and supported by topical Standard Operation Procedures and guidelines.

Nokia's security ambition is reflected in the supplier selection processes, contracts and supplier (re)assessments ensuring effective security is in place in our supply chain and with our third-party partners. We are dedicated to adhering to applicable laws, regulations, contractual commitments, and industry best practices, including but not limited to ISO 27001, NIST SP 800 series, the Cloud Security Alliance Control Matrix, and the Information Security Forum.

Nokia's cybersecurity incidents are handled in the Security Incident Management Process, which covers all phases of incident response, including preparation, identification, containment, eradication, recovery and post-incident analysis. Each confirmed cybersecurity-related incident is assessed against a classification scheme (impact on confidentiality, integrity and availability of the related asset, urgency, and priority of the security incident). Significant cybersecurity incidents are elevated and managed by a cross-functional, executive management-level team, which is responsible for making the necessary decisions and prioritizing actions that can minimize the impact of the security incident to Nokia and its customers. Members from the CFO and Legal, Compliance & Sustainability teams are responsible for determining the materiality of the security incident and promptly informing the Audit Committee of the Board. The Nokia management team for assessing and managing cybersecurity threats includes members with training and experience in security risk management, security governance, cyber resilience, security incident management, information technology, cybersecurity legal and compliance requirements and disclosures. For an overview of the training and experience of the members of the Board and our assessment of their experience and skills related to cybersecurity, please see "Main corporate governance bodies of Nokia—Board of Directors".

Description of internal control procedures in relation to the financial reporting process

Management is responsible for establishing and maintaining adequate internal control over Nokia's financial reporting. Our internal control over financial reporting is designed to provide reasonable assurance to management and the Board regarding the reliability of financial reporting and the preparation and fair presentation of published financial statements.

Management conducts a yearly assessment of Nokia's internal controls over financial reporting in accordance with the Committee of Sponsoring Organizations framework (the "COSO framework", 2013) and the Control Objectives for Information and Related Technology (COBIT) framework of internal controls. The assessment is performed based on a top-down risk assessment of our financial statements covering significant accounts, processes and locations, corporate-level controls and information systems' general controls.

As part of its assessment, management has documented:

- the corporate-level controls, which create the "tone from the top" containing the Nokia values and Code of Conduct and which provide discipline and structure to decision-making processes and ways of working. Selected items from our operational mode and governance principles are separately documented as corporate-level controls;
- the significant processes: (i) give a complete end-to-end view of all financial processes; (ii) identify key control points; (iii) identify involved organizations; (iv) ensure coverage for important accounts and financial statement assertions; and (v) enable internal control management within Nokia;
- the control activities, which consist of policies and procedures to ensure management's directives are carried out and the related documentation is stored according to our document retention practices and local statutory requirements; and
- the information systems' general controls to ensure that sufficient IT general controls, including change management, system development and computer operations, as well as access and authorizations, are in place.

Further, management has also:

- assessed the design of the controls in place aimed at mitigating the financial reporting risks;
- tested operating effectiveness of all key controls; and
- evaluated all noted deficiencies in internal controls over financial reporting in the interim and as of year end.

In 2024, Nokia has followed the procedures as described above and has reported on the progress and assessments to management and to the Audit Committee of the Board on a quarterly basis.

Description of the organization of the internal audit function

We have an internal audit function that examines and evaluates the adequacy and effectiveness of our system of internal control. Internal audit reports to the Audit Committee of the Board. The head of the internal audit function has direct access to the Audit Committee, without the involvement of management. The internal audit staffing levels and annual budget are approved by the Audit Committee. All authority of the internal audit function is derived from the Board. The internal audit aligns to the business by business group and function.

Annually, a risk-based internal audit plan is developed taking into account key business risks, emerging risks, external factors and input from management.This plan is approved by the Audit Committee. Audits are completed across business groups and functions. The results of each audit are reported to management identifying issues, financial impact, if any, and the correcting actions to be completed. Quarterly, the internal audit function communicates the progress of the internal audit plan completion, including the results of the closed audits, to the Audit Committee. Any changes to the risk environment impacting the internal audit plan are presented to the Audit Committee for review and approval on a quarterly basis.

Internal audit also works closely with Internal Controls and Ethics and Compliance offices to review any financial and compliance concerns brought to light from various channels and, where relevant, works with Enterprise Risk Management to ensure priority risk areas are reviewed through audits.

"Management conducts a yearly assessment of Nokia's internal controls over financial reporting in accordance with the Committee of Sponsoring Organizations framework (the "COSO framework", 2013) and the Control Objectives for Information and Related Technology (COBIT) framework of internal controls."

Corporate governance statement continued

Related party transactions

We determine and monitor related parties in accordance with the International Accounting Standards (IAS 24, Related Party Disclosures) and other applicable regulations including the applicable U.S. securities laws. We maintain information on our related parties, as well as monitor and assess related party transactions. As a main principle, all transactions should be conducted at arm's-length and as part of the ordinary course of business. In exceptional cases where these principles would be deviated from, Nokia would set up a separate process to determine the related parties in question and to seek relevant approvals in accordance with internal guidelines and applicable regulations.

Main procedures relating to insider administration

Our insider administration is organized according to the applicable European Union and Finnish laws and regulations as well as applicable U.S. securities laws and regulations. In addition, Nokia has adopted the Nokia Insider Trading Policy, approved by the Board of Directors, which sets out Nokia-wide rules and practices to ensure full compliance with applicable rules and that inside information is recognized and treated in an appropriate manner and with the highest integrity. The Nokia Insider Trading Policy is applicable to all directors, executives and employees of Nokia.

Persons discharging managerial responsibilities

Nokia has identified members of the Board of Directors and the Group Leadership Team as persons discharging managerial responsibilities who, along with persons closely associated with them, are required to notify Nokia and the Finnish Financial Supervisory Authority of their transactions with Nokia's financial instruments. Nokia publishes the transaction notifications.

In addition, according to the Nokia Insider Trading Policy, persons discharging managerial responsibilities are obligated to clear a planned transaction in Nokia's financial instruments in advance with the person in charge of the insider administration. It is also recommended that trading and other transactions in Nokia's financial instruments are carried out in times when the information available to the market is as complete as possible.

Closed window

Persons discharging managerial responsibilities are subject to a closed window period of 30 calendar days preceding the disclosure of Nokia's quarterly or annual result announcements, as well as the day of the disclosure. During the closed window period, persons discharging managerial responsibilities are prohibited from dealing in Nokia's financial instruments.

Nokia has imposed this closed window period also on separately designated financial reporting persons who are recurrently involved with the preparation of Nokia's quarterly and annual results announcements. These persons are separately notified of their status as designated financial reporting persons.

Insider registers

Nokia does not maintain a permanent insider register. Insiders are identified on a case-by-case basis for specific projects and are notified of their insider status. Persons included in a project-specific insider register are prohibited from dealing in Nokia's financial instruments until the project ends or is made public.

Supervision

Our insider administration's responsibilities include, among other matters, internal communications related to insider matters and trading restrictions, setting up and maintaining our insider registers and arranging related trainings, as well as organizing and overseeing compliance with the insider rules.

Violations of the Nokia Insider Trading Policy must be reported to the head of Corporate Legal. Nokia employees may also use channels stated in the Nokia Code of Conduct for reporting incidents involving suspected violations of the Nokia Insider Trading Policy.

Auditor fees and services

Deloitte Oy, based in Helsinki, Finland, served as our auditor and our sustainability reporting assurer for the financial year ended 31 December 2024 and as our auditor for the financial year ended 31 December 2023. The auditor and the sustainability reporting assurer are elected annually by our shareholders at the Annual General Meeting for the next financial year commencing after the election. On an annual basis, the Audit Committee of the Board prepares a proposal to the shareholders regarding the appointment of the auditor and the sustainability reporting assurer based upon its evaluation of the qualifications and independence of the auditor and the sustainability reporting assurer to be proposed for election.

The following table presents fees by type paid to Deloitte's network of firms for the years ended 31 December:

EURm	2024	2023
Audit fees(1)	18.5	20.2
Audit-related fees(2)	2.5	1.7
Tax fees(3)	0.2	0.4
All other fees(4)	0.1	0.3
Total	**21.3**	**22.6**

(1) Audit fees consist of fees incurred for the annual audit of the Group's consolidated financial statements and the statutory financial statements of the Group's subsidiaries.
(2) Audit-related fees consist of fees billed for sustainability reporting assurance approximately EUR 1.4 million as well as other assurance and related services that are reasonably related to the performance of the audit or review of the Group's financial statements or that are traditionally performed by the independent auditor, and include consultations concerning financial accounting and reporting standards; advice and assistance in connection with local statutory accounting requirements; due diligence related to mergers and acquisitions; and audit procedures in connection with investigations in the pre-litigation phase and compliance programs. They also include fees billed for other audit services, which are those services that only the independent auditor can reasonably provide, and include the provision of comfort letters and consents in connection with statutory and regulatory filings and the review of documents filed with the SEC and other capital markets or local financial reporting regulatory bodies.
(3) Tax fees include fees billed for: (i) services related to tax compliance including preparation and/or review of tax returns, preparation, review and/or filing of various certificates and forms and consultation regarding tax returns and assistance with revenue authority queries; compliance reviews, advice and assistance on other indirect taxes; and transaction cost analysis; (ii) services related to tax audits; (iii) services related to individual compliance (preparation of individual tax returns and registrations for employees (non-executives), assistance with applying for visas, residency, work permits and tax status for expatriates); (iv) services related to technical guidance on tax matters; (v) services related to transfer pricing advice and assistance with tax clearances; and (vi) tax consultation and planning (advice on stock-based remuneration, local employer tax laws, social security laws, employment laws and compensation programs and tax implications on short-term international transfers).
(4) Other fees include fees billed for Company establishments, liquidations, forensic accounting, data security, other consulting services and reference materials and services.

Remuneration

This section sets out our remuneration governance, policies and how they have been implemented within Nokia. It includes our Remuneration Report where we disclose the remuneration of our Board members and the President and CEO for 2024, which will be presented to the Annual General Meeting (AGM) 2025 for an advisory vote.

Following 2024 shareholder vote on our Remuneration Policy, where we received high level of support, we are proposing some further amendments to the Policy, which will be presented to the AGM 2025 for an advisory vote. A summary of the updated Remuneration Policy is set out in this section and the updated Policy in its entirety is available on our website.

Other remuneration-related information provided alongside the Remuneration Report and the Remuneration Policy is not subject to a vote at the AGM 2025 but provides added information on the remuneration policies applied within Nokia as well as on the remuneration of the Group Leadership Team members.

We report information applicable to executive remuneration in accordance with Finnish regulatory requirements and with requirements set by the US Securities and Exchange Commission that are applicable to us.

Highlights

- 2024 continued to be a challenging year with ongoing market volatility, but delivered solid achievements and good operational performance, as we renew our business and reposition for future growth opportunities.
- As reported last year, at the beginning of 2024, the President and CEO, Pekka Lundmark, received a base salary increase of 8.5% in recognition of his performance and to bring his base salary close to market level.
- Pekka Lundmark's 2024 short-term incentive (STI) was subject to a scorecard of Nokia operating profit, cash release, health & safety and diversity objectives. Following the year end, performance was assessed against the predetermined targets (adjusted for M&A activities) and resulted in an overall STI payout of 104% of target opportunity for Pekka Lundmark. Further details on the targets and performance assessment and outcomes are provided in our Remuneration Report.
- The long-term incentive (LTI) awards (performance shares) granted to Pekka Lundmark and other GLT members in 2021 vested at 12% of target following the end of the three-year performance period, as a result of the dividend adjusted share price achievement of EUR 3.66. Further details of the target and performance assessment are set out in the Remuneration Report.
- The Personnel Committee carried out another review of our Remuneration Policy (Policy) during 2024 and decided to propose a couple of further amendments to ensure our Policy continues to support our future growth strategy, to further align with market practice, to encourage longer-term decision making for sustainable value creation, and to help with retention. Shareholder feedback was taken into consideration when finalizing the Policy.
- The 2025 STI will continue to be subject to the same performance metrics as used in 2024. However, two new gender diversity metrics will be introduced for 2025 measuring women in leadership and women in workforce, replacing the gender hiring metric used for 2024.
- The 2025 metrics for the LTI (performance shares) for Pekka Lundmark and the rest of the GLT will continue to be subject to a scorecard of 50% relative TSR, 40% cumulative reported Earnings Per Share (EPS) (adjusted for impairments and M&A) and 10% carbon emission reduction (scope 1, 2 and 3).

Remuneration continued

Remuneration Report 2024

Letter from the Chair of the Personnel Committee of the Board

"Dear Fellow Shareholder,
I am delighted to present our Remuneration Report 2024 as the Chair of the Personnel Committee of the Nokia Board."

Our remuneration philosophy
At the core of Nokia's philosophy lie three principles:

- pay for performance and aligning the interests of employees with shareholders;
- ensure that remuneration programs and policies support the delivery of the corporate strategy and create long-term sustainable shareholder value; and
- ensure that executive remuneration reflects the contribution to achieving our ESG targets which support long-term shareholder value creation.

Business context
2024 was a year of good strategic execution in a volatile market to achieve our full-year guidance while pursuing growth opportunities in our focus areas of data centers, private wireless and industrial edge, and defense.

Challenging market conditions in the first half of 2024 led to our full-year net sales declining, but we delivered a strong finish to the year with improving net sales and excellent profitability to achieve a full-year comparable operating profit[(1)] of EUR 2.6 billion, at the mid-point of our guidance of EUR 2.3 to 2.9 billion.

We delivered a strong cash performance throughout 2024, ending with full-year free cash flow[(1)] of EUR 2.0 billion. This means we have a strong balance sheet supporting our business with net cash and interest-bearing financial investments[(1)] of EUR 4.9 billion at the end of the year, even after returning EUR 1.4 billion to shareholders through dividends and share buybacks. As a result, the Board proposed an increase in the dividend authorization proposal to EUR 0.14 per share in respect of the financial year 2024.

Shareholder support and the updated Remuneration Policy
Our second Remuneration Policy ("Policy") was approved by shareholders at the 2024 AGM with over 90% votes in favor.

During 2024, we continued to monitor developments in shareholder and voting agency guidance on remuneration as well as overall market development. Following which, the Personnel Committee of the Board ("Committee") decided to propose a couple of changes to the Policy to ensure our Policy continues to support our future growth strategy, to further align our arrangements with best practice and to incentivize longer-term decision making for sustainable shareholder value creation and to help with retention.

We consulted with our largest shareholders and several other key stakeholders on some proposed amendments to the Policy. The shareholders we engaged with were generally supportive of the proposed amendments and made a few helpful and constructive suggestions for the Committee to consider. The feedback was taken into account as the proposed Policy was finalized.

Remuneration of the President and CEO – base salary and incentive opportunities
As reported last year, the President and CEO Pekka Lundmark received a salary increase of 8.5% in January 2024. There was no increase to Pekka Lundmark's short-term incentive (STI) and long-term incentive (LTI) opportunities during 2024.

For 2025, Pekka Lundmark's base salary and STI opportunity will remain unchanged. As announced on 10 February 2025, Pekka Lundmark is stepping down as the President and CEO effective 31 March 2025 but will work as an advisor to the new CEO until the end of the year. As a result, he will not receive LTI grant in 2025.

(1) Non-IFRS measure. For the definition and reconciliation of non-IFRS measures to the most directly comparable IFRS measure, refer to the "Alternative performance measures" section.

Remuneration continued

STI performance outcome and payout for 2024

Pekka Lundmark's 2024 STI was subject to a scorecard of 60% Nokia operating profit, 20% cash release, 10% gender diversity and 10% health & safety (lost time injury frequency rate).

The 2024 comparable operating profit[1] outcome of EUR 2 619 million against the target of EUR 2 782 million resulted in a payout of 83% of target for this element. The cash release outcome of EUR 1 149 million against the target of EUR -1 115 million resulted in a payout of 225% of target for this element.

The gender diversity metric (female percentage in external hiring) achieved 28% for the full year, against the target of 29%, which resulted in a payout of 25% of target for this element.

The health & safety metric of lost time injury frequency rate measures how often lost time injuries occur that directly impacts Nokia employees during the year. This metric achieved an outcome of 0.085 against the target of 0.089, which resulted in a payout of 123% of target for this element. However, taking account of the eight fatalities within Nokia's control during the year, the Personnel Committee decided to exercise downward discretion to reduce the payout by 50% for this element, which resulted in a payout of 62% of target.

As a result, a total of 104% of target STI was payable to Pekka Lundmark for the financial year 2024.

LTI performance and outcomes for 2021–2024

The 2021 LTI (performance shares) was subject to the predetermined dividend adjusted share price targets and a three-year performance period which ended in January 2024. Based on the dividend adjusted share price outcome of EUR 3.66, the award vested at 12% of target for Pekka Lundmark and other GLT members who received the grant in 2021.

STI and LTI performance conditions for 2025

During 2024, the Personnel Committee also undertook a review of the performance metrics used for our LTI and STI and decided to propose some changes for 2025 to ensure our incentive plans continue to support the business strategy and growth over the next three years. Our 2025 incentive plans for the President and CEO and the rest of the GLT will follow the structure set out below.

Delivering the next year's step in the strategic plan – STI	
Comparable Operating Profit 60%[1]	Cash Release 20%
Continued focus on profitability	Achieve a strong cash position
Health & Safety 10% – Lost Time Injury Frequency Rate (with a fatality modifier)	Women in leadership 5% Women in workforce 5%
Deliver on our focus on the continued health and safety of our employees	Deliver on our commitment to become a more diverse employer

Delivering sustainable value – LTI
50% relative TSR, 40% cumulative reported EPS (adjusted for impairments and M&A), 10% carbon emission reduction (scope 1, 2 and 3)
A more rounded and balanced approach reflecting performance over the long term in growing the business and in delivering shareholder value whilst working towards our 2030 goal of 50% carbon emission reduction

The gender diversity metric for 2025 STI will be changed from female percentage in external hiring to two equally weighted metrics of women in leadership and women in workforce, as we prioritize female development in leadership and throughout the employee experience to drive diversity of decision making which will lead to stronger company performance.

Our other ESG-related focus and commitment is reflected in the continued use of the health & safety metric with a fatality modifier and the carbon emission reduction scope 1, 2 and 3 targets.

Share ownership requirement

Our President and CEO is required to hold Nokia shares equivalent to three times his annual base salary. Pekka Lundmark currently maintains a total shareholding which significantly exceeds the requirement. This demonstrates his commitment to and alignment with Nokia's long-term success and our shareholder interests.

Conclusions

Remuneration outcomes for 2024 reflect our resilient performance despite the challenges during the year and demonstrate our remuneration philosophy of pay for performance. The proposed Remuneration Policy amendments build on what has proved to be a successful remuneration strategy over the years with amendments to support our future growth strategy. I thank shareholders who assisted the Committee in the consultation process, and very much welcome their constructive feedback and support for the proposals. I look forward to your continued support at our 2025 Annual General Meeting.

THOMAS DANNENFELDT,
CHAIR OF THE PERSONNEL COMMITTEE

(1) Non-IFRS measure. For the definition and reconciliation of non-IFRS measures to the most directly comparable IFRS measure, refer to the "Alternative performance measures" section.

Remuneration continued

Introduction

This Remuneration Report of Nokia Corporation (the Report) has been approved by the Company's Board of Directors (the Board) to be presented to the Annual General Meeting 2025. The resolution of the Annual General Meeting on the Report is advisory. The Report presents the remuneration of the Board members and the President and CEO for the financial year 2024 in accordance with the Decree of the Finnish Ministry of Finance 608/2019 and the Finnish Corporate Governance Code 2025, as well as other applicable Finnish laws and regulations. The members of the Board and the President and CEO have been remunerated in accordance with our approved Remuneration Policy during the financial year 2024. No temporary or other deviations from the Policy have been made and no clawback provisions have been exercised during the financial year 2024.

In 2024, our remuneration structure promoted the Company's long-term financial success by setting the performance criteria for short- and long-term incentives to support the Company's short- and long-term goals, as well as through shareholding requirements set for the President and CEO, the GLT and the Board members. Aligned with Nokia's pay-for-performance remuneration principle, performance-based remuneration was emphasized over fixed base salary. The setting and application of the performance criteria for incentive programs executed the philosophy of pay-for-performance and supported the delivery of the corporate strategy as well as the creation of long-term sustainable shareholder value.

The table on the right compares the development of the remuneration of our Board of Directors, President and CEO, average employee pay and Company performance over a five-year period.

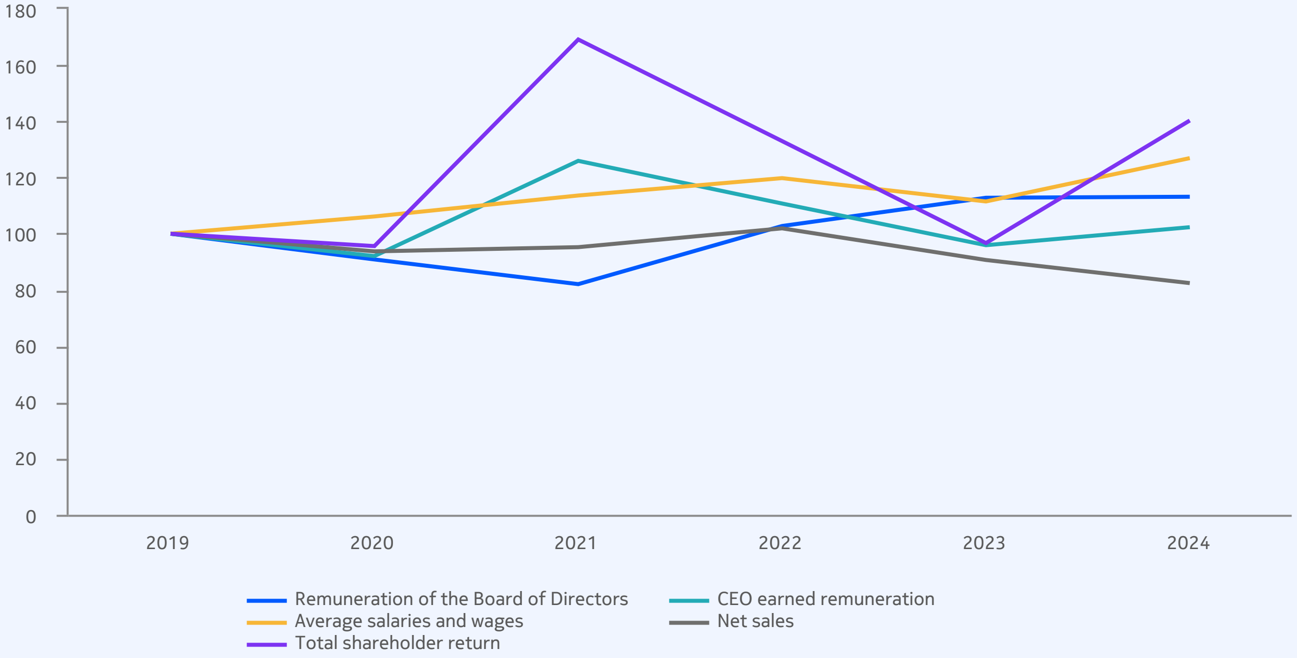
The pay-for-performance remuneration principle applied to the President and CEO, as well as the shareholding requirement of the President and CEO and the Board members, as applicable, contribute to an alignment of interests with shareholders, while also promoting and incentivizing decisions that are in the long-term interest of the Company.

Year	Aggregate remuneration of the Board of Directors (EUR)[1]	President and CEO actual remuneration (EUR)[2]	Average salaries and wages (EUR)[3][5]	Net sales (EURm)[5]	Total shareholder return (rebased to 100 at 31 Dec 2019)[4]
2020	2 016 000	3 587 781	65 787	21 852	95.60%
2021	1 821 000	4 908 244	70 411	22 202	169.11%
2022	2 280 000	4 316 606	74 241	23 761	132.96%
2023	2 503 000	3 738 560	69 096	21 138	96.68%
2024	2 511 000	3 988 250	78 576	19 220	140.28%

(1) Aggregate total remuneration paid to the members of the Board during the financial year as annual fee and meeting fee, as applicable, and as approved by general meetings of shareholders. The value depends on the number of members elected to the Board for each term as well as on the composition of the Board committees and travel required. During the term that began from the Annual General Meeting 2021, the Board had eight members only, compared to ten members during the following terms.
(2) The President and CEO actual remuneration represents the aggregate total of the two President and CEOs in 2020.
(3) Average salaries and wages are based on average employee numbers and their total salaries and wages as reported in the Company's financial statements.
(4) Total shareholder return on last trading day of the previous year.
(5) In June 2024, Nokia classified its Submarine Networks business as a discontinued operation. The comparative amounts for 2023 and 2022 have been recast accordingly.

We also present this data graphically:

Comparative data (rebased year-end 2019 = 100)



Remuneration continued

Pay for performance

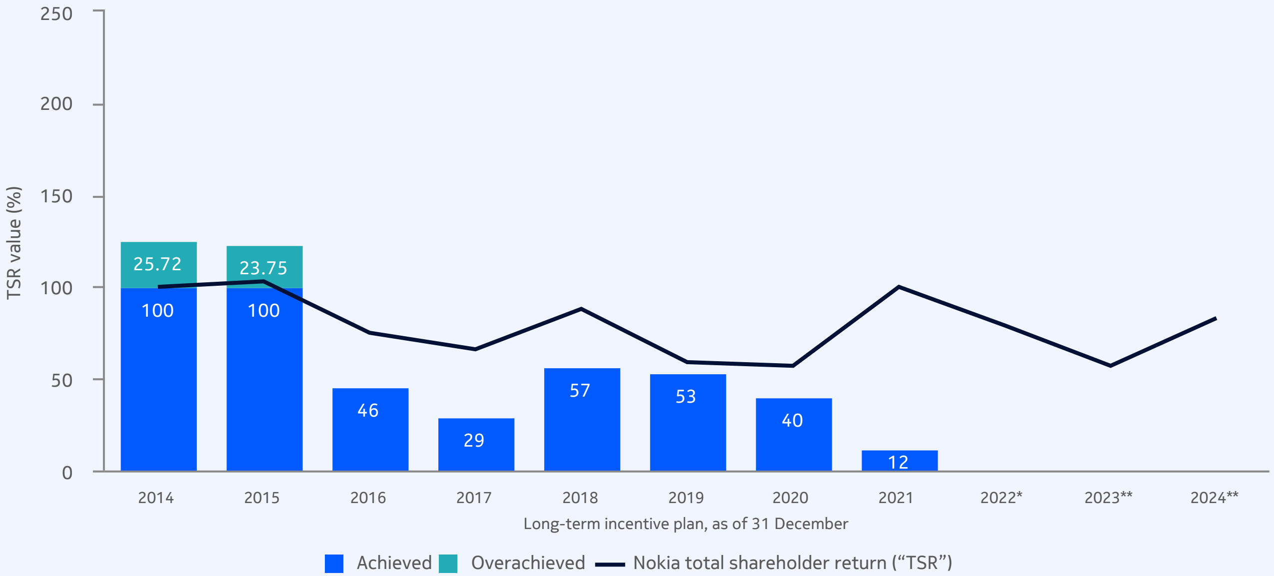
Core to our remuneration philosophy is a desire to pay for performance.

Each year we review overall total shareholder return compared with LTI vesting, mapping the performance of the plans against the total shareholder return curve.

Looking at the performance of our long-term incentive plans against total shareholder return, there is a reasonable alignment with the performance of the plans declining as total shareholder return declines.

The Board continues to actively monitor the performance of our long-term incentive plans to ensure that they deliver value for shareholders.

Share price and total shareholder return vs long-term incentive performance



* 2022 LTI's performance period ended in January 2025. The vesting outcome of this award will be reported in the 2025 Remuneration Report.
** 2023 and 2024 LTIs' performance periods are not yet completed.

Global peer group

For 2024, the global peer group used in our remuneration benchmarking and relative TSR performance assessment consists of 27 companies.

ABB	IBM
Adobe	Infineon Technologies
Airbus	Juniper Networks
ASML	Kone
Atos	Motorola Solutions
BAE Systems	NXP Semiconductors
Capgemini	Oracle
Ciena	Philips
Cisco Systems	SAP
Corning	Siemens Healthineers
Dell Technologies	VMware
Ericsson	Vodafone Group
Hewlett Packard Enterprise	Wärtsilä
HP	

Remuneration continued

Remuneration of the Board of Directors

The shareholders resolve annually on director remuneration based on a proposal made by the Board of Directors on the recommendation of the Board's Corporate Governance and Nomination Committee.

The aggregate amount of remuneration paid to the Board members in 2024 equaled EUR 2 511 000 of which EUR 2 390 000 consisted of annual fees and the rest of meeting fees. In accordance with the resolution by the Annual General Meeting 2024, approximately 40% of the annual fee from Board and Board Committee work was paid in Nokia shares purchased from the market on behalf of the Board members following the Annual General Meeting.

The directors shall retain until the end of their directorship such number of shares that corresponds to the number of shares they have received as Board remuneration during their first three years of service on the Board.

The rest of the annual fee was paid in cash, most of which was used to cover taxes arising from the remuneration. All meeting fees were paid in cash.

It is the Company's policy that the non-executive members of the Board do not participate in any of Nokia's equity programs and do not receive performance shares, restricted shares, or any other variable remuneration for their duties as Board members. No such variable remuneration was paid since all persons acting as Board members during the financial year 2024 were non-executive.

Board remuneration for the term that began at the Annual General Meeting held on 3 April 2024 and ends at the close of the Annual General Meeting in 2025 consisted of the following fees.

Annual fee	EUR
Chair	440 000
Vice Chair	210 000
Member	185 000
Chair of Audit Committee	30 000
Member of Audit Committee	15 000
Chair of Personnel Committee	30 000
Member of Personnel Committee	15 000
Chair of Strategy Committee	20 000
Member of Strategy Committee	10 000
Chair of Technology Committee	20 000
Member of Technology Committee	10 000
Meeting fee[1]	**EUR**
Meeting requiring intercontinental travel	5 000
Meeting requiring continental travel	2 000

(1) Paid for a maximum of seven meetings per term.

The following table outlines the total annual remuneration paid in 2024 to the members of the Board for their services, as resolved by the shareholders at the Annual General Meeting.

	Annual fees (EUR)	Meeting fees (EUR)[1]	Total remuneration paid (EUR)	60% of annual fees and all meeting fees paid in cash (EUR)	40% of annual fees paid in shares (EUR)	Number of shares (approximately 40% of the annual fee)
Sari Baldauf (Chair)	465 000	10 000	475 000	289 000	186 000	52 993
Søren Skou (Vice Chair)	220 000	14 000	234 000	146 000	88 000	25 072
Timo Ahopelto	210 000	10 000	220 000	136 000	84 000	23 932
Elizabeth Crain	220 000	12 000	232 000	144 000	88 000	25 072
Thomas Dannenfeldt	240 000	14 000	254 000	158 000	96 000	27 351
Lisa Hook	210 000	14 000	224 000	140 000	84 000	23 932
Jeanette Horan (until 3 April 2024)[2]	—	—	—	—	—	—
Mike McNamara (as of 3 April 2024)	210 000	14 000	224 000	140 000	84 000	23 932
Thomas Saueressig	195 000	14 000	209 000	131 000	78 000	22 223
Carla Smits-Nusteling	215 000	9 000	224 000	138 000	86 000	24 502
Kai Öistämö	205 000	10 000	215 000	133 000	82 000	23 362
Total	**2 390 000**	**121 000**	**2 511 000**	**1 555 000**	**956 000**	**272 371**

(1) Meeting fees include all meeting fees paid for the term that ended at the Annual General Meeting held on 3 April 2024 and meeting fees accrued and paid in 2025 for the term that began at the same meeting.
(2) Stepped down at the Annual General Meeting on 3 April 2024 and received no annual or meeting fees in 2024.

Remuneration continued

Remuneration of the President and CEO

The following table shows the actual remuneration received by Pekka Lundmark in 2024 and 2023. The 2023 LTI figure relates to the vesting of the final tranche of the restricted share award granted to him on joining Nokia in respect of forfeited shares from his previous employer and the vesting of the 2020 LTI performance shares. The 2024 LTI figure relates to the vesting of the 2021 LTI performance shares and the 2021 eLTI matching performance shares.

EUR	2024	Pay mix[1]	2023	Pay mix[1]
Salary	1 410 500	36%	1 322 750	36%
Short-term incentive[2]	1 824 834	46%	1 079 695	30%
Long-term incentive	697 872	18%	1 240 359	34%
Other remuneration[3]	55 044		95 756	
Total	**3 988 250**		**3 738 560**	

(1) Pay mix reflects the proportions of base salary, STI and LTI of total remuneration, excluding other remuneration.
(2) STI represents the amounts earned in respect of financial year 2024, but that are paid in April 2025.
(3) Other remuneration includes benefits such as telephone, car, driver, tax compliance support and medical insurance.

Pursuant to Finnish legislation, Nokia is required to make contributions to the Finnish TyEL pension arrangements in respect of the President and CEO. Such payments can be characterized as defined contribution payments. In 2024, payments to the Finnish state pension system equaled EUR 310 937 for Pekka Lundmark in respect of his service as President and CEO (EUR 422 274 for Pekka Lundmark in 2023). No supplementary pension arrangements were offered.

2024 Short-term Incentive of the President and CEO

Targets for the STI are set annually at or before the start of the year (adjusted for M&A activities), balancing the need to deliver value with the need to motivate and drive the performance of the Executive Team. Targets are determined for a set of strategic metrics that align with driving sustainable value for shareholders and are set in the context of market expectations and analyst consensus forecasts. For 2024, Pekka Lundmark had a target STI opportunity of 125% of annual base salary. His 2024 STI framework was based on a scorecard of financial and ESG objectives. Achievements against the 2024 targets are set out in the table below. The outcomes for the financial metrics and the gender diversity metric were calculated based on the formulaic approach. The health & safety metric, lost time injury frequency rate, achieved an outcome of 123% of target. However, as a result of eight fatalities within Nokia's control during the year, the Board exercised downward discretion to apply the fatality modifier to reduce the payout under this element by 50%, which resulted in the final outcome of 62% for this metric.

Metric	Weight	Target	2024 performance outcome	2024 STI outcome (% of target)
Comparable operating profit[1]	60%	EUR 2 782 million	EUR 2 619m	83%
Cash release	20%	EUR -1 115 million	EUR 1 149m	225%
Diversity	10%	Female percentage of global external hires of 29%	28%	25%
Health & safety	10%	■ Employee lost time injury frequency rate (LTIFR) of 0.089 ■ Fatality modifier (downward discretion in the event of fatalities)	LTIFR of 0.085 with 8 fatalities	62%
Total STI outcome	**100%**			**104%**

(1) Non-IFRS measure. For the definition and reconciliation of non-IFRS measures to the most directly comparable IFRS measure, refer to the "Alternative performance measures" section.

Accordingly, the total 2024 STI payout for Pekka Lundmark as the President and CEO was EUR 1 824 834.

Remuneration continued

Long-term Incentive awards granted to the President and CEO during 2024

In 2024, Pekka Lundmark was granted the following LTI (performance share) awards.

Targets for our LTI performance shares are set in a similar context to the STI. The performance shares targets are set at the start of the performance period and locked in for the life of the plan. The performance conditions for the 2024 performance shares are based on 50% relative TSR against our global peer group[1], 40% cumulative earnings per share (EPS) and 10% carbon emission reduction targets over the three-year performance period from 2024 to 2027. The targets for all metrics and the performance and vesting outcomes will be disclosed in the 2027 Remuneration Report.

Performance share awards[1] [2]	Units awarded	Grant date face value[3] (EUR)	Grant date	Vesting
2024 LTI performance shares	834 600	3 012 906	5 July 2024	Q3 2027

(1) Global peer group consisted of 27 companies (see details under the "Global peer group" section).
(2) The maximum vesting is 200% if stretch performance targets are met.
(3) Grant date face value was calculated using the closing price of EUR 3.61 on the date of grant.

During 2024, Pekka Lundmark was also invited to participate in the co-investment eLTI, under which he invested EUR 2.8 million in Nokia shares and received two-for-one matching performance shares in return. 50% of the matching performance shares were subject to the same performance conditions as set out above and the remaining 50% were subject to the delivery of a strategic project for Nokia in the next few years. The eLTI matching performance shares also have a three-year performance and vesting period. The targets for all metrics and the performance and vesting outcomes will be disclosed in the 2027 Remuneration Report.

Performance share awards	Units awarded	Grant date face value[1] (EUR)	Grant date	Vesting
2024 eLTI matching performance shares	1 704 530	6 289 716	16 August 2024	Q3 2027

(1) Grant date face value was calculated using the closing price of EUR 3.69 on the date of grant.

Long-term Incentive awards and other equity awards vested for the President and CEO during 2024

Pekka Lundmark was granted LTI performance share award in March 2021 and eLTI matching performance shares in July 2021. Both awards had a three-year performance period and were subject to dividend adjusted share price targets over the performance period. These awards vested during 2024 as set out in the tables below.

Share awards vesting during the year	Units awarded	Target share price (EUR)	Share price achievement (EUR)	Vesting outcome (% of target)	Units vested	Value of vested award[1] (EUR)
2021 LTI performance shares	769 200	4.47	3.66	12.0%	92 304	297 219

Share awards vesting during the year	Units awarded	Target share price (EUR)	Share price achievement (EUR)	Vesting outcome (% of target)	Units vested	Value of vested award[2] (EUR)
2021 eLTI matching performance shares	962 180	4.47	3.66	12.0%	115 462	400 653

(1) The vesting value of the 2021 LTI performance shares was calculated using the average share price of EUR 3.22 on 10 April 2024, the day before the share delivery date.
(2) The vesting value of the 2021 eLTI matching performance shares was calculated using the average share price of EUR 3.47 on 26 June 2024, the day before the share delivery date.

Remuneration continued

The President and CEO's share ownership and unvested share awards

Our share ownership policy requires that the President and CEO holds a minimum of three times his or her annual base salary in Nokia shares in order to ensure alignment with shareholder interests over the long term. Pekka Lundmark significantly exceeds this requirement with a holding of 394%[3] well within the five-year allotted period.

Pekka Lundmark	Units	Value[1] (EUR)
Beneficially owned shares at 31 December 2024	1 573 826	6 720 237
Unvested shares under outstanding Nokia equity plans[2]	3 718 730	15 878 977
Total	**5 292 556**	**22 599 214**

(1) The values are based on the closing price of a Nokia share of EUR 4.27 on Nasdaq Helsinki on 30 December 2024.
(2) The number of units represents the number of unvested awards as of 31 December 2024.
(3) Shareholding of 394% of annual base salary as of 15 November 2024, using 12-month average share price.

The President and CEO's termination provisions 2024

Termination by	Reason	Notice	Compensation
Nokia	Cause	None	The President and CEO is entitled to no additional remuneration and all unvested equity awards would be forfeited after termination.
Nokia	Reasons other than cause	Up to 12 months	The President and CEO is entitled to a severance payment equaling up to 12 months' remuneration (including annual base salary, benefits, and target short-term incentive) and unvested equity awards would be forfeited after termination, unless the Board determines otherwise.
President and CEO	Any reason	12 months	The President and CEO may terminate his service agreement at any time with 12 months' notice. The President and CEO would either continue to receive salary and benefits during the notice period or, at Nokia's discretion, a lump sum of equivalent value. Additionally, the President and CEO would be entitled to any short- or long-term incentives that would normally vest during the notice period. Any unvested equity awards would be forfeited after termination, except in the event of death, permanent disability and retirement, and unless the Board determines otherwise.
President and CEO	Nokia's material breach of the service agreement	Up to 12 months	In the event that the President and CEO terminates his service agreement based on a final arbitration award demonstrating Nokia's material breach of the service agreement, he is entitled to a severance payment equaling up to 12 months' remuneration (including annual base salary, benefits and target incentive). Any unvested equity awards would be forfeited after termination.

The President and CEO is subject to a 12-month non-competition and non-solicit obligation that applies after the termination of the service agreement or the date when he is released from his obligations and responsibilities, whichever occurs earlier.

Remuneration continued

Remuneration Policy

Nokia Corporation's Remuneration Policy, which applies to the governing bodies of the Company, i.e. the Board of Directors and the President and CEO, was approved by shareholders at the Annual General Meeting 2024, receiving 90.55% of votes in favor. During 2024, the Board's Personnel Committee continued to monitor the developments in shareholder expectations and market conditions. Following which, on the recommendation of the Personnel Committee, the Board decided to propose further amendments to the Policy to ensure it supports Nokia's future growth strategy, to further align with best global market practices, to incentivize longer-term decision making for sustainable shareholder value creation and to help with retention.

The key changes to the Policy are as follows:

- Clarification that malus provisions shall apply to all the President and CEO's incentive plans with the same trigger events as for clawback provisions; and
- Introduction of the possibility to grant restricted share awards to the President and CEO of up to 100% of annual base salary, vesting after a minimum of three years, subject to financial underpins and continued service.

This section sets out the updated Policy, which will be submitted to the Annual General Meeting 2025 to be adopted through an advisory vote.

The updated Policy would apply to remuneration in respect of the four-year period from 2025 to 2029, unless presented to the General Meeting at an earlier date with proposed changes.

The updated Remuneration Policy for the Board of Directors

In accordance with the Remuneration Policy, the Board's Corporate Governance and Nomination Committee periodically reviews the remuneration for the Chair and members of the Board against companies of similar size and complexity. The objective of the Corporate Governance and Nomination Committee is to enable Nokia to compete for top-of-class Board competence to maximize value creation for its shareholders. The Committee's aim is that the Company has an efficient Board composed of international professionals representing a diverse and relevant mix of skills, experience, background and other personal qualities. Competitive Board remuneration contributes to the achievement of this target.

The main structure of the Board remuneration as outlined in the Remuneration Policy is set out in the table below.

Fees	Fees consist of annual fees and meeting fees. Approximately 40% of the annual fee is paid in Nokia shares purchased from the market on behalf of the Board members or alternatively delivered as treasury shares held by the Company. The balance is paid in cash, most of which is typically used to cover taxes arising from the paid remuneration. Meeting fees are paid in cash.
Incentives	Non-executive directors are not eligible to participate in any Nokia incentive plans and do not receive performance shares, restricted shares or any other equity-based or other form of variable compensation for their duties as members of the Board.
Pension	Non-executive directors do not participate in any Nokia pension plans.
Share ownership requirement	Members of the Board shall normally retain until the end of their directorship such number of shares that corresponds to the number of shares they have received as Board remuneration during their first three years of service on the Board (the net amount received after deducting those shares needed to offset any costs relating to the acquisition of the shares, including taxes).
Other	Directors are compensated for travel and accommodation expenses as well as other costs directly related to Board and Committee work. These are paid in cash.

Proposals of the Board of Directors to the Annual General Meeting 2025 were published on 30 January 2025. The Corporate Governance and Nomination Committee has resolved to recommend to the Board that the annual fees of Board members would remain at an unchanged level. Consequently, the Board proposes to the Annual General Meeting 2025 that the annual fees payable for a term ending at the close of the next Annual General Meeting be as follows:

- EUR 440 000 for the Chair of the Board;
- EUR 210 000 for the Vice Chair of the Board;
- EUR 185 000 for each member of the Board;
- EUR 30 000 each for the Chairs of the Audit Committee and the Personnel Committee and EUR 20 000 for the Chairs of the Technology Committee and the Strategy Committee as an additional annual fee; and
- EUR 15 000 for each member of the Audit Committee and the Personnel Committee and EUR 10 000 for each member of the Technology Committee and the Strategy Committee as an additional annual fee.

In addition, the Board of Directors proposes that the meeting fees for Board and Committee meetings remain at the current level. The meeting fees are based on potential travel required between the Board member's home location and the location of a meeting and are paid for a maximum of seven meetings per term as follows:

- EUR 5 000 per meeting requiring intercontinental travel; and
- EUR 2 000 per meeting requiring intracontinental travel.

Only one meeting fee is paid if the travel covered by the fee includes several meetings of the Board and its Committees. The Board also proposes that members of the Board shall be compensated for travel and accommodation expenses as well as other costs directly related to Board and Board Committee work.

Remuneration continued

The updated Remuneration Policy for the President and CEO

Remuneration elements	Purpose and link to strategy	Operation including maximum opportunity	Performance metrics
Base salary	To attract and retain individuals with the requisite level of knowledge, skills and experience to lead our businesses	Base salary is normally reviewed annually taking into consideration a variety of factors, including, for example, performance of the Company and the individual, remuneration of our global peer group, changes in individual responsibilities and employee salary increases.	Whilst there are no performance targets attached to the payment of base salary, performance is considered as context in the annual salary review.
Pension	To provide retirement benefit aligned with local country practice	Pension arrangements reflect the relevant market practice and may evolve year on year. The President and CEO may participate in the applicable pension programs available to other executives in the country of employment. Details of the actual pension arrangement will be shown in the annual Remuneration Report. In Finland, the President and CEO participates in the Finnish statutory Employee's Pension Act (TyEL), and there is no supplementary pension plan.	N/A
Other benefits	To provide a competitive level of benefits and to support recruitment and retention	Benefits will be provided in line with local market practice in the country of employment and may evolve year on year. Benefits may include, for example, a company car (or cash equivalent), risk benefits (for example life and disability insurance) and employer contributions to insurance plans (for example medical insurance). Additional benefits and allowances may be offered in certain circumstances such as relocation support, expatriate allowances, and temporary living and transportation expenses aligned with Nokia's mobility policy. The President and CEO is also eligible to participate in similar programs which may be offered to Nokia's other employees such as the voluntary all-employee share purchase plan.	N/A
Short-term incentive (STI)	To incentivize and reward performance against delivery of the annual business plan	STI is based on performance against one-year financial and non-financial targets and normally paid in cash. Minimum payout is 0% of base salary. Target opportunity is 125% of base salary. Maximum opportunity is 281.25% of base salary. The malus and clawback conditions apply in accordance with Company clawback policies.	Performance measures, weightings and targets for the selected measures are set annually by the Board to ensure they continue to support Nokia's short-term business strategy. These measures can vary from year to year to reflect business priorities and may include a balance of financial, key operational and non-financial measures (including but not limited to strategic, customer satisfaction, employee engagement, environmental, social, governance or other sustainability-related measures). Although the performance measures and weighting may differ year to year reflecting the business priorities, in any given year, a minimum of 60% of measures will be based on financial criteria. Targets for the short-term incentives are set at the start of the year, in the context of analyst expectations and the annual plan, selecting measures that align to the delivery of Nokia's strategy. The performance metrics and weightings are disclosed retrospectively in the annual Remuneration Report.
Long-term incentive (LTI) – performance share award	To reward for delivery of sustainable long-term performance, align the President and CEO's interests with those of shareholders, and aid retention	Long-term incentive awards may be made annually in performance shares, vesting normally after three years dependent on the achievement of performance conditions measured over a three-year period. Target award level is 200% of base salary at the date of grant, with maximum vesting of 400% of base salary. The malus and clawback conditions apply in accordance with Company clawback policies.	Performance measures, weightings and target metrics for the selected measures are set by the Board to ensure they continue to support Nokia's long-term business strategy and financial success. Targets are set in the context of Nokia's long-term plans and analyst forecasts, ensuring that they are considered both achievable and sufficiently stretching. The Board may choose different measures and weightings each year based on the business plan. The measures consist of at least 60% financial and/or share price-related measures. The Performance metrics and weightings are disclosed retrospectively in the annual Remuneration Report.

Remuneration continued

Remuneration elements	Purpose and link to strategy	Operation including maximum opportunity	Performance metrics
Long-term incentive (LTI) - restricted share award	To incentivize longer-term decision making for sustainable shareholder value creation and to aid retention	Restricted share awards of up to 100% of base salary may be granted, vesting after at least three years, subject to financial underpins and continued service. The malus and clawback conditions apply in accordance with Company clawback policies.	Financial underpins are determined by the Board to ensure alignment with underlying company performance and shareholder experience. The Board may choose different financial underpins for each grant based on the business plan and strategic priority.
Enhanced LTI (eLTI) – co-investment arrangement	To further align the President and CEO's interests with Nokia's long-term success and shareholder interests	Unlike the LTI performance share award, this is not an annual award and is only granted in exceptional circumstances. The President and CEO may be invited, at the discretion of the Board, to purchase investment shares of up to 200% of base salary, and in return, receive two matching shares for every one investment share purchased. The matching shares are delivered in the form of performance shares, typically subject to the same performance conditions as for the LTI performance share award, with a three-year performance and vesting period. The minimum vesting of the matching shares is 0% of base salary and maximum vesting is two times grant level. The malus and clawback conditions apply in accordance with Company clawback policies.	The performance metrics, targets and weightings for the matching shares are typically the same as those for LTI performance shares granted in the same year.
Shareholding requirement	Align the President and CEO's interests with those of shareholders and ensure any decisions made are in the long-term interest of the Company	The President and CEO is required to build and maintain a shareholding equivalent to 300% of base salary, to be achieved normally within five years of appointment.	N/A

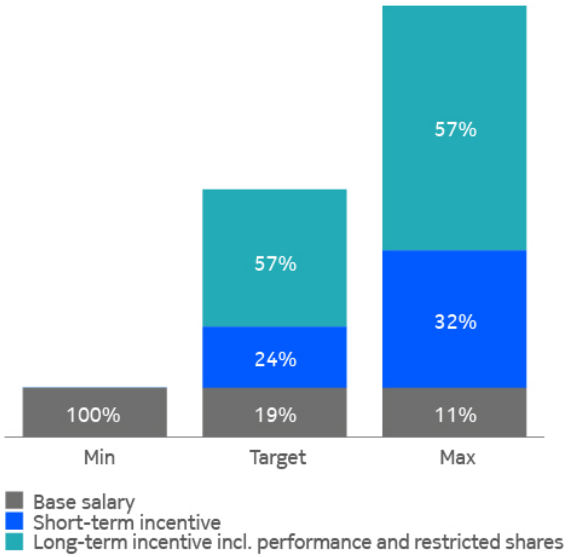
Remuneration continued

Pay mix and remuneration scenarios for the President and CEO

Aligned with Nokia's pay-for-performance remuneration principle, performance-based remuneration is emphasized over base salary. The chart below illustrates how the proportion of the President and CEO's remuneration package varies at the minimum, target and maximum levels of performance. A significant proportion of remuneration is linked to performance, especially at maximum performance levels. Actual pay mix is influenced by the extent to which the performance targets set for the STI and LTI are achieved and may vary from the scenarios below.

The long-term incentive vesting outcomes in the chart below ignore share price movement from grant to vest. The eLTI is not included in this analysis as it is not an annual award and is only granted in exceptional circumstances. The vesting outcome of the matching performance shares under the eLTI would be dependent, besides the performance, on the value of the investment, which could range from 0% to 200% of base salary for the President and CEO. The minimum and maximum vesting levels for the matching performance shares are provided in the above summary table of the remuneration elements.

President and CEO pay mix scenarios



Share ownership requirement

Nokia believes that it is desirable for its executives to own shares in Nokia to align their interests with those of shareholders and to ensure that their decisions are in the long-term interest of the Company. The President and CEO is required to own three times his or her annual base salary in Nokia shares and is given a period of five years from appointment to achieve the required level of share ownership.

Malus and clawback

The malus and clawback conditions apply in accordance with Company's clawback policies to the short- and long-term incentives for all participants, including the President and CEO.

Nokia's Executive Officer Clawback Policy is applied in the case of any erroneously awarded compensation due to restatement in the Company's Financial Statements with a three-year lookback period, resulting in the reclaiming of amounts then-outstanding or previously paid.

Additionally, under the Nokia Incentive Compensation Clawback Policy, unless the Personnel Committee otherwise decides, the recoupment of previously awarded, paid or received compensation is triggered in situations of reputational damage, willful breach of internal control procedures, gross misconduct and restatement of financial statement (clawback triggers) with a recoupment period not exceeding three years in total.

Remuneration on recruitment

Our policy on recruitment is to offer a remuneration package that is sufficient to attract, retain and motivate the individual with the right skills for the required role.

On occasion, we may offer buy-out awards to compensate for a candidate's forfeited awards on leaving a previous employer. Such buy-out awards would, where possible, reflect the nature of the forfeited awards in terms of delivery mechanism, time horizons, attributed expected value and performance conditions.

Termination provisions

In the event of a termination of employment, any payable remuneration is determined in line with legal advice regarding local legislation, country policies, contractual obligations and the rules of the applicable incentive and benefit plans. Payment in lieu of notice will not typically exceed the value of 12 months' remuneration (including base salary, benefits, STI and pension contribution, if applicable). The treatment of equity incentive awards may depend on the circumstances of the departure. In the event of death, permanent disability or retirement, unvested awards are normally allowed to be retained. These awards will vest either on departure or at normal vesting date, subject to performance (if applicable) and time proration, unless the Board of Directors determines otherwise. Current termination provisions of the President and CEO's service agreement are described in the Remuneration Report.

Change of control arrangements, if any, are based on a double trigger structure, which means that both a specified change of control event and termination of the individual's employment must take place for any change of control-based severance payment to materialize.

Remuneration continued

Remuneration governance

We manage our remuneration through clearly defined processes, with well-defined governance principles, ensuring that no individual is involved in the decision making related to their own remuneration, and that there is appropriate oversight of any remuneration decision. Remuneration of the Board is annually presented to shareholders for approval at the Annual General Meeting.

The Board submits its proposal to the Annual General Meeting on the recommendation of the Board's Corporate Governance and Nomination Committee, which actively considers and evaluates the appropriate level and structure of directors' remuneration. Shareholders also authorize the Board to resolve to issue shares, for example to settle Nokia's equity-based incentive plans, based on the proposal of the Board.

The Board of Directors approves, and the independent members of the Board confirm, the remuneration of the President and CEO, upon recommendation of the Personnel Committee.

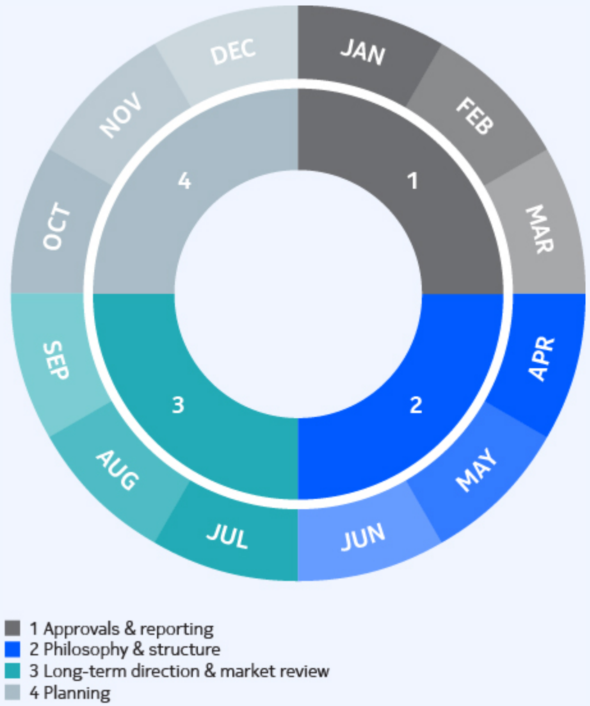
The Personnel Committee consults regularly with the President and CEO and the Chief People Officer. The President and CEO has an active role in the remuneration governance and performance management processes for the GLT and the wider employee population at Nokia. However, the President and CEO or the Chief Personnel Officer are not present when their own remuneration is reviewed or discussed. This enables the Personnel Committee to be mindful of employee pay and conditions across the broader employee population.

The Committee has the power, in its sole discretion, to retain remuneration advisers to assist the Personnel Committee in evaluating executive remuneration. During 2024, the Personnel Committee engaged Willis Towers Watson, an independent external adviser, to assist in the review and determination of executive remuneration and program design, as well as to provide insight into market trends and regulatory developments.

The Personnel Committee Chair regularly engages with shareholders to discuss their views on our remuneration policies, programs and associated disclosures and reflects on their feedback. These insights are taken account of in the Committee's and Board's decision-making process for executive remuneration.

Work of the Personnel Committee

The Personnel Committee convened five times during 2024 with a general theme for each meeting.



January

- 2023 STI performance outcome
- 2024 STI and LTI metrics and target setting
- President and CEO remuneration review
- Equity plan vesting and granting during 2024
- Remuneration Report for 2023

May

- 2024 Annual General Meeting season review
- GLT remuneration review
- Culture update
- GLT succession planning

July

- Remuneration Policy review
- GLT succession planning
- Inflight LTI awards performance update
- Market practice update
- People risks including physical safety review

September

- Nokia Incentive Compensation Clawback Policy review
- Remuneration Policy review
- Workforce demographics
- Personnel Committee adviser selection review

December

- Performance update of 2024 STI and LTI
- Preliminary review of metrics and targets for 2025 STI and LTI
- 2025 equity plan budget and allocation
- Proxy agency and shareholder consultation feedback
- Planning of Remuneration Report for 2024
- GLT Succession planning
- Executive shareholding assessment
- Personnel Committee charter review

Remuneration of the Nokia Group Leadership Team in 2024

The remuneration of the members of the GLT (excluding the President and CEO) consists of base salary, other benefits, and short- and long-term incentives. Short-term incentive plans are based on rewarding the delivery of business performance utilizing certain, or all, of the following metrics as appropriate to the member's role: comparable operating profit[(1)], cash release and ESG-related measures such as health & safety.

Executives in the GLT are subject to the same remuneration policy framework as the President and CEO. This includes being subject to the malus and clawback conditions and shareholding requirements. The shareholding requirement for members of the GLT is two times their annual base salary, built within a period of five years of their appointment.

(1) Non-IFRS measure. For the definition and reconciliation of non-IFRS measures to the most directly comparable IFRS measure, refer to the "Alternative performance measures" section.

At the end of 2024, the Group Leadership Team consisted of 11 persons split between Finland, other European countries and the United States. For information regarding the current Group Leadership Team composition, refer to the Corporate Governance Statement.

Name	Position in 2024	Appointment date
Pekka Lundmark	President and CEO	1 August 2020
Nishant Batra	Chief Strategy and Technology Officer	18 January 2021
Louise Fisk	Chief Communications Officer	18 October 2024
Lorna Gibb	Chief People Officer	13 June 2024
Federico Guillén	President of Network Infrastructure	8 January 2016
Patrik Hammarén	Acting President of Nokia Technologies	18 October 2024
Mikko Hautala	Chief Geopolitical and Government Relations Officer	1 November 2024
Esa Niinimäki	Chief Legal Officer	25 January 2023
Raghav Sahgal	President of Cloud and Network Services	1 June 2020
Tommi Uitto	President of Mobile Networks	31 January 2019
Marco Wirén	Chief Financial Officer	1 September 2020

Remuneration of the Group Leadership Team members in 2024

Remuneration of the Group Leadership Team (excluding the President and CEO) in 2023 and 2024, in the aggregate, was as follows:

EURm[(1)]	2024	2023
Salary, short-term incentives and other compensation[(2)]	11.3	10.8
Long-term incentives[(3)]	3.9	2.5
Total	**15.2**	**13.3**

(1) The values represent each member's time on the Group Leadership Team.
(2) Short-term incentives represent amounts earned in respect of 2024 performance. Other compensation includes mobility-related payments, local benefits and pension costs.
(3) The amounts represent the equity awards that vested in 2024 and 2023.

The members of the Group Leadership Team (excluding the President and CEO) were awarded the following equity awards under the Nokia equity program in 2024:

Award	Units awarded[(1)]	Grant date fair value (EUR)	Grant date	Vesting
Performance share award[(2)]	7 445 257	27 462 512	5 July 2024, 16 August 2024, 16 December 2024	Q3 & Q4 2027
Restricted share award[(3)]	151 467	626 551	5 July 2024, 11 October 2024, 16 December 2024	Q4 2025, Q4 2026, Q3 2027

(1) Includes units awarded to persons who were Group Leadership Team members during 2024.
(2) The 2024 performance shares have a three-year performance period based on 50% relative total shareholder return, 40% three-year cumulative EPS and 10% carbon emission reduction scope 1, 2 and 3 targets. The maximum payout is 200% subject to maximum performance against the performance criteria. Vesting is subject to continued employment.
(3) Vesting of each tranche of the restricted share awards is conditional on continued employment.

Remuneration continued

Unvested equity awards held by the Group Leadership Team, including the President and CEO

The following table sets forth the potential aggregate ownership interest through the holding of equity-based long-term incentives of the Group Leadership Team in office, including the President and CEO, at 31 December 2024:

	Shares receivable through performance shares at grant	Shares receivable through performance shares at maximum[4]	Shares receivable through restricted shares
Number of equity awards held by the Group Leadership Team[1]	10 292 949	20 567 565	753 517
% of the outstanding shares[2]	0.19%	0.38%	0.01%
% of the total outstanding equity incentives (per instrument)[3]	24.59%	25.70%	0.65%

(1) Includes the 11 members of the Group Leadership Team in office at 31 December 2024.
(2) The percentages are calculated in relation to the outstanding number of shares and total voting rights of Nokia at 31 December 2024, excluding shares held by the Nokia Group. No member of the Group Leadership Team owned more than 1% of the outstanding Nokia shares.
(3) The percentages are calculated in relation to the total outstanding equity incentives per instrument.
(4) At maximum performance, under the performance share plans outstanding at 31 December 2024, the payout would be 200% and the table reflects this potential maximum payout.

Employee Share Purchase Plan

All eligible Nokia employees, including the President and CEO and our GLT members, can participate in the Employee Share Purchase Plan, by making contributions from their monthly net salaries (up to a cap) to purchase Nokia shares at market value. Participants will receive one matching share for every two purchased shares they still hold at the end of the applicable annual plan cycle. Until the matching shares are delivered, the participants have no shareholder rights, such as voting or dividend rights associated with the matching shares.

Operating and financial review and prospects

Selected financial data

The below table presents selected financial and other measures for the Nokia Group as of and for the financial years ended on 31 December 2024, 2023 and 2022. The information has been derived from our consolidated financial statements prepared in accordance with IFRS Accounting Standards.

EURm (except for percentage and personnel data)	2024	2023	2022
From the consolidated income statement			
Net sales	19 220	21 138	23 761
Operating profit	1 999	1 661	2 299
% of net sales	10.4%	7.9%	9.7%
Profit before tax	2 091	1 469	2 169
Profit from continuing operations	1 711	649	4 202
(Loss)/profit from discontinued operations	(427)	30	57
Profit for the year	1 284	679	4 259
From the consolidated statement of financial position			
Non-current assets	21 162	21 694	22 677
Current assets	17 987	18 087	20 266
Assets held for sale	—	79	—
Total assets	39 149	39 860	42 943
Total shareholders' equity	20 657	20 537	21 333
Non-controlling interests	90	91	93
Total equity	20 747	20 628	21 426
Interest-bearing liabilities(1)	3 887	4 191	4 477
Lease liabilities(1)	863	997	1 042
Provisions(1)	1 228	1 262	1 435
Other liabilities(1)	12 424	12 782	14 563
Total shareholders' equity and liabilities	39 149	39 860	42 943
Other information			
Research and development expenses(2)	(4 512)	(4 277)	(4 503)
% of net sales	(23.5)%	(20.2)%	(19.0)%
Capital expenditure(3)	(472)	(652)	(601)
% of net sales	(2.5)%	(3.1)%	(2.5)%
Personnel expenses(2)	7 563	7 294	7 732
Average number of employees(2)	78 434	84 795	85 101
Order backlog, EUR billion(4)	20.0	22.0	19.5

EURm (except for percentage and personnel data)	2024	2023	2022
Key financial indicators and ratios			
Earnings per share attributable to equity holders of the parent			
Basic earnings per share, EUR			
Continuing operations	0.31	0.11	0.75
Profit for the year	0.23	0.12	0.76
Diluted earnings per share, EUR			
Continuing operations	0.31	0.11	0.74
Profit for the year	0.23	0.12	0.75
Proposed dividend per share, EUR(5)	0.14	0.13	0.12
Return on capital employed %(3)	9.3%	6.6%	9.5%
Return on shareholders' equity %(3)	6.2%	3.2%	22.0%
Equity ratio %(3)	53.0%	51.8%	49.9%
Net debt to equity (gearing) %(3)	(23.4)%	(21.0)%	(22.2)%
Cash and cash equivalents	6 623	6 234	5 467
Total cash and interest-bearing financial investments(3)	8 741	8 514	9 244
Net cash and interest-bearing financial investments(3)	4 854	4 323	4 767
Net cash flows from operating activities	2 493	1 317	1 474
Free cash flow(3)	2 021	665	873

(1) Includes both current and non-current liabilities in the consolidated statement of financial position.
(2) Presented for continuing operations.
(3) Non-IFRS measures. For the definition and reconciliation of non-IFRS measures to the most directly comparable IFRS measures, refer to the "Alternative performance measures" section.
(4) Order backlog includes EUR 1.7 billion in 2023 and EUR 1.6 billion in 2022 related to discontinued operations sold in 2024.
(5) The Board of Directors proposes to the Annual General Meeting to be authorized to decide in its discretion on the distribution of an aggregate maximum of EUR 0.14 per share as dividend from the retained earnings and/or as assets from the reserve for invested unrestricted equity.

Operating and financial review

The financial information included in this "Operating and financial review" section as of and for the years ended 31 December 2024 and 2023 has been derived from, and should be read in conjunction with, our consolidated financial statements included in this report. For discussion of the year ended 31 December 2023 compared to the year ended 31 December 2022, please refer to the "Operating and financial review" section of our Annual Report on Form 20-F for the year ended 31 December 2023.

Results of operations

This "Results of operations" section discusses the results of our continuing operations and discontinued operations. Discontinued operations include the results of the Submarine Networks business which was sold to the French state in 2024.

Cost savings program

On 19 October 2023, Nokia announced actions being taken across business groups to address the challenging market environment that the company faced. The company will reduce its cost base and increase operational efficiency while protecting its R&D capacity and commitment to technology leadership.

Nokia targets to lower its cost base on a gross basis (i.e. before inflation) by between EUR 800 million and EUR 1 200 million by the end of 2026 compared to 2023, assuming on-target variable pay in both periods. This represents a 10-15% reduction in personnel expenses. The program is expected to lead to a 72 000–77 000 employee organization compared to the 86 000 employees Nokia had when the program was announced. The headcount figures represent the originally planned headcount targets and do not take into consideration the completed divestment of Submarine Networks or planned divestments or acquisitions. Actual headcount at 31 December 2024 was 75 600. The actual headcount reflects workforce reductions from the disposal of Submarine Networks which were not factored into the target workforce when the program was announced. The headcount at 31 December 2024 would have been 77 600 had Nokia not disposed of Submarine Networks.

The program is expected to deliver savings on a net basis but the magnitude will depend on inflation. The cost savings are expected to primarily be achieved in Mobile Networks, Cloud and Network Services and Nokia's corporate functions. One-time restructuring charges and cash outflows of the program are expected to be similar to the annual cost savings achieved.

The current plan envisages achieving gross cost savings of EUR 1 000 million within the 2024–2026 program although this remains subject to change depending on the evolution of end market demand. This includes the expected gross cost savings along with the associated restructuring charges and cash outflows for the program. Nokia expects approximately 70% of the savings to be achieved within operating expenses and 30% within cost of sales. By business group, approximately 50-60% of the savings are expected to be achieved within Mobile Networks, 30% within Cloud and Network Services and the remaining 10-20% between Network Infrastructure and corporate center.

The prior cost savings program from 2021 to 2023 is now essentially completed.

Operating and financial review continued

Nokia Group

For the year ended 31 December 2024 compared to the year ended 31 December 2023
The following table sets forth the results of Nokia's continuing operations and the percentage of net sales for the years indicated.

	2024		2023		
	EURm	% of net sales	EURm	% of net sales	Change %
Net sales	**19 220**	**100.0%**	**21 138**	**100.0%**	**(9)%**
Cost of sales	(10 356)	(53.9)%	(12 592)	(59.6)%	(18)%
Gross profit	**8 864**	**46.1%**	**8 546**	**40.4%**	**4%**
Research and development expenses	(4 512)	(23.5)%	(4 277)	(20.2)%	5%
Selling, general and administrative expenses	(2 890)	(15.0)%	(2 878)	(13.6)%	0%
Other operating income and expenses	537	2.8%	270	1.3%	99%
Operating profit	**1 999**	**10.4%**	**1 661**	**7.9%**	**20%**
Share of results of associated companies and joint ventures	7	0.0%	(39)	(0.2)%	(118)%
Financial income and expenses	85	0.4%	(153)	(0.7)%	(156)%
Profit before tax	**2 091**	**10.9%**	**1 469**	**6.9%**	**42%**
Income tax (expense)/benefit	(380)	(2.0)%	(820)	(3.9)%	(54)%
Profit from continuing operations	**1 711**	**8.9%**	**649**	**3.1%**	**164%**
(Loss)/profit from discontinued operations	(427)	(2.2)%	30	0.1%	(1 523)%
Profit for the year	**1 284**	**6.7%**	**679**	**3.2%**	**89%**
Attributable to:					
Equity holders of the parent	1 277	6.6%	665	3.1%	92%
Non-controlling interests	7	0.0%	14	0.1%	(50)%

Net sales
Net sales in 2024 were EUR 19 220 million, a decrease of EUR 1 918 million, or 9%, compared to EUR 21 138 million in 2023. Net sales were impacted by challenging market conditions that started in 2023 and persisted through the first half of 2024, despite improving order intake trends in parts of the business. The overall net sales performance reflected declines across Mobile Networks, Network Infrastructure and Cloud and Network Services. This was somewhat offset by strong growth in Nokia Technologies which benefited from the signing of smartphone license agreements throughout the year and related catch-up net sales.

The following table sets forth distribution of net sales by region for the years indicated.

EURm	2024	2023	Change %
Americas	**6 276**	**6 779**	**(7)%**
Latin America	895	1 046	(14)%
North America	5 381	5 733	(6)%
APAC	**4 549**	**6 436**	**(29)%**
Greater China	1 134	1 303	(13)%
India	1 373	2 842	(52)%
Rest of APAC	2 042	2 291	(11)%
EMEA	**8 395**	**7 923**	**6%**
Europe[(1)]	6 362	5 873	8%
Middle East & Africa	2 033	2 050	(1)%
Total	**19 220**	**21 138**	**(9)%**

(1) All Nokia Technologies IPR and licensing net sales are allocated to Finland.

The following table sets forth distribution of net sales by customer type for the years indicated.

EURm	2024	2023	Change %
Communications service providers	15 085	17 652	(15)%
Enterprise	2 180	2 282	(4)%
Licensees	1 928	1 085	78%
Other[(1)]	27	119	(77)%
Total	**19 220**	**21 138**	**(9)%**

(1) Includes net sales of Radio Frequency Systems (RFS), which had been managed as a separate entity and was substantially divested in 2024, and certain other items, such as eliminations of inter-segment revenues. RFS net sales also include revenue from communications service providers and enterprise customers.

Gross profit
Gross profit in 2024 was EUR 8 864 million, an increase of EUR 318 million, or 4%, compared to EUR 8 546 million in 2023. The increase in gross profit was mainly attributable to the strong net sales growth in Nokia Technologies. Gross profit in 2024 also reflected relatively stable restructuring and associated charges, which amounted to EUR 155 million in 2024, compared to EUR 151 million in 2023. In 2024, variable pay accruals within cost of sales were higher, compared to 2023. Gross margin in 2024 was 46.1%, compared to 40.4% in 2023.

Operating expenses
Our research and development expenses in 2024 were EUR 4 512 million, an increase of EUR 235 million, or 5%, compared to EUR 4 277 million in 2023. Research and development expenses represented 23.5% of our net sales in 2024 compared to 20.2% in 2023. The increase in research and development expenses was primarily attributable to higher variable pay accruals in 2024, compared to 2023. Research and development expenses in 2024 also reflected higher restructuring and associated charges, which amounted to EUR 135 million in 2024, compared to EUR 61 million in 2023.

Operating and financial review continued

Our selling, general and administrative expenses in 2024 were EUR 2 890 million, an increase of EUR 12 million compared to EUR 2 878 million in 2023. Selling, general and administrative expenses represented 15.0% of our net sales in 2024 compared to 13.6% in 2023. The slight increase in selling, general and administrative expenses was mainly driven by higher variable pay accruals in 2024, compared to 2023, as well as the negative impact from foreign exchange rate fluctuations. This was somewhat offset by ongoing cost savings actions. The selling, general and administrative expenses in 2024 also reflected relatively stable restructuring and associated charges and amortization of acquired intangible assets. 2024 included restructuring and associated charges of EUR 144 million, compared to EUR 138 million in 2023. In 2024, selling, general and administrative expenses included amortization of acquired intangible assets of EUR 294 million, compared to EUR 292 million in 2023.

Other operating income and expenses in 2024 was a net income of EUR 537 million, an improvement of EUR 267 million, compared to a net income of EUR 270 million in 2023. The improvement in other operating income and expenses was primarily driven by EUR 190 million of income related to the divestment of associates, a positive fluctuation in loss allowances on certain trade receivables and higher gains related to Nokia's venture fund investments, somewhat offset by the negative impact from hedging, the EUR 49 million reversal of a provision that benefited 2023 and lower sales of digital assets. Nokia’s venture fund investments generated a benefit of approximately EUR 30 million in 2024 compared to a loss of EUR 70 million in 2023. The impact of hedging was positive EUR 23 million in 2024, compared to a positive impact of EUR 94 million in 2023.

Operating profit
Our operating profit in 2024 was EUR 1 999 million, an increase of EUR 338 million, compared to an operating profit of EUR 1 661 million in 2023. The increase in operating profit was due to higher gross profit and the net positive fluctuation in other operating income and expenses, somewhat offset by higher research and development expenses and selling, general and administrative expenses. Our operating margin in 2024 was 10.4%, compared to 7.9% in 2023.

Financial income and expenses
Financial income and expenses were a net income of EUR 85 million in 2024, a positive fluctuation of EUR 238 million, compared to a net expense of EUR 153 million in 2023. The net positive fluctuation in financial income and expenses mainly resulted from a EUR 208 million positive fluctuation in net foreign exchange gains and losses, EUR 79 million of higher interest income and EUR 30 million of lower interest expenses. These were partially offset by the EUR 79 million fair value reduction of current equity investments in Vodafone Idea.

Profit before tax
Our profit before tax in 2024 was EUR 2 091 million, an increase of EUR 622 million compared to EUR 1 469 million in 2023.

Income tax
Income taxes were a net expense of EUR 380 million in 2024, a net positive fluctuation of EUR 440 million compared to a net expense of EUR 820 million in 2023. The positive fluctuation in net income taxes was primarily attributable a non-recurring tax expense of EUR 392 million related to an internal operating model change that led to a remeasurement of a deferred tax asset that negatively impacted 2023. For more details on these items, please refer to Note 2.5. Income taxes in our consolidated financial statements.

Profit from continuing operations
The profit from continuing operations in 2024 was EUR 1 711 million, an increase of EUR 1 062 million, compared to a profit of EUR 649 million in 2023. The change was due to the higher operating profit, the lower income tax expenses and the net positive fluctuation in financial income and expenses.

Our EPS from continuing operations in 2024 was EUR 0.31 (basic) and EUR 0.31 (diluted) compared to EUR 0.11 (basic) and EUR 0.11 (diluted) in 2023.

Loss/profit from discontinued operations
The loss from discontinued operations in 2024 was EUR 427 million, a change of EUR 457 million, compared to a profit of EUR 30 million in 2023. For more detailed discussion of results of discontinued operations, refer to Discontinued operations section below.

Profit for the year
The profit for the year in 2024 was EUR 1 284 million, an increase of EUR 605 million, compared to a profit of EUR 679 million in 2023. The change in profit for the year was primarily due to the higher profit from continuing operations, somewhat offset by higher losses from discontinued operations.

Our EPS in 2024 was EUR 0.23 (basic) and EUR 0.23 (diluted) compared to EUR 0.12 (basic) and EUR 0.12 (diluted) in 2023.

Order backlog
At 31 December 2024, the order backlog amounted to EUR 20.0 billion compared to EUR 22.0 billion, of which EUR 1.7 billion related to discontinued operations sold in 2024, at 31 December 2023. The slight decline in order backlog year-on-year primarily related to the timing of multi-year orders within Mobile Networks while order backlog increased within Network Infrastructure. Management has estimated that the order backlog will be recognized as revenue as follows:

	2024	2023
Within 1 year	53%	51%
2-3 years	27%	30%
More than 3 years	20%	19%
Total	**100%**	**100%**

Operating and financial review continued

Discontinued operations

For the year ended 31 December 2024 compared to the year ended 31 December 2023

The following table sets forth the results for discontinued operations, and the percentage of net sales for the years indicated. On 27 June 2024, Nokia announced it had entered into a put option agreement to sell its wholly owned subsidiary Alcatel Submarine Networks (ASN) to the French State. As a result, Nokia classified the Submarine Networks business as a discontinued operation and recast the comparative amounts accordingly. The sale was completed on 31 December 2024.

	2024		2023		
	EURm	% of net sales	EURm	% of net sales	Change %
Net sales	**1 059**	**100.0%**	**1 120**	**100.0%**	**(5)%**
Expenses	(989)	(93.4)%	(1 090)	(97.3)%	(9)%
Operating profit	**70**	**6.6%**	**30**	**2.7%**	**133%**
Financial income and expenses	(7)	(0.7)%	5	0.4%	(240)%
Impairment loss recognized on the remeasurement to fair value less costs to sell	(514)	(48.5)%	—	0.0%	0%
Gain on sale	29	2.7%	—	0.0%	0%
(Loss)/profit from discontinued operations before tax	**(422)**	**(39.8)%**	**35**	**3.1%**	**(1 306)%**
Income tax expense	(5)	(0.5)%	(5)	(0.4)%	0%
(Loss)/profit from discontinued operations(1)	**(427)**	**(40.3)%**	**30**	**2.7%**	**(1 523)%**

(1) Loss/profit from discontinued operations is attributable to the equity holders of the parent in its entirety.

Net sales

Discontinued operations net sales in 2024 were EUR 1059 million, a decrease of EUR 61 million, or 5%, compared to EUR 1 120 million in 2023.

Operating profit

Discontinued operations operating profit in 2024 was EUR 70 million, an increase of EUR 40 million, compared to an operating profit of EUR 30 million in 2023. The improved operating profit mainly reflected lower overall expenses in 2024 compared to 2023, particularly within cost of sales.

Loss/profit before tax

Discontinued operations loss before tax in 2024 was EUR 422 million, a decrease of EUR 457 million, compared to a profit before tax of EUR 35 million in 2023. This mainly reflected an impairment loss booked in 2024 related to the difference between the carrying amount of the Submarine Networks business and the expected proceeds from the sale of the business. This was somewhat offset by the gain related to the sale of the business.

Loss/profit

Discontinued operations loss in 2024 was EUR 427 million, a change of EUR 457 million compared to a profit of EUR 30 million in 2023. EPS from discontinued operations in 2024 was negative EUR 0.08 (basic) and negative EUR 0.08 (diluted) compared to EUR 0.01 (basic) and EUR 0.01 (diluted) in 2023.

Operating and financial review continued

Results of segments

In 2024, we had four operating and reportable segments for financial reporting purposes: (1) Network Infrastructure, (2) Mobile Networks, (3) Cloud and Network Services and (4) Nokia Technologies. We also present segment-level information for Group Common and Other. The amounts presented in this "Results of segments" section for each reportable segment and Group Common and Other represent the amounts reported to the management for the purpose of assessing performance and making decisions about resource allocation. Certain costs and revenue adjustments are not allocated to the segments for this purpose. For more information on our operational and reporting structure as well as the reconciliation of reportable segment measures to those of the Nokia Group, refer to Note 2.2. Segment information, in the consolidated financial statements.

Network Infrastructure

For the year ended 31 December 2024 compared to the year ended 31 December 2023

The following table sets forth the segment operating results and the percentage of net sales for the years indicated.

	2024		2023		
	EURm	% of net sales	EURm	% of net sales	Change %
Net sales[(1)]	**6 518**	**100.0%**	**6 917**	**100.0%**	**(6)%**
Cost of sales	(3 781)	(58.0)%	(4 007)	(57.9)%	(6)%
Gross profit	**2 737**	**42.0%**	**2 910**	**42.1%**	**(6)%**
Research and development expenses	(1 207)	(18.5)%	(1 212)	(17.5)%	0%
Selling, general and administrative expenses	(815)	(12.5)%	(775)	(11.2)%	5%
Other operating income and expenses	46	0.7%	93	1.3%	(51)%
Operating profit	**761**	**11.7%**	**1 016**	**14.7%**	**(25)%**

(1) In 2024, net sales include IP Networks net sales of EUR 2 583 million, Optical Networks net sales of EUR 1 636 million and Fixed Networks net sales of EUR 2 299 million. In 2023, net sales include IP Networks net sales of EUR 2 606 million, Optical Networks net sales of EUR 1 942 million and Fixed Networks net sales of EUR 2 369 million.

Net sales

Network Infrastructure net sales in 2024 were EUR 6 518 million, a decrease of EUR 399 million, or 6%, compared to EUR 6 917 million in 2023. The decrease reflected declines across all businesses but did show signs of improving market demand through the year.

IP Networks net sales were EUR 2 583 million in 2024, a decrease of EUR 23 million, or 1%, compared to EUR 2 606 million in 2023. Net sales in IP Networks decreased in 2024, as growth in the Americas region, particularly in North America, was more than offset by declines elsewhere. IP Networks also saw continued growth with both webscale and enterprise customers.

Optical Networks net sales were EUR 1 636 million in 2024, a decrease of EUR 306 million, or 16%, compared to EUR 1 942 million in 2023. Net sales declined as as the pace of the optical market recovery continues to be slower than the rest of the Network Infrastructure markets. From a regional perspective, net sales declined across regions, with particular weakness in Europe in the EMEA region and India within the APAC region.

Fixed Networks net sales were EUR 2 299 million in 2024, a decrease of EUR 70 million, or 3%, compared to EUR 2 369 million in 2023. The decline in Fixed Networks net sales reflected declines in the EMEA region, particularly in Europe while North America, within the Americas region declined slightly as customer spending improved through the year. This was somewhat offset by growth in India, with the APAC region, as fixed wireless access deployments ramped.

The following table sets forth distribution of net sales by region for the years indicated.

EURm	2024	2023	Change %
Americas	2 726	2 813	(3)%
APAC	1 426	1 580	(10)%
EMEA	2 366	2 524	(6)%
Total	**6 518**	**6 917**	**(6)%**

Gross profit

Network Infrastructure gross profit in 2024 was EUR 2 737 million, a decrease of EUR 173 million, or 6%, compared to EUR 2 910 million in 2023. Network Infrastructure gross margin in 2024 was 42.0%, compared to 42.1% in 2023. Network Infrastructure gross profit declined while gross margin was stable, largely reflecting favorable mix shift despite the decline in net sales.

Operating expenses

Network Infrastructure research and development expenses were EUR 1 207 million in 2024, a decrease of EUR 5 million, or flat compared to EUR 1 212 million in 2023. The slight decrease in research and development expenses largely reflected the impact of foreign exchange rate fluctuations.

Network Infrastructure selling, general and administrative expenses were EUR 815 million in 2024, an increase of EUR 40 million, or 5%, compared to EUR 775 million in 2023. The increase in Network Infrastructure selling, general and administrative expenses largely reflected increased expenses and higher variable pay accruals, somewhat offset by the impact of foreign exchange rate fluctuations.

Network Infrastructure other operating income and expenses was an income of EUR 46 million in 2024, a change of EUR 47 million compared to an income of EUR 93 million in 2023. The change in other operating income and expenses was mainly due to the lower proceeds from the sale of digital assets and a negative fluctuation related to foreign exchange hedging.

Operating profit

Network Infrastructure operating profit was EUR 761 million in 2024, a decrease of EUR 255 million, or 25%, compared to EUR 1 016 million in 2023. Network Infrastructure operating margin in 2024 was 11.7%, compared to 14.7% in 2023.

Operating and financial review continued

Mobile Networks

For the year ended 31 December 2024 compared to the year ended 31 December 2023
The following table sets forth the segment operating results and the percentage of net sales for the years indicated.

	2024		2023		
	EURm	% of net sales	EURm	% of net sales	Change %
Net sales	**7 725**	**100.0%**	**9 797**	**100.0%**	**(21)%**
Cost of sales	(4 584)	(59.3)%	(6 364)	(65.0)%	(28)%
Gross profit	**3 141**	**40.7%**	**3 433**	**35.0%**	**(9)%**
Research and development expenses	(2 154)	(27.9)%	(2 010)	(20.5)%	7%
Selling, general and administrative expenses	(727)	(9.4)%	(822)	(8.4)%	(12)%
Other operating income and expenses	149	1.9%	122	1.2%	22%
Operating profit	**409**	**5.3%**	**723**	**7.4%**	**(43)%**

Net sales

Mobile Networks net sales in 2024 were EUR 7 725 million, a decrease of EUR 2 072 million, or 21%, compared to EUR 9 797 million in 2023. The decline in Mobile Networks net sales in 2024 was mainly driven by weakness in India, within the APAC region, as the pace of 5G deployments moderated in India after significant investments in 2023. Net sales in the America's region also declined primarily due to North America, where demand remained weak due to current low levels of deployment activity along with lower market share at one North American customer. In the second quarter, Nokia resolved its outstanding negotiation with AT&T, who decided to proceed with an alternative RAN vendor for commercial reasons. Part of this resolution led to a benefit of EUR 150 million of accelerated revenue recognition.

The following table sets forth distribution of net sales by region for the years indicated.

EURm	2024	2023	Change %
Americas	2 365	2 618	(10)%
APAC	2 461	4 184	(41)%
EMEA	2 899	2 995	(3)%
Total	**7 725**	**9 797**	**(21)%**

Gross profit

Mobile Networks gross profit in 2024 was EUR 3 141 million, a decrease of EUR 292 million, or 9%, compared to EUR 3 433 million in 2023. Mobile Networks gross margin in 2024 was 40.7%, compared to 35.0% in 2023. The decrease in Mobile Networks gross profit was mainly driven by lower net sales and higher variable pay accruals. The increase in gross margin largely reflected favorable regional mix and the accelerated recognition of net sales related to a customer resolution.

Operating expenses

Mobile Networks research and development expenses were EUR 2 154 million in 2024, an increase of EUR 144 million, or 7% compared to EUR 2 010 million in 2023. The higher research and development expenses mainly reflected underlying cost reductions which were offset by higher variable pay accruals.

Mobile Networks selling, general and administrative expenses were EUR 727 million in 2024, a decrease of EUR 95 million, or 12%, compared to EUR 822 million in 2023. The decrease in Mobile Networks selling, general and administrative expenses mainly reflected underlying cost reductions which were partially offset by higher variable pay accruals.

Mobile Networks other operating income and expenses was an income of EUR 149 million in 2024, a change of EUR 27 million compared to an income of EUR 122 million in 2023. The change in other operating income and expenses was primarily due to the net positive fluctuation in the amount of loss allowances on trade receivables somewhat offset by lower proceeds from the sale of digital assets and a negative fluctuation related to foreign exchange hedging.

Operating profit

Mobile Networks operating profit was EUR 409 million in 2024, a decrease of EUR 314 million, compared to EUR 723 million in 2023. Mobile Networks operating margin was 5.3% in 2024 compared to 7.4% in 2023.

Operating and financial review continued

Cloud and Network Services

For the year ended 31 December 2024 compared to the year ended 31 December 2023
The following table sets forth the segment operating results and the percentage of net sales for the years indicated.

	2024		2023		
	EURm	% of net sales	EURm	% of net sales	Change %
Net sales	**3 022**	**100.0%**	**3 220**	**100.0%**	**(6)%**
Cost of sales	(1 787)	(59.1)%	(1 944)	(60.4)%	(8)%
Gross profit	**1 235**	**40.9%**	**1 276**	**39.6%**	**(3)%**
Research and development expenses	(556)	(18.4)%	(577)	(17.9)%	(4)%
Selling, general and administrative expenses	(474)	(15.7)%	(494)	(15.3)%	(4)%
Other operating income and expenses	44	1.5%	50	1.6%	(12)%
Operating profit	**249**	**8.2%**	**255**	**7.9%**	**(2)%**

Net sales
Cloud and Network Services net sales in 2024 were EUR 3 022 million, a decrease of EUR 198 million, or 6%, compared to EUR 3 220 million in 2023. In addition to the slight negative impact from foreign exchange fluctuations, net sales in Cloud and Network Services reflected the impact of the disposal of the Device Management and Service Management Platform businesses during 2024, as well as declines in Cloud and Cognitive Services and Core Networks. This was slightly offset by growth in Enterprise Campus Edge. Net sales declined less than 1% due to foreign exchange rate fluctuations in 2024.

The following table sets forth distribution of net sales by region for the years indicated.

EURm	2024	2023	Change %
Americas	1 184	1 306	(9)%
APAC	649	649	0%
EMEA	1 189	1 265	(6)%
Total	**3 022**	**3 220**	**(6)%**

Gross profit
Cloud and Network Services gross profit in 2024 was EUR 1 235 million, a decrease of EUR 41 million, or 3%, compared to EUR 1 276 million in 2023. Cloud and Network Services gross margin in 2024 was 40.9%, compared to 39.6% in 2023. Gross profit declined mainly as a result of lower net sales, while gross margin improved reflecting improvements in the cost of delivery and favorable business and regional mix.

Operating expenses
Cloud and Network Services research and development expenses were EUR 556 million in 2024, a decrease of EUR 21 million or 4%, compared to EUR 577 million in 2023. The decrease in research and development expenses largely reflected continued discipline on cost control and the impact of the previously mentioned disposal, somewhat offset by higher variable pay accruals.

Cloud and Network Services selling, general and administrative expenses were EUR 474 million in 2024, a decrease of EUR 20 million, or 4%, compared to EUR 494 million in 2023. The decrease in Cloud and Network Services selling, general and administrative expenses largely reflected continued discipline on cost control, somewhat offset by higher variable pay accruals.

Cloud and Network Services other operating income and expenses was an income of EUR 44 million in 2024, a change of EUR 6 million compared to an income of EUR 50 million in 2023.

Operating profit
Cloud and Network Services operating profit was EUR 249 million in 2024, a decrease of EUR 6 million, compared to EUR 255 million in 2023. Cloud and Network Services operating margin in 2024 was 8.2% compared to 7.9% in 2023.

Operating and financial review continued

Nokia Technologies

For the year ended 31 December 2024 compared to the year ended 31 December 2023

The following table sets forth the segment operating results and the percentage of net sales for the years indicated.

	2024		2023		
	EURm	% of net sales	EURm	% of net sales	Change %
Net sales	**1 928**	**100.0%**	**1 085**	**100.0%**	**78%**
Cost of sales	(2)	(0.1)%	—	0.0%	0%
Gross profit	**1 926**	**99.9%**	**1 085**	**100.0%**	**78%**
Research and development expenses	(250)	(13.0)%	(224)	(20.6)%	12%
Selling, general and administrative expenses	(163)	(8.5)%	(140)	(12.9)%	16%
Other operating income and expenses	1	0.1%	13	1.2%	(92)%
Operating profit	**1 514**	**78.5%**	**734**	**67.6%**	**106%**

Net sales

Nokia Technologies net sales in 2024 were EUR 1 928 million, an increase of EUR 843 million, or 78%, compared to EUR 1 085 million in 2023. The strong growth in Nokia Technologies net sales was primarily due to the signing of smartphone license agreements with OPPO, vivo and other licensees. Some of these agreements led to the recognition of catch-up net sales through the course of the year. Nokia Technologies also continued to make good progress in expanding to new areas such as automotive, consumer electronics, IoT and multimedia.

Gross profit

Nokia Technologies gross profit in 2024 was EUR 1 926 million, an increase of EUR 841 million, or 78%, compared to EUR 1 085 million in 2023. The higher gross profit in Nokia Technologies was due to higher net sales.

Operating expenses

Nokia Technologies research and development expenses in 2024 were EUR 250 million, an increase of EUR 26 million, or 12%, compared to EUR 224 million in 2023. The increase in Nokia Technologies research and development expenses was primarily due to higher investments to drive the creation of intellectual property and higher variable pay accruals.

Nokia Technologies selling, general and administrative expenses in 2024 were EUR 163 million, an increase of EUR 23 million, or 16%, compared to EUR 140 million in 2023. The increase in Nokia Technologies selling, general and administrative expenses was primarily due to a combination of higher investments to drive the creation of intellectual property, licensing-related costs and variable pay accruals.

Nokia Technologies other operating income and expenses in 2024 was an income of EUR 1 million, a change of EUR 12 million compared to an income of EUR 13 million in 2023. The change in other operating income and expenses was primarily related to the reversal of loss allowances of certain trade receivables which benefited 2023 and was not repeated in 2024.

Operating profit

Nokia Technologies operating profit in 2024 was EUR 1 514 million, an increase of EUR 780 million, or 106%, compared to an operating profit of EUR 734 million in 2023. The increase in Nokia Technologies operating profit was primarily related to higher net sales, partially offset by higher operating expenses. Nokia Technologies operating margin in 2024 was 78.5% compared to 67.6% in 2023.

Operating and financial review continued

Group Common and Other

For the year ended 31 December 2024 compared to the year ended 31 December 2023

The following table sets forth the operating results for Group Common and Other, and the percentage of net sales for the years indicated.

	2024		2023		
	EURm	% of net sales	EURm	% of net sales	Change %
Net sales	**34**	**100.0%**	**130**	**100.0%**	**(74)%**
Cost of sales	(29)	(85.3)%	(136)	(104.6)%	(79)%
Gross profit	**5**	**14.7%**	**(6)**	**(4.6)%**	**(183)%**
Research and development expenses	(131)	(385.3)%	(120)	(92.3)%	9%
Selling, general and administrative expenses	(244)	(717.6)%	(217)	(166.9)%	12%
Other operating income and expenses	56	164.7%	(48)	(36.9)%	(217)%
Operating loss	**(314)**	**(923.5)%**	**(391)**	**(300.8)%**	**(20)%**

Net sales

Group Common and Other net sales in 2024 were EUR 34 million, a decrease of EUR 96 million, or 74%, compared to EUR 130 million in 2023. The decrease in Group Common and Other net sales was related to reduced net sales from Radio Frequency Systems, mainly driven by the divested business carved out during 2023.

Gross profit

Group Common and Other gross profit in 2024 was positive EUR 5 million, compared to negative EUR 6 million in 2023. Group Common and Other gross margin in 2024 was 14.7% compared to negative 4.6% in 2023.

Operating expenses

Group Common and Other research and development expenses in 2024 were EUR 131 million, an increase of EUR 11 million, or 9%, compared to EUR 120 million in 2023.

Group Common and Other selling, general and administrative expenses in 2024 were EUR 244 million, an increase of EUR 27 million, or 12%, compared to EUR 217 million in 2023. In 2024, variable pay accruals within Group Common and Other selling, general and administrative expenses were higher, compared to 2023.

Group Common and Other other operating income and expense in 2024 was an income of EUR 56 million, a net positive fluctuation of EUR 104 million compared to an expense of EUR 48 million in 2023. The net positive fluctuation in 2024 was primarily related to Nokia's venture fund investments, which generated a benefit of approximately EUR 30 million in 2024, compared to a loss of approximately EUR 70 million in 2023.

Operating loss

Group Common and Other operating loss in 2024 was EUR 314 million, an improvement of EUR 77 million, compared to an operating loss of EUR 391 million in 2023. The improvement in Group Common and Other operating loss was primarily attributable to the net positive fluctuation in other operating income and expenses driven by Nokia's venture fund investments.

Liquidity and capital resources

Financial position

Cash and cash equivalents

At 31 December 2024, our cash and cash equivalents equaled EUR 6 623 million, an increase of EUR 389 million compared to EUR 6 234 million as of 31 December 2023. The increase was primarily attributable to net cash inflow from operating activities of EUR 2 493 million, proceeds from disposal of shares in associated companies of EUR 259 million, net cash inflow related to interest-bearing financial investments of EUR 214 million and proceeds from sale of property, plant and equipment and intangible assets of EUR 97 million, offset by dividends of EUR 723 million, share repurchases of EUR 680 million, capital expenditure of EUR 472 million, net cash outflow related to long-term borrowings of EUR 361 million, payment of principal portion of lease liabilities of EUR 233 million and net cash outflow related to other financial assets of EUR 210 million.

Total cash and interest-bearing financial investments(1)

At 31 December 2024, our total cash and interest-bearing financial investments(1) equaled EUR 8 741 million, an increase of EUR 227 million, compared to EUR 8 514 million as of 31 December 2023. The increase was primarily attributable to net cash inflow from operating activities of EUR 2 493 million, offset by dividends of EUR 723 million, share repurchases of EUR 680 million, capital expenditure of EUR 472 million and net cash outflow related to long-term borrowings of EUR 361 million.

Net cash and interest-bearing financial investments(1)

At 31 December 2024, our net cash and interest-bearing financial investments(1) equaled EUR 4 854 million, an increase of EUR 531 million, compared to EUR 4 323 million as of 31 December 2023. The increase was mainly attributable to net cash inflow from operating activities of EUR 2 493 million and proceeds from disposal of shares in associated companies of EUR 259 million, offset by dividends of EUR 723 million, share repurchases of EUR 680 million, capital expenditure of EUR 472 million and payment of the principal portion of the lease liabilities of EUR 233 million.

(1) Non-IFRS measures. For the definition and reconciliation of non-IFRS measures to the most directly comparable IFRS measures, refer to the “Alternative performance measures” section.

Cash flow

Operating activities

The cash inflow from operating activities in 2024 was EUR 2 493 million, an increase of EUR 1 176 million compared to a cash inflow of EUR 1 317 million in 2023. The increase was primarily attributed to an increase of EUR 203 million in net profit, adjusted for non-cash items, which equaled EUR 3 441 million compared to EUR 3 238 million in 2023, and a decrease in cash tied-up to net working capital of EUR 569 million in 2024 compared to EUR 1 282 million cash tied-up in 2023. The primary drivers for the decrease in cash tied-up to net working capital were related to a decrease in liabilities of EUR 609 million compared to a decrease of EUR 2 029 million in 2023 and an increase in receivables of EUR 364 million compared to a decrease in receivables of EUR 304 million in 2023. This was partly offset by a decrease in inventories of EUR 404 million compared to a decrease of EUR 443 million in 2023. The increase in receivables during 2024 was primarily driven by account receivables. The decrease in liabilities during 2024 was primarily due to restructuring and associated cash outflows, a decrease in trade payables and contract liabilities, partially offset by an increase in liabilities related to variable pay.

In 2024, the cash inflow from operating activities included paid taxes of EUR 342 million, a decrease of EUR 234 million compared to EUR 576 million in 2023, interest received of EUR 226 million compared to EUR 178 million in 2023 and interest paid of EUR 263 million compared to EUR 241 million in 2023.

Investing activities

The cash outflow from investing activities was EUR 117 million in 2024, compared to a EUR 1 043 million cash inflow in 2023. Cash outflow from investing activities was primarily driven by cash outflow due to the capital expenditure of EUR 472 million in 2024 compared to EUR 652 million in 2023 and cash outflow from other financial assets of EUR 210 million compared to EUR 49 million in 2023. These were partially offset by cash inflows from disposal of shares in associated companies of EUR 259 million, compared to EUR 8 million in 2023 and net cash inflow of EUR 214 million of interest-bearing financial investments in 2024 compared to net cash inflow of EUR 1 527 million in 2023.

Major items of capital expenditure in 2024 included investments in R&D equipment, test equipment, hardware for telecommunication and cloud environment, repair or improvements of sites, shipyards and vessels.

Financing activities

In 2024, the cash outflow from financing activities was EUR 2 003 million, compared to a EUR 1 502 million cash outflow in 2023. The cash outflow was driven by dividend payments of EUR 723 million, compared to EUR 621 million in 2023, share repurchases of EUR 680 million compared to EUR 300 million in 2023, repayments of long-term borrowings of EUR 462 million compared to EUR 798 million in 2023 and payments of the principal portion of lease liabilities of EUR 233 million, compared to EUR 239 million in 2023. These were partially offset by proceeds from long-term borrowings of EUR 101 million, compared to EUR 496 million in 2023.

Financial assets and debt

At 31 December 2024, our net cash and interest-bearing financial investments[(1)] equaled EUR 4 854 million consisting of EUR 8 741 million in total cash and interest-bearing financial investments[(1)], and EUR 3 887 million of long-term and short-term interest-bearing liabilities.

We hold our total cash and interest-bearing financial investments[(1)] predominantly in euro. Our interest-bearing financial investments mainly include high-quality money market and fixed income instruments with strict maturity limits and diversified counterparty risk limits. We also have a EUR 1 412 million revolving credit facility available for liquidity purposes. The facility has no financial covenants and remains undrawn.

At 31 December 2024, our interest-bearing liabilities consisted of EUR 292 million notes due in 2025, EUR 500 million R&D loan from the European Investment Bank maturing in 2025, EUR 83 million R&D loan from the Nordic Investment Bank with final maturity in 2025, EUR 630 million notes due in 2026, USD 500 million notes due in 2027, EUR 500 million notes due in 2028, USD 74 million notes due in 2028, USD 206 million notes due in 2029, EUR 500 million notes due in 2031, EUR 100 million R&D loan from the Nordic Investment Bank with final maturity in 2032, USD 500 million notes due in 2039, and EUR 105 million of other liabilities. The EUR notes maturing in 2025, 2026, 2028 and 2031 as well as the USD notes maturing in 2027 and 2039, are issued by Nokia Corporation, while the USD notes maturing in 2028 and 2029 are issued by Lucent Technologies Inc., a predecessor to Nokia of America Corporation (Nokia's wholly-owned subsidiary, formerly known as Alcatel-Lucent USA Inc.). The loans from the Nordic Investment Bank and from the European Investment Bank are drawn by Nokia Corporation. For more information on our interest-bearing liabilities, refer to Note 5.2. Financial assets and liabilities, of our consolidated financial statements.

In June 2021, we exercised our option to extend the maturity date of the EUR 1 500 million revolving credit facility. Subsequent to the extension, EUR 1 412 million of the facility has its maturity in June 2026 and EUR 88 million of the facility matured in June 2024.

We consider that with EUR 8 741 million of total cash and interest-bearing financial investments[(1)] and with our undrawn revolving credit facility, we have sufficient funds to satisfy our future working capital needs, capital expenditure, R&D investments, structured finance, venture fund commitments, acquisitions and debt service requirements, at least through 2025. We further consider that with our current credit ratings of BBB- by S&P Global Ratings, Ba1 by Moody's, and BBB- by Fitch, we have access to the capital markets should any funding needs arise in 2025.

We aim to maintain investment grade credit ratings.

Off-balance sheet arrangements

There are no material off-balance sheet arrangements that have, or are reasonably likely to have, a current or future effect on our financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources that are material to investors, except for the purchase obligations and lease commitments, as well as guarantees and financing commitments disclosed in Note 6.1. Commitments, contingencies and legal proceedings, and in Note 5.4. Financial risk management, of our consolidated financial statements.

(1) Non-IFRS measures. For the definition and reconciliation of non-IFRS measures to the most directly comparable IFRS measures, refer to "Alternative performance measures" section.

Venture fund investments and commitments

We make financing commitments to a number of unlisted venture funds that make technology-related investments. The majority of the investments are managed by NGP Capital, a global venture capital firm backing exceptional entrepreneurs driving the convergence of the physical and digital world.

As of 31 December 2024, our venture fund investments equaled EUR 865 million, compared to EUR 784 million as of 31 December 2023. For more information on the fair value of our venture fund investments, refer to Note 5.2. Financial assets and liabilities, of our consolidated financial statements.

As of 31 December 2024, our venture fund commitments equaled EUR 306 million, compared to EUR 381 million as of 31 December 2023. As a limited partner in venture funds, we are committed to capital contributions and entitled to cash distributions according to the respective partnership agreements and underlying fund activities. For more information on venture fund commitments, refer to Note 6.1. Commitments, contingencies and legal proceedings, of our consolidated financial statements.

Treasury Policy

Treasury activities are governed by the Nokia Treasury Policy approved by the President and CEO within the authority granted by the Board of Directors and supplemented by operating procedures approved by the CFO, covering specific areas such as foreign exchange risk, interest rate risk, credit risk and liquidity risk. The objective of treasury's liquidity and capital structure management activities is to ensure that we have sufficient liquidity to go through unfavorable periods without being severely constrained by the availability of funds to execute Nokia's business plans and implement Nokia's long-term business strategy. We are risk-averse in our treasury activities.

Operating and financial review continued

Foreign exchange impact

We are a company with global operations and net sales derived from various countries, invoiced in various currencies. Therefore, our business and results from operations are exposed to changes in exchange rates between the euro, our reporting currency, and other currencies, such as the US dollar. The magnitude of foreign exchange exposures changes over time as a function of our net sales and costs in different markets, as well as the prevalent currencies used for transactions in those markets. Significant changes in exchange rates may also impact our competitive position and related price pressures through their impact on our competitors.

To mitigate the impact of changes in exchange rates on our results, we hedge material net foreign exchange exposures (net sales less costs in a currency) typically with a hedging horizon of approximately 12 months. For the majority of these hedges, hedge accounting is applied to reduce income statement volatility.

In 2024, Group net sales were mostly denominated in US dollars, euros and Chinese yuan and total costs mostly in US dollars, euros, Chinese yuan and Indian rupee.

The average currency mix for Group net sales and total costs:

	2024		2023	
Currency	**Net sales**	**Total costs**	**Net sales**	**Total costs**
EUR	~25%	~30%	~25%	~30%
USD	~55%	~45%	~50%	~45%
CNY	~5%	~5%	~5%	~5%
INR	~0%	~5%	~5%	~5%
Other	~15%	~15%	~15%	~15%
Total	**~100%**	**~100%**	**~100%**	**~100%**

For the full year 2024 compared to the previous year, the US dollar was stronger against the euro. The stronger US dollar in 2024 on a year-on-year basis had a slightly positive impact on our net sales reported in euros. However, the stronger US dollar also contributed to slightly higher costs of sales and had an approximately neutral impact on operating expenses on a year-on-year basis. In total, before hedging, the stronger US dollar on a year-on-year basis had a slightly positive effect on our operating profit in 2024.

For a discussion of the instruments used by us in connection with our hedging activities, refer to Note 5.4. Financial risk management, of our consolidated financial statements. Refer also to the “Risk factors” section.

Business integrity

Business integrity

Management of business conduct

Strong culture of integrity

Nokia is consistently recognized as one of the World's Most Ethical Companies by Ethisphere. Nokia has a strong culture of integrity, which is driven by the Nokia Code of Conduct, the essentials of being open, fearless, and empowered, high ethical standards, effective controls and employee empowerment to raise concerns without fear of retaliation. Nokia's commitment to integrity applies to everyone in the company, regardless of function or level. Nokia expects its employees to follow laws, policies, and processes and to speak up about suspected misconduct. Nokia holds employees accountable for unethical behavior.

The Code of Conduct also has a section that outlines leader and manager expectations for cultivating Nokia's culture of integrity within their respective organizations. Many resources are available to educate managers about these responsibilities and to facilitate manager discussions with team members about compliance risks. Nokia measures the level of manager engagement via an annual survey.

Nokia's corporate culture of integrity is supported by its comprehensive compliance training program, including its annual mandatory "Ethical Business Training" course. The topics within the mandatory training program are rotated every year to raise awareness on high-risk areas, emerging risks, and hot topics.

Nokia helps to ensure that employees do not engage in unlawful or unethical behavior, and mitigates risks related to anti-corruption, competition, bribery, fraud, money laundering, privacy and data protection, human rights and other high-risk areas by providing training and awareness materials and clarifying Nokia's expectation that employees follow the applicable laws, policies and processes. Employees who engage in unlawful or unethical behavior are disciplined, up to and including termination of employment.

Compliance Program governance

Nokia's strong culture of integrity is supported by its Ethics and Regulatory Compliance team, comprised of approximately 50 experienced compliance professionals, which is led by the Chief Compliance Officer, who reports to the Chief Legal Officer. The Ethics and Regulatory Compliance team members hold an average of 18 years of compliance experience, with its members located in 19 countries and speaking a total of 21 languages. The Ethics and Regulatory Compliance team has functional experience in many areas, including law, compliance, business, accounting, finance, audits, privacy, regulation. The team includes several distinct functions, including regional and business-specific compliance leaders, a risk assessment function and a global team of dedicated investigators (independent from Nokia's business units to ensure utmost objectivity, discreteness and confidentiality). This organization is responsible for compliance concerns that are reported to Nokia. The organization also includes an Anti-Corruption Center of Excellence. The Anti-Corruption Center of Excellence is responsible for conducting due diligence of commercial third parties, customers, and high risk suppliers and oversees the due diligence of high-risk transactions. It is also responsible for Nokia's global Anti-Corruption Program, which includes policies and processes, controls, and training.

The Chief Compliance Officer has direct access to the Audit Committee of the Board, which provides oversight of Nokia's Compliance Program. The Chief Compliance Officer meets at least quarterly with the Audit Committee and as needed based on specific matters. The Chief Compliance Officer also meets at least annually with the full Board.

Fair competition and compliance with competition rules are an integral part of Nokia's way of doing business regardless of geography. Responsibility for compliance with competition laws rests with all Nokia employees, who are expected to know how competition laws may impact their work. Nokia's Fair Competition Policy covers competitive coordination and exchange of information, competition-restrictive agreements with customers or suppliers, abuse of dominance, and reporting channels. An intranet page dedicated to fair competition provides practical guidance, dos and don'ts on a series of topics through practical scenarios (e.g. industry initiatives, bidding consortiums, multiple bidding, information sharing, cooperation agreements, no-poach, denigration, exclusivity and resale price maintenance), links to related training videos, and an Ethics Helpline link for concern reporting.

There are various training opportunities available for employees; for example, training when attending trade conferences and industry events; targeted training for sales teams; and live training sessions with relevant audiences.

Nokia's strong culture of integrity helps it avoid unlawful behavior and unethical acts by its employees or by third parties with which Nokia does business. With respect to anti-corruption and bribery, the key risk is that a rogue employee or a third party with which Nokia does business (primarily high-risk suppliers or commercial third parties) engages in behavior that violates Nokia's anti-corruption policies and/or applicable laws or fails to comply with or circumvents one of Nokia's anti-corruption processes or control points. Potential violations of anti-corruption laws may result in investigations; and if a violation is substantiated, the results may include reputational damage, fines and forfeiture awards, and potential criminal action against individuals involved as well as against those who should have been aware that a violation was occurring. Nokia strives to stay abreast of geopolitical changes, business models and strategies that may increase the risk of corruption, such as planned expansion in a high-risk market or segment. As these are identified, the Compliance organization works closely with the business to develop risk mitigants proactively to minimize residual risk. These efforts may include targeted and focused training, the implementation of additional control points and processes, and increased review and monitoring.

Anti-corruption and bribery risks can exist in many aspects of our operations, including certain go-to-market sales models and in project delivery and execution. To effectively mitigate these risks, the Compliance organization has compliance professionals who partner closely with various parts of our business. Through this collaboration, the Compliance organization is able to proactively manage these changing risks by continually evolving the Anti-Corruption Compliance Framework and Program. Business activity presents risk with respect to the possibility of third parties engaging in violations of anti-corruption laws. The third parties with the highest risk include certain high-risk suppliers (those dealing in customs, site acquisition work, or other engagements with governmental agencies) and commercial third parties (distributors, resellers and indirect resellers). To mitigate this risk, Nokia provides training to those third parties with the highest risk and requires annual compliance acknowledgments as well as acknowledgment of Nokia's Third-Party Code of Conduct.

These actions, as well as clear contractual provisions including compliance with laws, are designed to ensure that Nokia's third parties understand its expectations for compliant behavior. In addition, suppliers and commercial third parties must successfully complete a risk-based due diligence vetting process. This vetting process often results in approval with risk mitigants, such as periodic review of transactions, additional contractual terms, or monitoring. Commercial third parties receive quarterly newsletters that include compliance sections to remind them of Nokia's expectations for compliant behavior.

Business conduct policies and corporate culture

Nokia's clear and readily accessible policies and standard operating procedures (SOPs) guide our employees on how to behave and mitigate the risk of unlawful or unethical behavior. These policies and SOPs are included in the 'General information' section.

Employees and third parties that fail to behave ethically and lawfully are held accountable. A dedicated intranet page provides an overview of company level policies and SOPs. The available policies are aligned with all business groups and corporate functions and are disseminated to employees in several ways, including:

- Training programs, both online and live; online training typically includes quiz questions to test comprehension;
- The central repository on the company intranet, accessible by employees;
- Quarterly communications from the Chief Compliance Officer as well as compliance communications for specific regions and business groups; and
- The Ethics and Regulatory Compliance intranet site and relevant policies provide examples of conduct and address the importance of compliance both for Nokia and the individual employee.

Nokia's policy framework begins with the Nokia Code of Conduct, which includes the Company's basic principles of business conduct and high-level policy statements related to critical business topics. Policy documents further define, support and explain specific areas of focus. SOPs are created, where needed, to instruct employees on specific procedures to implement the policies. Finally, supplemental guidelines (e.g., country-specific guidance) or other training materials may be created for specific implementation of certain procedures. Respective policy/subject matter experts are responsible for ensuring that Nokia's policies and procedures remain up to date and in accordance with applicable laws and regulations in all countries where Nokia operates. The full set of supporting policies and related procedures for the Code of Conduct's risk areas are available online to Nokia's employees.

Nokia's Code of Conduct is available in a web-based format in 20 languages. It enforces Nokia's values and expectations, outlines Nokia's 14 key compliance policy statements and unites all Nokia employees around a common vision. The Code serves as a guiding framework that provides clarity and consistency in decision making and defines the principles of ethical and compliant business practices that all employees and managers are expected to follow. Everyone in the company is required to review and acknowledge the Code annually as part of mandatory compliance training.

A separate Code of Ethics is in place for Nokia's President and CEO, Nokia's Chief Financial Officer, and Nokia's Corporate Controller. The purpose of the Code of Ethics is to reinforce ethical behavior, promote high standards of corporate governance, and highlight the additional responsibilities of these functions. It complements Nokia's Code of Conduct and Insider Trading Policy as well as other applicable company guidelines.

Nokia's Third-Party Code of Conduct requires Nokia's third-party business partners to follow similar ethical practices to those included in Nokia's Code of Conduct.

Operating and financial review continued

Nokia nurtures, promotes and evaluates its compliance culture using varied mediums. It uses multiple feedback channels, discussions and training courses to drive continuous improvement in Nokia's Compliance Program. Nokia gauges employee attitudes, perceptions, and experiences regarding the compliance culture using survey results and other collected inputs. These results are shared with relevant business/regional teams, managed through mitigation plans, and integrated into the annual risk assessment and communications process for ongoing management of Nokia's ethical culture.

Beyond a company-wide survey, Nokia also uses other means to gauge the effectiveness of our Compliance Program, including short pulse surveys on specific topics for more frequent feedback on the overall climate in the company as it relates to Nokia's essentials of open, fearless, and empowered. As an example, Nokia's 2024 mandatory Ethical Business Training course integrated anonymous questions related to fear of retaliation, usage of Nokia's Code of Conduct, reporting concerns, specific policies and line manager engagement. The 2024 survey showed that 83% of employees report to a line manager who discusses ethics and compliance with their team.

Below are some of the resources, platforms and methods that Nokia uses to regularly reinforce its culture of doing business with integrity:

- Nokia Code of Conduct;
- Line manager internal posts and news articles;
- Social media posts from subject matter topical experts, Nokia's Chief Compliance Officer and other senior leaders;
- Internal news articles with topic-related links and resources;
- Awareness campaigns and resources (i.e. speaking up and anti-retaliation);
- Ombuds program, dedicated resources, and campaigns;
- Dedicated web pages for Compliance Program elements with related resource documents and contacts;
- Quarterly newsletter;
- Animations, videos, posters, brochures; and
- Annual Integrity Day event: senior leader/GLT participation and web event, local events around the world, global-level and local messaging, compliance awards, compliance games.

Reporting channels and investigations process

Nokia offers multiple channels to report compliance concerns, including reaching out to the Legal, Compliance & Sustainability team; Ombuds leaders; the People organization; a dedicated email address; and an Ethics Helpline, which is compliant with the EU Whistleblower Directive, that offers multiple options to report concerns, including an online portal and country-specific options. Nokia has internal and external web pages dedicated to concern reporting and whistleblowing resources. The internal reporting web page explains the reporting process and provides links and information about all the available reporting options. The Ethics Helpline allows for anonymous reporting and is open to employees and external stakeholders. Nokia aims to respond to and investigate all concerns promptly and establish remediation plans as needed.

In addition to the Nokia Ethics Helpline and/or consulting with the Legal, Compliance & Sustainability team, the People organization, or line mangers, Nokia's Ombuds network is a critical element of Nokia's Compliance Program. Ombuds leaders sit outside of the Legal, Compliance & Sustainability team, and People organization and serve as confidential, neutral, supplemental resources for employees to raise compliance questions, concerns and requests for guidance. They expand the reach of Nokia's Compliance Program and provide another means to report suspected policy and law violations as well as assist in preventing, detecting, and addressing wrongdoing. Local Ombuds actively promote the program ensuring that employees are aware of the multiple channels available for reporting concerns and encouraging employees to voice their concerns without fear of retaliation. At the end of 2024, Nokia had 217 Ombuds leaders around the world, and 80% of Nokia's employees worked in locations with an on-site Ombuds leader. It is important to note that the full Ombuds network is available to support all employees globally and is not restricted to employees within their respective location and/or organization.

The Ethics and Regulatory Compliance Investigations Group is primarily responsible for managing the intake of all compliance concerns in the company across multiple channels, as well as case assignment, investigation, closure, and follow-up with respect to remediation and discipline. Nokia's team of dedicated investigators, which sits centrally within the Ethics and Regulatory Compliance function, is not attached to any particular business group or function and reports into Legal Compliance and Sustainability leadership. The investigator of any matter is fully independent of the chain of management of the alleged subject and the individual raising the concern.

In 2024, Nokia's Investigations Group received a total of 923 concerns, of which 384 were integrity concerns and investigated by the Investigations Group as suspected violations of Nokia's Code of Conduct. In 2024, the Investigations Group closed 397 investigations into alleged violations of Nokia's Code of Conduct, of which 165 were substantiated with cause found after investigation. Nokia implemented corrective actions including 12 dismissals and 30 written warnings. Beyond individual discipline, detailed root cause analysis was conducted for substantiated cases, and unsubstantiated cases as appropriate, to identify, implement and monitor remedial measures and improvements.

Nokia integrates its investigation process into its corporate culture by regularly communicating major findings and trends in a transparent fashion and raising awareness about the reporting process and the importance of speaking up. Regular read-outs about investigation statistics, key findings, and trends are provided to several internal groups, including regional/business group compliance leaders, who include investigations findings in the reporting for their respective jurisdictions and share this information with business leadership several times per year; Ombuds leaders, who share this type of information with employees in local awareness sessions; and senior management as well as the Board of Directors and external auditors. Global trends and anonymized real cases are shared with all employees in Nokia's internal quarterly company-wide Ethics and Regulatory Compliance newsletter ("Integrity Matters"), and annual investigation statistics by category as well as links to anonymized case examples are provided externally. Each quarter, the Chief Compliance Officer updates the Audit Committee regarding significant allegations and outcomes of investigations and once per year reports this information to the Board and the Group Leadership Team.

Protecting against retaliation

Nokia has always positioned itself as a company committed to combating and avoiding all forms of retaliation and maintaining a culture in which its employees and partners feel comfortable raising concerns about suspected violations of Nokia's Code of Conduct and policies, or applicable laws or regulations. Nokia will not tolerate any adverse treatment of an employee or partner (to the extent reasonably within Nokia's control for a non-employee) who raises a concern in good faith or provides evidence in support of such a concern. Any employee who retaliates or participates in retaliating against another employee for raising a compliance concern or for assisting in an investigation will be subject to strict discipline, up to and including termination of employment.

In a clear, widely-disseminated and readily-accessible manner, Nokia provides employees with many avenues to report concerns as well as resource documents and information on external reporting channels. This includes region- and location-specific external reporting options. Annual comprehensive campaigns (consisting of various training initiatives, media and communications) remind and train employees on reporting concerns, available resources, and Nokia's anti-retaliation policy. Managers are provided additional resources, including a checklist, for handling concern reporting. A dedicated internal web page on retaliation provides employees with valuable resource information and guidance, including employee and manager anti-retaliation guides.

Training

The Ethics and Regulatory Compliance organization maintains a three-year strategic approach and roadmap for training. Nokia's Ethical Business Training course is updated every year and required annually for all employees. It was one of the two mandatory, web-based training courses deployed in the mandatory 2024 curriculum, with the other module covering information security. The Ethical Business Training course included a review and acknowledgment of Nokia's Code of Conduct and the related 14 policy areas; a requirement to declare potential conflicts of interest; and short reviews of key topics including privacy, conflicts of interest, financial controls, trade compliance, external communications, and ESG. In 2024, 98% (target 95%) of Nokia's employees completed the Ethical Business Training module. New employees are assigned a new-hire training curriculum that includes the current annual mandatory training curriculum.

In 2024, Nokia also provided training (online and in-person) and communications on emerging risks along with important reminders about roles and responsibilities:

1. Just-in-time training videos to provide information at the time most needed, triggered by specific employee requests or actions (e.g., employees who obtain pre-approval to travel to a trade show or conference are required to take a three-minute training module on fair competition).
2. Risk-specific training and communications on privacy, anti-corruption, competition law, site permitting, and Nokia's indirect sales process.
3. Anti-retaliation awareness messaging and resources to heighten awareness of potential retaliatory behaviors and available support channels.
4. Two new animations about the Ombuds program.
5. A new micro-learning to emphasize the importance of bystander reporting.

These resources were supplemented by live training sessions delivered to target audiences on various compliance topics throughout the year.

Operating and financial review continued

Nokia opportunity: Anti-Corruption and Anti-Bribery Program

Nokia has a robust Anti-Corruption Program that focuses on identifying and mitigating compliance risks associated with third parties and multi-layer transactions as well as geopolitical events that may pose a risk under applicable laws, including anti-corruption.

Nokia's Global Anti-Corruption Program

Nokia's Code of Conduct

Covers the following topics:

- Dealing with Government Officials
- Improper Payments
- Working with Third Parties
- Controllership
- Speaking up (our whistleblowing program)

Third party code of conduct

- Includes Nokia's expectation relating to anti-corruption and bribery

Training specific to anti-corruption and bribery

- Included in Nokia's annual mandatory Ethical Business Training required of all employees
- Focused training on anti-corruption and bribery that is assigned to high-risk employee populations, such as training for employees involved in projects requiring site acquisition and customer-facing sales teams.

Policies supporting the anti-corruption program

Various policies are available to all employees on Nokia's intranet site, including the following:

- Anti-Corruption Policy
- Conflict of Interest Policy
- No PO/No Pay Policy
- Travel Policy
- Dealing with Government Officials contained in our Code of Conduct
- Controllership contained in our Code of Conduct
- Working With Third Parties contained in our Code of Conduct
- Improper payments contained in our Code of Conduct
- Corporate Hospitality and Gift SOP
- Global Donations, Other Contributions and Sponsorships SOP
- Third-Party Risk Management SOP
- Prohibition of Facilitation Payments SOP
- Site Acquisition Permitting and Site Access Fees SOP

Nokia also has monitoring processes in place to identify possible process gaps, including: monitoring our customer relationship management and deal opportunity tool to ensure in scope commercial third parties have been screened by Nokia's Anti-Corruption Center of Excellence; monitoring expense reimbursement claims relating to hospitality to third parties to ensure that the gifts, travel and entertainment (GTE) pre-approval process was followed; reviewing spend reports to ensure that any high-risk suppliers have been vetted at the appropriate due diligence level; conducting risk-based due diligence on all third parties to identify any red flags or risk before engaging in business with them, with a three-year re-screening required; and managing any concerns that are raised relating to improper payments through Nokia's whistleblower system, as described in the 'Reporting channels and investigations process' section.

The groups of employees deemed to be highest risk with respect to Nokia's business include: sales and pre-sales employees, who have customer-facing roles and work to bring in sales opportunities; employees working with government officials (including those that seek permits and licenses from government agencies) as interactions with government officials bring higher risks; employees involved in site acquisition and site access permitting when delivering projects as this may involve interaction and/or payment to government officials; employees involved with customs clearance and logistics vendors as this may also involve payment to government officials; employees involved with tax advisors and related services as these involve payments and negotiations with government officials; the Government Affairs team and the Finance team as it has a key controllership role to ensure that our books and records are reflected accurately.

Training specific to anti-corruption and bribery is included in Nokia's annual, mandatory Ethical Business Training course and is required of 100% of Nokia employees: all administrative, management and supervisory bodies. Anti-corruption is highlighted in this course given the potential high-risk exposure and is rolled out not only to all employees but also to Nokia's Board of Directors. Nokia also has a separate standalone course that focuses on corruption risk and speak-up channels.

All suspected breaches in procedures and standards of anti-corruption and anti-bribery are investigated. When an investigation concludes that there has been a violation of Nokia's policies, including Nokia's Anti-Corruption and Anti-Bribery Policy, appropriate disciplinary action is taken. Such actions may include financial loss, termination, demotion or role change, a written warning, and/or mandatory training.

Nokia's Anti-Corruption Center of Excellence has a comprehensive, multifaceted, risk-based approach to help identify and mitigate risks to the Company while empowering Nokia's business teams to sell Nokia products and services in responsible fashion around the globe.

Actions

Actions taken to support Nokia's Compliance Program and culture:

1. Everyone in the Company is required to review and acknowledge the Nokia Code of Conduct annually and disclose any conflicts of interest as part of annual mandatory compliance training. The topics within the mandatory training are rotated every year to spread awareness on high-risk areas, emerging risks, and hot topics. Anti-corruption is highlighted in this course because it is a high-risk area, and Nokia also has a separate standalone course that focuses on corruption risk and speak-up channels. In addition to annual mandatory training, Nokia supplements training and awareness with numerous live and recorded training sessions delivered to smaller target audiences on various compliance topics throughout the year.
2. Nokia combats and avoids all forms of retaliation and is committed to maintaining a culture in which its employees feel comfortable raising concerns about suspected violations of the Code of Conduct, and related company policies or laws and regulations. Nokia will not tolerate any adverse employment action against an employee who raises a compliance concern or assists in an investigation in good faith.
3. Nokia offers multiple channels to report compliance concerns, including approaching the Legal, Compliance & Sustainability team, Ombuds leaders, the People organization, a dedicated email address, and an Ethics Helpline, which is compliant with the EU Whistleblower Directive, that offers multiple options to report concerns, including an online portal and country-specific options. Nokia has internal and external web pages dedicated to concern reporting and whistleblowing resources.
4. Nokia's Anti-Corruption Program focuses on identifying and mitigating compliance risks associated with third parties and multi-layer transactions as well as geopolitical events that may pose a risk under applicable laws, including anti-corruption. The Anti-Corruption Program includes various elements, such as training, monitoring, policies, and processes.
5. All suspected breaches in procedures and standards of anti-corruption and anti-bribery are investigated. When an investigation concludes that there has been a violation of Nokia's policies, including Nokia's Anti-Corruption and Anti-Bribery Policy, appropriate disciplinary action is taken. Such actions may include financial loss, termination, demotion or role change, written warnings, and/or mandatory training.
6. The Chief Compliance Officer presents separately and independently on the status and effectiveness of Nokia's Compliance Program to the full Board of Directors at least once per year, to the Audit Committee at least four times per year and to the Group Leadership Team at least once per year and as needed.
7. Nokia gauges employee attitudes, perceptions, and experiences regarding the compliance culture using survey results and other collected inputs. These results are shared with relevant stakeholders and managed through mitigation plans with an eye toward continuous improvement.

Targets and progress

Nokia establishes targets as one of the vehicles to drive and measure a robust Compliance Program. Nokia holds its leaders accountable for driving a strong culture of compliance within their organizations by promoting a strong culture of compliance, leading by example, and meeting (with the goal to exceed) established compliance targets.

Status of 2024 targets:

Ethical Business Training course

Target: Ethical Business Training course completed by

95%

of employees by 31 December 2024

Progress on target: Ethical Business Training course completed by

98%

of employees as of 31 December 2024.

Training specific to anti-corruption and bribery is included in the Ethical Business Training course.

Line manager engagement

Target: maintain

85%

favorability of employee/line manager engagement on ethics and compliance by the year 2030. This target covers Nokia's line managers and their direct reports.

Progress on target:

83%

for the year ended 31 December 2024.

Environment

This section covers how we address our own environmental footprint, including our focus on both climate and circularity. We strive to minimize our footprint across scope 1, 2 and 3 by actively and continually managing that footprint. As the volume of network traffic rises in a more connected, digitalized world, we must work to separate this growth in traffic from any equivalent growth in energy consumption. We also need to constantly strive to reduce GHG emissions across our operations and facilities, and work with our supply chain to help drive greater energy and resource efficiency through the whole chain. We believe our technology will play an ever-more significant role in helping other industries and society decarbonize.

Environmental policies

We have adopted policies to manage climate change, energy and resource use and circular economy related impacts and risks. Nokia tries to prevent environmental pollution along Nokia's value chain as it is outlined in its Environmental policy along with its Code of Conduct.

Nokia's Environmental policy is based on the principles of the ICC Business Charter for Sustainable Development, while environmental management and ongoing environmental performance are governed by the certified ISO 14001 Environmental Management System. This ensures a holistic and structured approach in managing Nokia's material sustainability matters. In 2024, Environmental Management Systems covered 54% of Nokia's sites and 90% of employees (excluding discontinued operations).

Climate

Climate change remains a significant risk to society and the natural environment. It can negatively impact our supply chain and our customers' business, as well as the global economy and political and social stability.

Climate change has been a major topic for Nokia Group for more than a decade and as such we have worked consistently to develop and refine our approach to understanding and tackling the risks and opportunities that climate change presents to our business. Equipped with this knowledge, we have been able to make informed business decisions, set goals and targets, and focus on critical climate actions over the years. Our climate goals include increased energy efficiency in silicon, software and systems, providing the networks and operational skills to scale smart energy solutions. We also intend to accelerate our efforts in energy efficiency in 5G-Advanced and 6G through early engagement in standardization and ecosystem development. Sustainability topics including climate are integral to our Technology Vision and Strategy 2030 and are reflected in how we operate and the business decisions we take. Research in Nokia Bell Labs also contributes toward these goals.

Net-zero pathway and actions related to climate change policies

In 2023, Nokia investigated how to accelerate its net-zero ambition and defined the related transition plan and levers. Following this assessment, Nokia announced that it is committed to reducing its total global greenhouse gas emissions (GHG) to net-zero across the value chain by 2040, accelerating its previous target by ten years, and putting it ahead of the Paris Agreement target of net-zero by 2050.

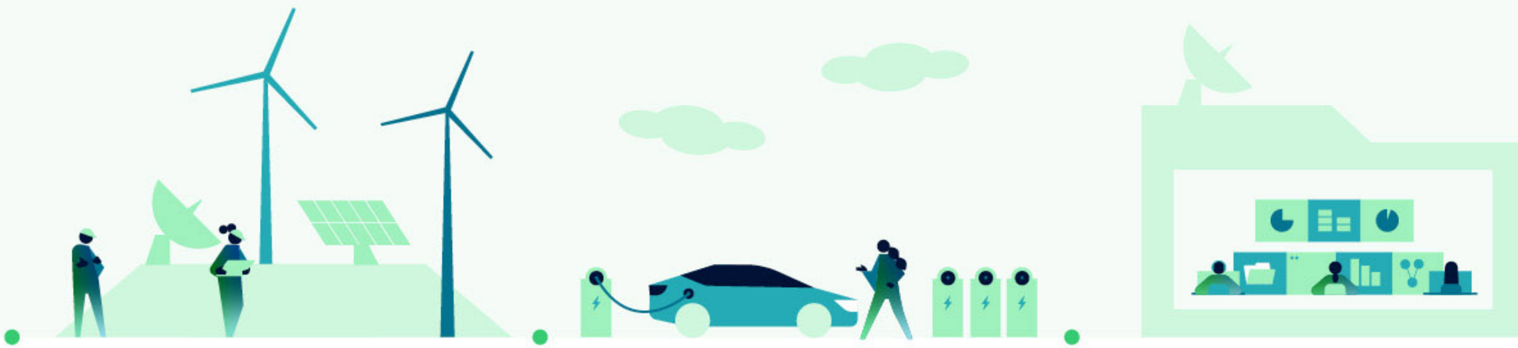
Nokia has defined a net-zero pathway that will help it reduce emissions across its value chain. Nokia's GHG emissions and the estimated decarbonization levers to achieve our 2030 and 2040 targets fall into three main categories. These categories are:

- Own operations including energy use in facilities and by fleet which contribute to scope 1 and 2 emissions;
- Upstream activities including purchased goods and services, capital goods, logistics and business travel which contribute to scope 3 emissions category 1, 2, 4 and 6; and
- Downstream activities including use phase of our products and solutions which contribute to scope 3 emissions category 11.

Additionally, electricity grid decarbonization has significant impact on reduction of our GHG emissions. The net-zero pathway also requires governance, monitoring and reporting actions. The net-zero target was approved by SBTi in January 2025.

Operating and financial review continued

The main decarbonization levers and examples of key actions planned in the net-zero pathway are described and illustrated below. The actions described below reflect our current plans of potential actions to be taken in the future and are, therefore, forward-looking statements.



Decarbonization levers	2025 Targets: RE100 (scope 2 facilities) 80% reduction scope 1-2	2030 Targets: 90% reduction scope 1-2 SBT: 50% reduction scope 1-2-3	2040 Targets: SBT Net-Zero by 2040 (scope 1-2-3)
Own operations: Facilities and fleet (scope 1-2)	100% renewable electricity (RE100)	100% electrification of car fleet	Neutralize residual emissions
Upstream: Embodied (scope 3, cat 1 and 2)	Engage key suppliers to plan and track decarbonization, circular products & services	100% decarbonization for final assembly suppliers, 50% for other key suppliers	Circular and low carbon materials product design
Upstream: Logistics and business air travel (scope 3, cat 4 and 6)	Optimizing transportation modes to minimize emissions	Bio-fuel blend agreements for logistics	Significant reduction in air freight emissions
Downstream: Product use phase (scope 3, cat 11)	Engage with customers to ensure wide uptake of renewables	Development of the product portfolio for energy efficiency gains	Develop decarbonized site energy solutions. Secure investments in long-term research and disruption
Electricity grid (scope 3, cat 1 and 11)	Climate dialogue with stakeholders	Value chain dialogue and customer specific factors. Grid decarbonization leading to GHG emission reductions[(1)]	Grid decarbonization leading to further GHG emission reductions[(2)]
Governance, monitoring and reporting	Continuous reporting process development including further digitalization of the emissions data	Enter carbon market to purchase removals	Neutralize residual emissions

(1) Assumption: Grid decarbonization leading to 48% smaller emission factor compared to base year 2019 based on IEA WEO2023 – Announced Pledges Scenario.
(2) Assumption: Grid decarbonization leading to 82% smaller emission factor compared to base year 2019 based on IEA WEO2023 – Announced Pledges Scenario.

Operating and financial review continued

- Own operations – Facilities and fleet (scope 1 and 2): Nokia aims for complete decarbonization in our facilities and car fleet. Nokia is committed to using 100% renewable electricity in its own facilities by 2025. With our car fleet, we aim to reach the target for our own operations' emissions by continuing to introduce low-emission vehicles and transitioning to 100% electric vehicles by 2030.
- Upstream – Embodied (scope 3, categories 1 and 2): Nokia will focus on reducing the embodied emissions of its products, for example by offering circular products, adding recycled material content into new products and designing products that use less material while having increased throughput capacity and functionality. Nokia works with suppliers on their journey to decarbonizing their operations.
- Upstream – Logistics and business air travel (scope 3, categories 4 and 6): Nokia's action plans that will require further work include optimizing transportation modes and route planning, use of decarbonized fuels in logistics and reducing air freight.
- Downstream – Product use phase (scope 3, category 11): With 95% of emissions resulting from products in use in our customers' networks, our greatest efforts remain concentrated on product design and innovation to reduce the power consumption and improve energy efficiency of our products across Nokia's portfolio.
- Electricity grid (scope 3, categories 1 and 11): Nokia is engaging with stakeholders to push for grid decarbonization and provides digitalization solutions to support renewables generation and grid transformation in the energy sector. Nokia also works with its value chain on their journey to transitioning to renewable energy sources as countries decarbonize their electricity grids.
- Governance, monitoring and reporting – Carbon removals: Credible, permanent carbon removals and storage are expected to be required to neutralize residual emissions to reach net-zero. Nokia has been examining credible solutions for carbon removals to support long-term net-zero targets.

Progress and actions taken in 2024

We have set short-, medium- and long-term climate targets in key areas. Short- and medium-term targets are put in place to track and show a pathway to the long-term goal. We track, measure and report transparently on these targets.

Nokia has set the net-zero target of 2040 to cover scope 1, 2 and 3 GHG emission categories. Those targets are for all Nokia business groups, covering various business activities like R&D, logistics, operations and suppliers. Our climate targets do not have any geographical exclusions.

The GHG emissions targets have been set to measure and track its progress against the net-zero target. The measured scope 1, 2 and scope 3 categories GHG emissions align with the key actions taken and planned.

The consistency and completeness of the near-term (2030) and long-term (2040) net-zero targets with our GHG inventory boundaries is ensured by meeting the SBTi requirements and having the targets validated by SBTi. The baseline will be updated when any changes in business, such as mergers and acquisitions, and improvements in the data coverage and calculation take place. This is done according to thresholds set by the SBTi and aligned with Nokia financial reporting consolidation principles.

Net-zero target
Net-zero target was approved by SBTi in January 2025. This includes Nokia's commitment to reach net-zero GHG emissions across the value chain by 2040.

The long-term target is to reduce absolute scope 1, 2 and scope 3 GHG emissions 90% by 2040 from a 2019 base year. The scope 3 includes the following significant categories to Nokia: category 1 – purchased goods and services, category 2 – capital goods, category 4 – upstream transportation and distribution, category 6 – business travel and category 11 – use of sold products.

The net-zero target includes also near-term target to reduce scope 1, 2 and scope 3 categories 1, 2, 4, 6 and 11 GHG emissions 50% by 2030 from a 2019 base year.

Total market-based GHG emissions were 26 011 608 tCO2eq (excluding Submarine Networks) in 2024. Total GHG emissions reduced by 28% compared to 2023 and 36% compared to the base year 2019. The progress is currently on track. Future business and market conditions might affect progress towards achieving net-zero.

Additionally, Nokia has set the following interim and sub-targets (2025 targets):

- GHG emission reduction of 80% from scope 1 and scope 2 market-based emissions by 2025 from a 2019 base year;
- GHG emissions reduction of 90% from scope 1 and scope 2 market-based emissions by 2030 from a 2019 base year;
- Our final assembly suppliers reach zero emissions by 2030 from a 2019 base year;
- Our suppliers (category 1) reduce GHG emissions by 50% by 2030 from a 2019 base year; and
- Our logistics' GHG emissions reduced by 73% by 2030 from a 2019 base year.

Own operations (scope 1 and 2)
GHG emissions from our own operations (market-based, scope 1 and 2) were 90 498 tCO2eq (excluding Submarine Networks) which account for 0.4% of Nokia's total carbon emissions. Nokia continued to increase the share of total renewable electricity to reduce scope 2 market-based GHG emissions. Scope 1 and 2 emissions reduced by 27% compared to 2023 and 76% compared to the base year 2019.

Nokia is a member of the RE100 initiative aligned with its global ambition to use 100% renewable electricity across our facilities by 2025. In 2024, 87% renewable electricity was used.

Operating and financial review continued

Upstream: Embodied emissions (scope 3, cat 1 and 2)
Nokia works closely with suppliers as part of its Climate program which includes improving supplier maturity around emissions measurement, target setting, roadmaps and good practices. For final assembly suppliers Nokia is tracking their roadmap execution at business review meetings throughout the year as they have the target to reach zero emissions by 2030 for their scopes 1 and 2. Nokia is having regular engagements with its 600 larger suppliers, organized around the CDP Climate program cycle. In addition, close collaboration is pursued with Nokia's Joint Design Manufacturing suppliers as well as supplier categories with high emission intensity.

In 2024, 408 of Nokia's key suppliers responded to CDP's request to disclose their climate performance information, while 257 also provided emission reduction targets.

Gradual reduction of Nokia's scope 3 category 1 emissions have been observed. In 2024, final assembly supplier emissions were reduced by further 15% compared to 2023 and by 56% from the baseline year 2019. The total supplier emissions (category 1) were reduced by 28% compared to 2023 and 77% compared to the base year 2019.

Downstream: Product use phase
Many of Nokia's customers are interested in reducing their power consumption and their emissions, and Nokia considers energy efficiency to be one of the key factors in product competitiveness. We also have customers who are interested in examining new business opportunities that spring from decarbonization. These developments create new business opportunities for us as a company and we are releasing and delivering new innovations that cater for that demand.

One of the key actions required for reducing GHG emissions during the product use phase is product energy efficiency improvements in product development. Key actions taken in 2024 include:

- Nokia continued to improve the energy efficiency of its products through incremental as well as generational hardware improvements;
- New energy efficiency software features have been released such as Extreme Deep Sleep mode which can help operators reduce energy consumption in zero-traffic conditions and MantaRay Anomaly detection which can identify specific radio sites to optimize energy consumption as well as Wavence Sleep modes which can lower the power consumption of the microwave radios; and
- New innovations like the virtual power plant can enable operators to use their existing back-up batteries and contribute to power reserve markets and the grid.

GHG emissions from scope 3 category 11 use of sold products decreased by 28% and 30% compared to the base year 2019. Reduction from 2023 to 2024 was due to lower sales volumes, power consumption reduction and product mix which was offset by a 1% increase in emissions due to global emission factor which reflects the decarbonization development of global electricity grid.

Circularity

We aim to be a driver of circular practices in our industry. We focus on opportunities to promote hardware circularity by managing the sourcing and reuse of key source materials. We build on our existing waste processes and circular products and services offering, proactively increasing the takeback of products from customer modernization projects and end-of-life equipment and increasing the availability and sales of refurbished products.

We also look to increase the use of recycled materials in our products, augmenting the inclusion of recycled plastics, steel, copper and aluminum in our product design.

Nokia has set a target to reach 95% waste circularity rate by 2030. The purpose is to improve waste management practices by maximizing waste utilization and minimizing disposal. Circularity rate includes waste from Nokia's offices, labs, manufacturing, site installation, product takeback and final assembly suppliers. Annual waste circularity outcome for 2024 was 81%. Nokia has recognized areas where high circularity rate has already been achieved and also areas requiring further action. There are still data gaps to be closed as described in the reporting principles.

Shares and shareholders

Share details

Shares and share capital

Nokia has one class of shares. Each Nokia share entitles the holder to one vote at general meetings of Nokia.

At 31 December 2024, the share capital of Nokia Corporation equaled EUR 245 896 461.96 and the total number of shares issued was 5 605 850 345. At 31 December 2024, the total number of shares included 232 700 997 shares owned by Group companies representing approximately 4.2% of the total number of shares and the total voting rights.

In November 2024, under the authorization granted to the Board of Directors by the Annual General Meeting 2024, the Board of Directors resolved on a directed issuance of a maximum number of 28 651 000 shares held by the Company as a result of the issue of new shares in October 2023, to settle the Company's commitments under the equity-based incentive plans and the employee share purchase plan in respect of shares to be delivered during the year 2025. The shares were issued without consideration.

In November 2024, under the authorization granted to the Board of Directors by the Annual General Meeting 2024, the Board of Directors resolved on an issuance of 150 000 000 new shares without consideration to itself and resolved on a subsequent directed issuance of a maximum number of 150 000 000 shares held by the Company as a result of the aforementioned issuance, to settle its commitments under the merger agreement related to the Infinera acquisition in respect of shares to be delivered to eligible stockholders of Infinera. To the extent that the shares are not needed to settle Nokia's obligations related to the completion of the acquisition, the Board of Directors resolved on a directed share issuance of the aforementioned shares without consideration to participants of Nokia's and Infinera's equity programs the latter of which was assumed by Nokia upon the completion of the acquisition.

During 2024, the Parent Company transferred a total of 24 380 761 treasury shares without consideration to employees, including certain members of the Group Leadership Team, as settlement under Parent Company equity-based incentive plans and the employee share purchase plan in accordance with the rules of the plans. The transfers were based on the resolution of the Board of Directors in October 2023 to issue shares held by the Company to settle its commitments to participants of the plan.

Information on the authorizations held by the Board of Directors in 2024 to issue shares and special rights entitling to shares, to transfer shares and repurchase own shares, as well as information on related party transactions, the shareholders and share-based incentives is available in this section "Shares and shareholders" and additionally in Notes 3.2. Remuneration of key management, 3.3. Share-based payments, 5.1. Equity and 6.4. Related party transactions in the consolidated financial statements.

In December 2024, the Board of Directors decided to cancel 157 646 220 Nokia shares held by the Company and repurchased under the share buyback program initiated in March 2024. The buyback program was accelerated in July 2024 and completed in November 2024. The cancellation did not affect the Company's share capital nor total equity.

The Board of Directors held at 31 December 2024 a total of 1 056 085 shares and ADSs in Nokia, which represented approximately 0.02% of our total shares and voting rights excluding shares held by the Nokia Group. The President and CEO owned at 31 December 2024 a total of 1 573 826 shares.

There were no public takeover offers by third parties for Nokia's shares or by Nokia for other companies' shares during the 2024 and 2023 fiscal years.

Nokia does not have minimum or maximum share capital or a par value of a share.

31 December	2024	2023	2022	2021	2020
Share capital, EURm	246	246	246	246	246
Shares, (000s)	5 605 850	5 613 497	5 632 298	5 675 461	5 653 886
Shares held by the Group, (000s)	232 701	87 896	45 282	40 468	36 390
Number of shares excluding shares held by the Group, (000s)	5 373 149	5 525 601	5 587 016	5 634 993	5 617 496
Average number of shares excluding shares held by the Group during the year					
Basic, (000s)(1)	5 475 817	5 549 468	5 614 182	5 630 025	5 612 418
Diluted, (000s)(1)	5 530 603	5 585 923	5 670 020	5 684 235	5 612 418
Number of registered shareholders(2)	224 196	247 893	238 359	233 844	246 886

(1) Used in calculation of earnings per share attributable to equity holders of the parent.
(2) Each account operator is included in the figure as only one registered shareholder.

Shares and shareholders continued

Key ratios

For the year ended 31 December	2024	2023	2022	2021	2020
Earnings per share, basic, EUR					
Continuing operations[1]	0.31	0.11	0.75	N/A	N/A
Discontinued operations[1]	(0.08)	0.01	0.01	N/A	N/A
Profit for the year	0.23	0.12	0.76	0.29	(0.45)
Earnings per share, diluted, EUR					
Continuing operations[1]	0.31	0.11	0.74	N/A	N/A
Discontinued operations[1]	(0.08)	0.01	0.01	N/A	N/A
Profit for the year	0.23	0.12	0.75	0.29	(0.45)
Proposed dividend per share, EUR[2]	0.14	0.13	0.12	0.08	0.00
Dividend payout ratio[3]	45.2%	118.2%	16.0%	N/A	N/A
Total dividends, EURm[4]	785	730	676	449	—
31 December	**2024**	**2023**	**2022**	**2021**	**2020**
Shareholders' equity per share, EUR	3.84	3.72	3.82	3.08	2.22
Share price, EUR[5]	4.27	3.05	4.33	5.57	3.15
Price-to-earnings ratio[3]	13.77	27.73	5.77	N/A	N/A
Dividend yield[1]	3.28%	4.26%	2.77%	1.44%	—
Market capitalization, EURm	22 943	16 853	24 192	31 409	17 701

(1) In June 2024, Nokia classified its Submarine Networks business as a discontinued operation. The comparative amounts for 2023 and 2022 have been recast accordingly, however, due to undue cost and effort required to recast historical accounting records the comparative amounts for 2021 and 2020 have not been recast.
(2) The Board of Directors proposes to the Annual General Meeting to be authorized to decide in its discretion on the distribution of an aggregate maximum of EUR 0.14 per share as dividend from the retained earnings and/or as assets from the reserve for invested unrestricted equity.
(3) Calculated based on the basic earnings per share from continuing operations.
(4) In 2024, total dividends is calculated based on the proposed Annual General Meeting authorization to the Board of a maximum distribution of EUR 0.14 per share for the financial year 2024, and the total number of shares on the date of issuing the financial statements for 2024. On the date of issuing the financial statements for 2024 the total number of Nokia shares is 5 605 850 345. Comparative amounts represent the actual total distribution to equity holders of the parent for the financial year presented.
(5) Closing Nokia share price at year end on Nasdaq Helsinki.

Share turnover

For the year ended 31 December	2024	2023	2022	2021	2020
Number of shares traded during the year (000s)[1]	7 175 750	7 754 279	10 294 615	16 560 334	13 903 762
Average number of shares excluding shares held by the Group during the year (000s)	5 475 817	5 549 468	5 614 182	5 630 025	5 612 418
Share turnover %	131	140	183	294	248

(1) Source: Nasdaq Helsinki, the NYSE composite tape and Euronext Paris.

The principal trading markets for the shares are Nasdaq Helsinki and Euronext Paris, in the form of shares, and the NYSE, in the form of ADSs.

Share price development

Nasdaq Helsinki

EUR	High	Low	Value
2024 Full year High/Low	4.58	3.00	
2024 Full year Average (Volume-weighted)			3.64
Year-end value 31 December 2024			4.27
Year-end value 31 December 2023			3.05
Change from 31 December 2023 to 31 December 2024			40.0%

New York Stock Exchange

USD	High	Low	Value
2024 Full year High/Low	4.95	3.29	
2024 Full year Average (Volume-weighted)			3.99
Year-end value 31 December 2024			4.43
Year-end value 31 December 2023			3.42
Change from 31 December 2023 to 31 December 2024			29.5%

Euronext Paris

EUR	High	Low	Value
2024 Full year High/Low	4.57	3.01	
2024 Full year Average (Volume-weighted)			3.68
Year-end value 31 December 2024			4.26
Year-end value 31 December 2023			3.06
Change from 31 December 2023 to 31 December 2024			39.2%

Shares and shareholders continued

Stock option exercises
Since 2019, Nokia has not administered any global stock option plans.

Dividend and share buybacks
The dividend to shareholders is Nokia's principal method of distributing earnings to shareholders. The dividend policy was updated at the Capital Markets Day in March 2021 to read as follows: "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".

The Board of Directors proposes to the Annual General Meeting 2025 that based on the balance sheet to be adopted for the financial year ended on 31 December 2024, no dividend is distributed by a resolution of the Annual General Meeting. Instead, the Board of Directors proposes to be authorized to resolve in its discretion on the distribution of an aggregate maximum of EUR 0.14 per share as dividend from the retained earnings and/or as assets from the reserve for invested unrestricted equity. The authorization would be used to distribute dividend and/or assets from the reserve for invested unrestricted equity in four installments during the authorization period, in connection with the quarterly results, unless the Board of Directors decides otherwise for a justified reason. The proposed total authorization for distribution of dividend and/or assets from the reserve for invested unrestricted equity is in line with the Company's dividend policy. The authorization would be valid until the opening of the next Annual General Meeting. The Board would make separate resolutions on the amount and timing of each distribution of dividend and/or assets from the reserve for invested unrestricted equity.

In the first quarter of 2024, under the authorization granted to the Board of Directors by the Annual General Meeting 2023, Nokia announced a share buyback program to repurchase shares to return up to EUR 600 million of cash to shareholders in tranches over a period of two years. The program was launched in March 2024 and it was accelerated in July by increasing the number of shares to be repurchased during the year 2024. The whole EUR 600 million program was completed in November 2024 and the repurchased shares were cancelled in December 2024.

In November 2024, under the authorization granted to the Board of Directors by the Annual General Meeting 2024, Nokia launched a share buyback program to offset the dilutive effect of the acquisition of Infinera announced in June 2024. The program targets to repurchase 150 million shares for an aggregate purchase price not exceeding EUR 900 million. The repurchases commenced in November 2024 and will end latest by 31 December 2025.

We distribute distributable funds, if any, within the limits set by the Finnish Companies Act as defined below. We make and calculate the distribution, if any, in the form of cash dividends, assets from the reserve for invested unrestricted equity, share buybacks, or in some other form, or a combination of these. There is no specific formula by which the amount of a distribution is determined, although some limits set by law are discussed below. The timing and amount of future distributions of retained earnings and/or assets from the reserve for invested unrestricted equity, if any, will depend on our future results and financial conditions.

Under the Finnish Companies Act, we may distribute retained earnings and/or assets from the reserve for invested unrestricted equity on our shares only upon a shareholders' resolution and in the amount proposed by the Board, subject to limited exceptions. The amount of any distribution is limited to the amount of distributable earnings of the Parent Company pursuant to the last audited financial statements approved by our shareholders, taking into account the material changes in the financial situation of the Parent Company after the end of the last financial period and a statutory requirement that the distribution of earnings must not result in insolvency of the Parent Company. Subject to exceptions relating to the right of minority shareholders to request a certain minimum distribution, the distribution may not exceed the amount proposed by the Board of Directors.

Purchases of equity securities by the Company and affiliated purchasers
The table below presents additional information on the purchases of treasury shares in 2024:

Period	Total number of shares purchased	Average price paid per share, EUR	Total number of shares purchased as part of publicly announced plans or programs	Maximum value of shares that may yet be purchased under the plans or programs, EUR
January[1]	0	—	0	300 000 000
February	—	—	—	300 000 000
March	3 290 248	3.27	3 290 248	289 225 892
April	10 016 054	3.27	10 016 054	256 430 168
May	7 912 962	3.53	7 912 962	228 473 123
June	8 288 039	3.51	8 288 039	199 343 182
July[2]	30 031 651	3.49	30 031 651	394 543 699
August	24 756 945	3.55	24 756 945	306 682 042
September	—	—	—	306 682 042
October	43 187 891	4.15	43 187 891	127 285 596
November[3]	34 522 895	4.19	34 522 895	882 584 913
December	14 825 581	4.18	14 825 581	820 640 546
Total	**176 832 266**	**3.84**	**176 832 266**	

(1) On 25 January 2024, Nokia announced that its Board of Directors is initiating a share buyback program to return up to EUR 600 million of cash to shareholders in tranches over a period of two years pursuant to an authorization from the Annual General Meeting 2023. The first phase of the share buyback program started on 20 March 2024.
(2) On 19 July 2024, the Board of Directors decided to accelerate the timeframe for the share buyback program to complete the whole EUR 600 million program by the end of 2024. The repurchases under this program ended on 21 November 2024.
(3) On 22 November 2024, Nokia announced that its Board of Directors is initiating a share buyback program to offset dilutive effect of acquisition of Infinera pursuant to an authorization from the Annual General Meeting 2024. The program targets to repurchase 150 million shares for an aggregate price not exceeding EUR 900 million. The repurchases started on 25 November 2024.

Shares and shareholders continued

Shareholders

At 31 December 2024, shareholders registered in Finland represented approximately 26% and shareholders registered in the name of a nominee represented approximately 74% of the total number of shares of Nokia Corporation. The number of directly registered shareholders was 224 196 at 31 December 2024. Each account operator (12) is included in this figure as only one registered shareholder.

Largest shareholders registered in Finland at 31 December 2024[1]

Shareholder	Total number of shares 000s	% of all shares	% of all voting rights
Solidium Oy	325 000	5.80%	5.80%
Keskinäinen Työeläkevakuutusyhtiö Varma	78 266	1.40%	1.40%
Keskinäinen Eläkevakuutusyhtiö Ilmarinen	74 685	1.33%	1.33%
Keskinäinen Työeläkevakuutusyhtiö Elo	39 185	0.70%	0.70%
Valtion Eläkerahasto	32 000	0.57%	0.57%
Oy Lival Ab	17 490	0.31%	0.31%
Svenska Kulturfonden	14 618	0.26%	0.26%
Nordea Pro Finland Fund	11 378	0.20%	0.20%
Sijoitusrahasto Seligson & Co	10 482	0.19%	0.19%
Evli Finland Select Fund	9 300	0.17%	0.17%

(1) Excluding nominee-registered shares and shares owned by Nokia Corporation. Nokia Corporation owned 219 494 558 shares at 31 December 2024.

Breakdown of share ownership at 31 December 2024[1]

By number of shares owned	Number of shareholders	% of shareholders	Total number of shares	% of all shares
1–100	61 483	27.42%	2 896 001	0.05%
101–1 000	101 802	45.41%	44 653 197	0.80%
1 001–10 000	53 865	24.03%	167 776 088	2.99%
10 001–100 000	6 619	2.95%	162 084 771	2.89%
100 001–500 000	333	0.15%	65 397 980	1.17%
500 001–1 000 000	30	0.01%	20 990 753	0.38%
1 000 001–5 000 000	40	0.02%	99 952 980	1.78%
Over 5 000 000	24	0.01%	5 042 098 575	89.94%
Total	**224 196**	**100.00%**	**5 605 850 345**	**100.00%**

(1) The breakdown covers only shareholders registered in Finland, and each account operator (12) is included in the number of shareholders as only one registered shareholder. As a result, the breakdown is not illustrative of the entire shareholder base of Nokia.

By nationality	% of shares
Non-Finnish shareholders	74.44%
Finnish shareholders	25.56%
Total	**100.00%**

By shareholder category (Finnish shareholders)	% of shares
Corporations	5.49%
Households	6.74%
Financial and insurance institutions	2.20%
Non-profit organizations	1.08%
Governmental bodies (incl. pension insurance companies)	10.05%
Total	**25.56%**

At 31 December 2024, a total of 673 112 179 ADSs (equivalent to the same number of shares or approximately 12% of the total shares) were outstanding and held of record by 89 183 registered holders in the United States. We are aware that many ADSs are held of record by brokers and other nominees, and accordingly the above number of holders is not necessarily representative of the actual number of persons who are beneficial holders of ADSs or the number of ADSs beneficially held by such persons. Based on information available from Broadridge Financial Solutions, Inc., the number of beneficial owners of ADSs at 31 December 2024 was 660 948.

Based on the most recent information available to us dated 2 February 2024, at 31 December 2023, BlackRock, Inc. beneficially owned 372 591 440 Nokia shares, which at that time corresponded to approximately 6.6% of the total number of shares and voting rights of Nokia.

To the best of our knowledge, Nokia is not directly or indirectly owned or controlled by any other corporation or any government, and there are no arrangements that may result in a change of control of Nokia.

Shares owned by the members of the Board and the Group Leadership Team

At 31 December 2024, the members of our Board and the Group Leadership Team held a total of 4 782 625 shares and ADSs in Nokia, which represented approximately 0.09% of our shares and total voting rights excluding shares held by the Nokia Group.

Offer and listing details

Our capital consists of shares traded on Nasdaq Helsinki under the symbol “NOKIA” and Euronext Paris under the symbol “NOKIA”. Our ADSs, each representing one of our shares, are traded on the NYSE under the symbol “NOK”. The ADSs are evidenced by American Depositary Receipts (ADRs) issued by Citibank, N.A.

Articles of Association

Articles of Association

Amendment of our Articles of Association requires a resolution of the general meeting of shareholders, supported by two-thirds of the votes cast and two-thirds of the shares represented at the meeting.

Registration

Nokia Corporation is organized under the laws of the Republic of Finland and registered in the Finnish Trade Register under business identity code 0112038-9. Under its current Articles of Association, Nokia's object is to research, develop, manufacture, market, sell and deliver products, software and services related to, among others, communication and enterprise networks. The company may also create, acquire and license intellectual property as well as engage in other industrial and commercial operations, including securities trading and other investment activities. The company may carry on its business operations directly, through subsidiary companies, affiliate companies and joint ventures.

Directors' voting powers

Under Finnish law, resolutions of the Board shall be made by a majority vote. A director shall refrain from taking any part in the consideration of an agreement between the director and the company or a third party, or any other issue that may provide any material benefit to him or her and which may be contradictory to the interests of the company. Under Finnish law, there is no age limit requirement for directors, and there are no requirements under Finnish law that a director must own a minimum number of shares in order to qualify to act as a director. However, in accordance with the current Company policy, approximately 40% of the annual fee payable to the Board members is paid in Nokia shares purchased from the market or alternatively by using treasury shares held by Nokia, and the directors shall retain until the end of their directorship such number of shares that corresponds to the number of shares they have received as Board remuneration during their first three years of service (the net amount received after deducting those shares used for offsetting any costs relating to the acquisition of the shares, including taxes).

Share rights, preferences and restrictions

Each share confers the right to one vote at general meetings. According to Finnish law, a company generally must hold an Annual General Meeting called by the Board within six months from the end of the financial year. Additionally, the Board is obliged to call an Extraordinary General Meeting whenever such meeting is deemed necessary, or at the request of the auditor or shareholders representing a minimum of one-tenth of all outstanding shares. Under our Articles of Association, the Board is elected at least annually at the Annual General Meeting of shareholders for a term until the close of the next Annual General Meeting.

Under Finnish law, shareholders may attend and vote at general meetings in person or by proxy. It is not customary in Finland for a company to issue forms of proxy to its shareholders. Accordingly, Nokia does not do so. However, registered holders and beneficial owners of ADSs are issued forms of proxy by the Depositary.

To attend and vote at a general meeting, a shareholder must be registered in the register of shareholders in the Finnish book-entry system on or prior to the record date set forth in the notice of the general meeting. A registered holder or a beneficial owner of the ADSs, like other beneficial owners whose shares are registered in the Company's register of shareholders in the name of a nominee, may vote with their shares provided that they arrange to have their name entered in the temporary register of shareholders for the general meeting.

The record date is the eighth business day preceding the meeting. To be entered in the temporary register of shareholders for the general meeting, a holder of ADSs must provide the Depositary, or have their broker or other custodian provide the Depositary, on or before the voting deadline, as defined in the proxy material issued by the Depositary, a proxy with the following information: the name, address, and social security number or another corresponding personal identification number of the holder of the ADSs, the number of shares to be voted by the holder of the ADSs and the voting instructions. The register of shareholders as of the record date of each general meeting is public until the end of the respective meeting. Other nominee-registered shareholders can attend and vote at general meetings by instructing their broker or other custodian to register the shareholder in Nokia's temporary register of shareholders and give the voting instructions in accordance with the broker's or custodian's instructions.

By completing and returning the form of proxy provided by the Depositary, a holder of ADSs also authorizes the Depositary to give notice to us, required by our Articles of Association, of the holder's intention to attend the general meeting.

The rights of shareholders are related to the shares as set forth in the Finnish Companies Act and our Articles of Association. Neither Finnish law nor our Articles of Association set limitations on the rights to own Nokia securities, including the rights of foreign shareholders to hold or exercise voting rights in the said securities. Amendment of the Articles of Association requires a decision of the general meeting of shareholders, supported by two-thirds of the votes cast and two-thirds of the shares represented at the meeting.

Each of our shares confers equal rights to share in the distribution of the Company's funds. Under Finnish law, dividend entitlement lapses after three years if a dividend remains unclaimed for that period, in which case the unclaimed dividend will be recognized as income by Nokia.

Articles of Association continued

Disclosure obligation of shareholder ownership or voting power

According to the Finnish Securities Market Act, a shareholder shall disclose their ownership or voting power to the company and the Finnish Financial Supervisory Authority when the ownership or voting power reaches, exceeds or falls below 5, 10, 15, 20, 25, 30, 50 or 90% of all the shares or the voting rights. The term "ownership" includes ownership by the shareholder, as well as selected related parties calculated in accordance with the Finnish Securities Market Act, and calculating the ownership or voting power covers agreements or other arrangements, which when concluded would cause the proportion of voting rights or number of shares to reach, exceed or fall below the aforementioned limits. Upon receiving such notice, the company shall disclose it by a stock exchange release without undue delay.

Purchase obligation

Our Articles of Association require a shareholder whose holding equals or exceeds one-third or one-half of all of our shares to purchase the shares of all other shareholders that so request. A shareholder who becomes subject to the purchase obligation is also obligated to purchase any subscription rights, stock options or convertible bonds issued by the company if so requested by the holder. The purchase price of the shares under our Articles of Association is the higher of: (a) the weighted average trading price of the shares on Nasdaq Helsinki during the ten business days prior to the day on which we have been notified by the purchaser that its holding has reached or exceeded the threshold referred to above or, in the absence of such notification or its failure to arrive within the specified period, the day on which our Board otherwise becomes aware of this; or (b) the average price, weighted by the number of shares, which the purchaser has paid for the shares it has acquired during the last 12 months preceding the date referred to in (a).

Under the Finnish Securities Market Act, a shareholder whose voting power exceeds 30% or 50% of the total voting rights in a company shall, within one month, offer to purchase the remaining shares of the company, as well as any other rights entitling to the shares issued by the company, such as subscription rights, convertible bonds or stock options issued by the company. The purchase price shall be the market price of the securities in question. Subject to certain exceptions, the market price is determined on the basis of the highest price paid for the security during the preceding six months by the shareholder or any party in close connection to the shareholder. Subject to certain exceptions, if the shareholder or any related party has not during the six months preceding the offer acquired any securities that are the target for the offer, the market price is determined based on the average of the prices paid for the security in public trading during the preceding three months weighted by the volume of trade.

Under the Finnish Companies Act, a shareholder whose holding exceeds nine-tenths of the total number of shares or voting rights in a company has both the right and, upon a request from the minority shareholders, the obligation to purchase all the shares of the minority shareholders for the then current market price. The market price is determined, among other things, on the basis of the recent market price of the shares. The purchase procedure under the Finnish Companies Act differs, and the purchase price may differ, from the purchase procedure and price under the Finnish Securities Market Act, as discussed above. However, if the threshold of nine-tenths has been exceeded through either a mandatory or a voluntary public offer pursuant to the Finnish Securities Market Act, the market price under the Finnish Companies Act is deemed to be the price offered in the public offer, unless there are specific reasons to deviate from it.

Pre-emptive rights

In connection with any offering of shares, the existing shareholders have a pre-emptive right to subscribe for shares offered in proportion to the amount of shares in their possession. However, a general meeting of shareholders may vote, by a majority of two-thirds of the votes cast and two-thirds of the shares represented at the meeting, to waive this pre-emptive right provided that, from the company's perspective, weighty financial grounds exist.

Monitoring of Foreign Corporate Acquisitions

Under the Finnish Act on the Monitoring of Foreign Corporate Acquisitions (2012/172 as amended), a notification to the Ministry of Economic Affairs and Employment is required for a non-resident of Finland, directly or indirectly, when acquiring one-tenth or more of the voting power or corresponding factual influence in a company. The Ministry of Economic Affairs and Employment has to confirm the acquisition unless the acquisition would jeopardize important national interests, in which case the matter is referred to the Council of State. If the company in question is operating in the defense sector, an approval by the Ministry of Economic Affairs and Employment is required before the acquisition is made. These requirements are not applicable if, for instance, the voting power is acquired in a share issue that is proportional to the holder's ownership of the shares. Moreover, the requirements do not apply to residents of countries in the European Economic Area or EFTA countries, except where at least one-tenth of shares or other controlling right in such resident are held by a party not resident in the European Economic Area or EFTA.

Risk factors

Set forth below is a description of risk factors that could affect our business. Shareholders and potential investors should carefully review the following risk factors, in addition to other information contained in this report. The risk factors described below should not be construed as exhaustive. There may be additional risks that are unknown to us, and other risks currently believed to be immaterial that could turn out to be material.

These risks, either individually or collectively, could adversely affect our business, competitiveness, market share, sales, costs, expenses, results of operations, profitability, financial condition, liquidity, reputation, brand and share price. Unless otherwise indicated or the context otherwise requires, references in these risk factors to "Nokia", the "Nokia Group", "Group", "we", "us" and "our" mean Nokia's consolidated operating segments. Certain risks or events may be more prevalent with respect to the Group or a certain business group, business or part of the Group.

In evaluating the risks, one should not rely exclusively on the bullets in the below summary but read the full risk factor discussion. This report also contains forward-looking statements that involve risks and uncertainties presented in "Forward-looking statements" above.

Risk factors summary

Our capability to compete and remain a leading provider of technology, software and services in the industries and markets in which we operate is dependent on multiple external and internal factors, partially outside our control, such as:

Risks related to our strategy and its execution

- Sustained traffic growth in customers' networks, introduction of new use cases and low-latency services to drive the demand for our products and services;
- Reaching certain technology limits in key technologies or adoption of unforeseen disruptive technologies by our competitors that might change demand patterns for our products and services and competitive dynamics;
- Trends, such as cloudification, Open RAN and openness in general, virtualization and disaggregation with potential impact on our portfolio of products and services, competitive landscape, business models and our margin profile;
- The degree our investments, including venture funds, result in technologies, products or services that achieve or retain broad or timely market acceptance, answer to the expanding needs or preferences of our customers or consumers, or in breakthrough innovations, research assets, and intellectual property that we could otherwise utilize for value creation;
- Our success in acquiring or divesting businesses and technologies, such as the acquisition of Infinera, integrating acquisitions and transitioning divestments, such as the sale of the Submarine Networks business, entering into licensing arrangements, minority investments, forming and managing joint ventures or partnerships and in realizing the anticipated benefits, synergies, cost savings or efficiencies from these transactions;
- Our success in continuing to improve our organizational and operational structure for increased efficiency and profitability, executing our business plans and business models, in identifying and implementing the appropriate measures to improve cost-efficiency and in managing the inflationary pressure on costs in order to continue investments in R&D and future capabilities, including 5G-Advanced and 6G, enterprise, cloud, artificial intelligence, security, automation, digitalization, and development of new standard essential patents and to reach targeted results, benefits and other improvements; and
- Our ability to meet our own sustainability targets, identify, evaluate and address sustainability related risks and opportunities appropriately, and to comply with stakeholder and societal expectations and practices and with the increasing number of regulatory requirements related to sustainability, including mandatory transparency and disclosure requirements and considering our reliance on global supply chains and the challenges and limitations in the availability of accurate information contributing to measurement uncertainty in provided quantitative metrics and monetary amounts in our sustainability related disclosures.

Risk factors continued

Surrounding economic, financial and competitive environment

- General economic and financial market conditions, such as the level of inflation and unemployment, increased global macroeconomic uncertainty, major currency fluctuations, higher interest rates and financing costs, and other developments in the economies and industries where we, our customers, partners and suppliers operate, including adverse developments in the policies governing international trade or markets such as export and import controls, including increases in tariffs, and any geopolitical escalation such as in the US-China relations, in tensions in East Asia and ongoing situations in Ukraine and the Middle East;
- The cyclical nature of the markets in which we operate, competitor behavior, technological changes and the speed of technological adoption, customer consolidation, the number of competent suppliers, customer spending appetite and purchase behavior, deployments and rollout timing;
- Period of high inflation and our ability to pass increased costs to our pricing;
- Price erosion largely driven by competition challenging the connectivity business models of our customers;
- Our dependency on a limited number of big customers and large multi-year agreements;
- Competitiveness of, or developments regarding, pricing and agreement terms we offer, including developments with respect to customer financing or extended payment terms or credit lines that we provide our customers; and
- Willingness of banks or other institutions to purchase our receivables.

Our competitiveness

- Our ability to adapt to changing business models, rapid technological advances and to meet new competition;
- Our ability to invest in new competitive high-quality products and services, such as 5G-Advanced, Open RAN, 6G, the Internet of Things (IoT), the cloud or software, upgrades and technologies that have accurately anticipated technological, regulatory and market trends;
- Our success in the development of new technologies and services, their rollout and commercialization in a timely manner;
- Our capabilities to manage end-to-end costs related to our portfolio of products and services;
- Severity of inefficiencies, incidents, malfunctions or disruptions of our information technology systems and processes or disruptions of services relying on our own or third-party IT, including cybersecurity threats and incidents;
- Actual or perceived security or privacy breaches, as well as defects, errors or vulnerabilities in our technology and that of third-party providers;
- Our manufacturing, service creation, delivery, logistics or supply chain to operate without significant interruptions or shortages, including the impacts of geopolitical tensions and open conflicts feeding uncertainty in the global supply chain;
- Performance capabilities of our partners and suppliers, and their high standards to meet product quality, health, safety or security requirements or comply with other regulations or local laws, such as environmental or labor laws;
- Natural or man-made disasters, military actions, wars, labor unrest, civil unrest or health crises, such as another global pandemic, impacting our service delivery or production sites or the production sites of our suppliers, which are geographically concentrated; and
- Our ability to retain, develop, reskill and recruit appropriately skilled employees.

Intellectual property rights and technology licensing

- Our ability to create new relevant technologies, products and services through our R&D, as well as our ability to protect our innovations and to maintain the strength of our intellectual property portfolio;
- Our ability to monetize our intellectual property for instance, due to market, regulatory and other developments, or court rulings in intellectual property-related litigation and other disputes;
- Uncertainty relating to the evolving geopolitical environment, global regulatory and standardization landscape relating to intellectual property;
- Developments in the concentrated smartphone market, the source of a significant portion of our patent licensing income;
- Success and profitability of technology licensing and other business ventures, including venture fund investments where the valuation and proceeds of our venture fund investments may fluctuate;
- Our ability to renew existing license agreements and conclude new license agreements regarding our intellectual property that we license to others on acceptable commercial terms, and the timing, cost, and potential need for litigation to achieve such renewals and new license agreements;
- Claims that we have allegedly infringed third parties' IPR; and
- Our ability to renew or finalize licenses regarding technologies that are licensed to us on acceptable commercial terms.

Risk factors continued

Geopolitical, legal, regulatory and compliance environment

- Direct and indirect regulation and political developments affecting trade (such as the changes in the U.S. and international trade policies, including the export and import controls and laws, particularly with regard to China, Mexico and Canada), taxation, national security, competition law, exchange controls, export controls and sanctions, cyber security, communications technology, supply chains, environmental, social and governance topics, including integrity and anti-corruption;
- Geopolitical tensions, escalations or expansions into open conflicts, such as potential further developments related to the situations in Ukraine and in the Middle East and risks related to tensions in East Asia and in the countries in the Sahel and West Africa;
- Our level of dependence on emerging markets subject to political and regulatory changes and economic volatility;
- Changes in existing regulations or in their application, including roll back of certain legislative acts and initiatives, variation in national implementation of EU legislation and divergence of regulatory frameworks in the EU, the US and other relevant jurisdictions and emerging new regulations applicable to current or new technologies, products or telecommunications and technology sectors in general impacting our products, services or business;
- Our products, services and operations meeting all relevant quality, health, safety or security standards and other recommendations globally and compliance with laws and regulations, such as related to digital economy, sustainability, responsible AI, telecommunications and technology, security and privacy, including network and product security, protection and transfer of personal data, data access and use;
- Disruptiveness of litigation, arbitration or agreement-related disputes, and inspections, investigations, claims, and government proceedings which we may be subject to at any given time due to the global nature of our business;
- Our ability to maintain an effective system of governance and compliance processes, disclosure controls and internal control over financial reporting and influence those of third parties whose performance we may be held liable for; and
- The degree of control and level of influence in the joint ventures where Nokia is the minority partner and other affiliated companies where Nokia does not have direct management control, or which are not fully integrated into its operational infrastructure.

Financial and tax-related uncertainties

- Complex tax laws and rules, including any changes in the aforesaid, as well as diverse tax authority practices and interpretations;
- Our ability to utilize our tax attributes and deferred tax assets;
- Access to sources of funding on favorable terms or at all;
- Our ability to maintain our investment grade credit ratings;
- Exchange rate fluctuations impacting our net sales, costs and results of operations, as well as the US dollar value of our dividends and market price of our ADSs;
- Our pension and other post-employment benefit obligations and the potential need for increased funding; and
- Recoverability of the carrying amount of our goodwill, which could result in significant impairment charges.

Ownership of our shares

- Uncertainty of the amount of dividend and/or repayment of capital and other profit distributions such as share buybacks to shareholders for each financial period;
- Volatility of the trading price of our shares and ADSs, including as a result of factors outside our control; and
- Requirement for non-Finnish shareholders to provide detailed information in order to obtain advantageous withholding tax treatment for dividends.

Risk factors continued

Full risk factor discussion

Risks related to our strategy and its execution

We may be unable to successfully implement our strategic plans, sustain or improve the operational and financial performance of our business groups, correctly identify or successfully pursue business opportunities, correctly anticipate or successfully mitigate technological disruptions or otherwise grow our business.

Our success depends on our ability to become and remain a leading provider of technology, software and services in the industries and markets in which we operate. However, there can be no assurance that we will correctly identify trends, opportunities or threats that we need to pursue or mitigate to achieve our goals or targets. For example, our plans assume sustained growth in traffic over our customers' networks. For this to happen, video streaming needs to continue to grow significantly or new high-data use cases (for instance, Virtual Reality or Augmented Reality) need to be developed and drive high concurrency traffic. We also assume a growing number of use cases and demand for low latency services. Should these not materialize, demand for our products and services could be negatively affected.

Our path to continued technology leadership lies in long-term research and development to drive innovation across a comprehensive portfolio of network equipment, software, services and licensing. We are investing, for instance, in 5G-Advanced and 6G research, security and the development of new standard-essential patents. The R&D of innovative products, services and technologies is a complex and uncertain process, and there can be no assurance that our investments will result in technologies, products or services that achieve or retain broad or timely market acceptance, are commercially successful, answer to the expanding needs or preferences of our customers or consumers, or lead to breakthrough innovations that we could use for value creation. As an example, while we believe that the progress of cloudification and open RAN and openness in general creates an opportunity for us to differentiate with our products and to better serve our customers, it may lead to entry of new competitors with different business models to build multi-vendor RAN networks. The virtualization and cloudification of core and radio networks and the convergence of IT and telecommunications may lower barriers of entry for IT and webscale companies in the traditional telecommunications industry, or they may build up tight strategic partnerships with our traditional competitors or our communications service provider customers. This enhanced competition may lead to increased price competition and negatively affect our margins. Virtualization and disaggregation might also affect other parts of our portfolio and lead to changes in competitive landscape, business models, and margin profile. Also, reaching certain technology limits, for example in Optical or in spectral efficiency gains in 6G, might adversely change the demand pattern and competitive dynamics for our products and services. We see the network as a key enabler of metaverse opportunities, but the network capabilities will need to evolve to fulfill the anticipated needs.

We implement our strategic plans, for instance, by entering into licensing arrangements, partnering with third parties and have entered into a number of and may engage in the future in transactions, such as divestments and acquisitions, mergers, joint ventures and minority investments that could complement or improve our existing operations or technologies, sharpen our business focus and enable us to grow our business. Additionally, we may make investments in certain investment funds, including NGP Capital, that invest in other companies. There can be no assurance that our efforts to continuously improve our operations and realize efficiencies will or continue to generate the expected results or improvements, or that we will achieve intended targets or financial objectives related to such efforts. For instance, the underlying rationale, initial assumptions or the business case in terms of profits, revenue, strategic impact or otherwise justifying the creation or continuation of the arrangement may not be realized. We may also encounter issues or inefficiencies related to our organizational and operational structure, including being unable to successfully implement the business plans. Also, the planned transactions may not ultimately be completed on favorable terms or at all, or transactions may result in liabilities or claims, such as indemnification or breach of contract claims. The divestment or investment decisions we make may subject us to litigation arising from minority shareholders' actions and investor dissatisfaction with the activities of our business. Shareholder disputes, if resolved against us, could have a material adverse effect on us.

We may be unable to realize the anticipated benefits, synergies, cost savings or efficiencies from acquisitions, and we may encounter issues or inefficiencies related to our organizational and operational structure including being unable to successfully implement related business plans.

The level of effort required for successful integration of acquired businesses or assets depends on the complexity of the acquired business or asset. There can be no assurance that we will be able to realize the intended organizational and operational benefits and potentially targeted cost savings related to our business plans in the manner or within the timeframe currently anticipated. The risks and uncertainties relating to the integration include, among others, the distraction of our management's attention from our business resulting in performance shortfalls, the disruption of our ongoing business, interference with our ability to maintain our relationships with customers, vendors, regulators and employees, and inconsistencies in our services, standards, quality, product road maps, controls, procedures and policies, any of which could have a material adverse effect on our business, financial condition and results of operations.

These failures could be triggered, among others, by the following factors impacting the integration process and operations:

- adverse contractual issues or disputes with respect to various agreements with third parties, employment agreements, or pension and other post-employment benefits-related funding or liability issues;
- our failure to identify issues and liabilities at the target business or assets during the due diligence and pre-acquisition process by which we may be exposed to unknown, larger or contingent liabilities of acquired businesses, such as those related to contractual obligations, taxes, pensions, environmental liabilities, disputes and compliance matters;
- disruptions caused, for instance, by reorganizations, which may result in inefficiency within the new organization through loss of key employees or delays in implementing our intended structural changes, among other issues;
- inability to rationalize or streamline our organization or product lines/services, or to retire legacy products and related services as a result of pre-existing customer commitments;
- loss of, or lower volume of, business from key customers, or the inability to renew agreements with existing customers or establish new customer relationships, including limitations linked to customer policies with respect to aggregate vendor share or supplier diversity policies or increased efforts from competitors aiming to capitalize on disruptions;

Risk factors continued

- conditions and burdens imposed by laws, regulators or industry standards on our business, or adverse regulatory or industry developments or litigation affecting us;
- unanticipated changes in business, industry or general economic conditions that affect the assumptions underlying the acquisition;
- issues relating to fraud, non-compliance with applicable laws and regulations, improper accounting policies, improper internal control or other improper activities;
- challenges relating to the consolidation or ongoing integration of corporate, financial data and reporting, control and administrative functions;
- the coordination of R&D, marketing and other support functions of the combined business may fail or cause inefficiencies or other administrative burdens;
- our inability to eliminate the complexity of our corporate structure following the acquisition; and
- impairments related to goodwill and other intangible assets, for instance, due to business performance after an acquisition or differences in evaluating the goodwill with respect to the acquired businesses.

Additionally, the anticipated cost reductions and other benefits expected to arise from the acquisitions and integration of businesses, as well as related costs to implement such measures, are derived from our estimates, which are uncertain. The underlying assumptions are inherently uncertain and subject to a variety of significant business, economic, and competitive factors, risks and uncertainties that could cause our actual results to differ materially from those contained in the expected synergy benefits and related cost estimates.

Performance failures of our partners as well as failures to agree to partnering arrangements with third parties could adversely affect us.
We are increasingly collaborating and partnering with third parties to develop technologies, products and services, as well as seeking new revenue streams through partnering arrangements. We also depend on partners in our efforts to monetize our technologies, including those of Nokia and Nokia Bell Labs, and we have outsourced various functions to third parties and are relying on them to provide certain services to us. Furthermore, according to our technology vision for 2030, the opportunities of digitalization, metaverse and digital twin will be realized by a multi-party value ecosystem developed around collaboration, co-innovation and partnering. Although the objective of the collaborative and partnering arrangements is a mutually beneficial outcome for each party, our ability to introduce and provide technologies, products and services in a timely manner and so that those are commercially viable and meet our, our customers' and consumers' quality, safety, security and other standards could be hampered by performance or other failures of our partners or the companies we collaborate with. For instance, if a partner acts inconsistently with our ethical, sustainability, compliance, brand or quality standards, this can negatively affect our reputation, the value of our brand and the business outcome of our partnerships. Furthermore, if we fail to achieve the collaboration or partnering arrangements needed to succeed, we may be unable to bring our products, services or technologies to market successfully or in a timely manner. It is also possible that the parties we currently collaborate with, turn into our competitors.

In many areas, including R&D, IT, finance and human resources-related arrangements, a failure to maintain an efficient relationship with the selected partner may lead to ongoing operational problems or even to severe business disruptions, and the availability of the processes and services upon which we rely may be interrupted. Performance problems may result in missed reporting deadlines, internal controls challenges, financial losses, missed business opportunities and reputational harm. In addition, as management's focus shifts from a direct to an indirect operational control in these areas, there is a risk that without active management and monitoring of the relationship, the services provided may be below appropriate quality standards. Partners may not meet agreed service levels, in which case, depending on the impacted service, our contractual remedies may not fully cure all of the damages we may suffer. This is particularly true for any deficiencies that would impact the reporting requirements applicable to us as a company listed on multiple stock exchanges. In outsourcing projects, we may encounter disruption to business resulting from broken processes and distraction of our employees that may need to train the partner's staff or be trained in the partner's systems. Adjustments to staff size and transfer of employees to the partner's companies could have an adverse effect on us, for instance, through impacting the morale of our employees, raising complex labor law issues and resulting in the loss of key personnel. Additionally, partnering and outsourcing arrangements can create a dependency on a given partner causing issues in our ability to learn from day-to-day responsibilities, gain hands-on experience, adapt to changing business needs and properly transfer the specific know-how to the new outsourcing partners. Concerns could equally arise from giving third parties access to confidential data, strategic technology applications and books and records. There is also a risk that we may not be able to determine whether internal controls have been effectively implemented, and whether the partner company's performance and controls monitoring reports are accurate.

Our efforts aimed at managing and improving our financial or operational performance may not lead to targeted results, benefits, cost savings or improvements in our competitiveness.
We are continuously targeting increased efficiency of our operations. The strategic and operational changes to our business and a program to reset our cost base while protecting our R&D capacity and commitment to technology leadership announced in October 2023 continue. The program targets to lower our cost base on a gross basis (i.e., before inflation) by between EUR 800 million and EUR 1 200 million by the end of 2026 compared to 2023, assuming on-target variable pay in both periods.

Failure by us to determine the appropriate operational structure, prioritization of operating expenses and other costs, to identify and implement the appropriate measures to increase simplicity and improve cost-efficiency, or to maintain achieved efficiency levels, could limit our future investments and have a material adverse effect on our competitiveness, results of operations and financial condition. Our current and future cost-saving measures may be costly, potentially disruptive to operations, and may not lead to sustainable improvements in our overall competitiveness and profitability, and there can be no assurance that such measures will be met as planned in contemplated timeframes or at all. Our plans may be altered in the future, including adjusting any projected financial or other targets. The anticipated costs or the level of disruption expected from implementing such plans or restructurings may be higher than expected. Efforts to plan and implement cost-saving initiatives may divert management attention from the rest of the business and adversely affect our business.

Risk factors continued

There are also several other factors that may prevent or delay a successful implementation of any cost-saving or efficiency improvement initiatives, including, among others, the following:

- the need to make additional investments in other areas such as 5G-Advanced and 6G, enterprise, security, cloud, artificial intelligence, development of new standard essential patents and automation/digitalization of services and our own operations;
- inaccuracy in our expectations with respect to market growth, customer demand and other trends;
- legislative constraints or unfavorable changes in legislation in the markets in which we operate influencing timing, costs and expected savings of certain contemplated initiatives;
- our ability to align and adjust resources, systems and tools, including digitalization and automation of processes, related to implementation of planned organizational changes;
- intended business plans may require us to inform or consult with employees and labor representatives, and such processes may influence the timing, costs and extent of expected savings and the feasibility of certain contemplated initiatives;
- inflation driving increase in cost base; and
- bargaining power of our suppliers which may prevent us from achieving targeted procurement savings.

Furthermore, cost-saving initiatives may negatively affect our ability to develop new or improve existing products and compete effectively in certain markets, and there is no guarantee that we will continue to be able to successfully innovate or remain technologically competitive.

We may be subject to increased scrutiny related to our sustainability activities and disclosures. Our reputation and brand as well as the willingness of customers and suppliers to do business with us could be harmed if we fail to meet the regulatory sustainability-related requirements, stakeholder expectations or our sustainability goals.
Our business could be negatively impacted if we fail to appropriately address existing and emerging sustainability matters, including related market pressure. We may fail or be unable to fully achieve one or more of our sustainability targets, such as our greenhouse gas emission commitments, due to a range of factors within or beyond our control, and we may adjust or modify our targets in light of new information, adjusted projections, or a change in business strategy, any of which could negatively impact our brand, reputation, and business. For instance, our decarbonization efforts are heavily dependent on the supply and use of renewable energy and biofuels which may not be available for our customers or supply chain in all markets or may not reach affordable cost levels for the actors in our value chain. It is also possible that stakeholders may be dissatisfied with our sustainability practices and targets or the speed of their implementation which could result in action against Nokia by regulators or other third parties or negative pressure on us or our stock.

The sustainability regulatory environment is complex and volatile with new requirements proposed or adopted by various regulators worldwide requiring continuous and consistent monitoring of regulatory developments and evaluation to determine applicability to Nokia. Potential failure to, or perception of a failure to, adapt, disclose relevant metrics, set targets and implement actions and controls that are rigorous enough or otherwise in compliance with applicable regulations, or to prioritize the most material sustainability actions and targets, could negatively impact our brand, reputation, and business. We could also incur additional costs and require additional resources to address evolving regulatory requirements and to monitor and report on our sustainability performance programs, and those of our value chain partners, as required, and to comply with various sustainability practices and disclosure requirements. The high number of data points to be provided and the lack of global standardization in the ESG data disclosures makes ESG-related reporting difficult and resource consuming, which may contribute to challenges for investors to correctly assess disclosures or our ability to comply with each disclosure requirement. It is also possible that third parties rating our ESG practices and performance may make unfavorable, inaccurate or unsubstantiated interpretations of our ESG practices and performance based on their own assessments and publish such interpretations with or without offering us the possibility to comment.

We may be unable to evaluate climate- and other sustainability-related risks and opportunities accurately and to identify and implement strategies for long-term resilience. We foresee that the global rate of technology adoption will be partially driven by sustainability matters, such as environmental impact of products and processes, energy efficiency, security, social and governance issues. For instance, increasing customer demands for sustainable products may necessitate significant investments in R&D, sourcing and relevant processes. Resource scarcity, environmental footprint of our global supply chain, increased regulatory requirements and scrutiny and changed societal expectations may require us to modify our supply chain practices. Geopolitics, unrest and changes in climate may lead to increasing labor migration and refugees pushing informal labor to supply chain. Extreme weather events or other climate-related disruptions could impact our customers, potentially leading to increased expectations regarding the resilience of our products and solutions. As artificial intelligence becomes part of both our product offerings, as well as of our processes, concerns regarding sustainable and ethical AI could lead to reputational damage or regulatory sanctions. Our involvement in defense sector could trigger increased scrutiny of our human rights due diligence and impact our reputation. Potential failure, or perceived failure, to meet sustainability disclosure regulations, standards, practices, stakeholder or societal expectations, or to achieve sustainability targets could result in regulatory fines or other sanctions, as well as negatively impact our reputation, employee retention or access to financing, compromise our stakeholder relationships and the willingness of our customers and suppliers to do business with us.

Risks related to the general economic and financial market conditions and to the industries and markets in which we operate

Our sales and profitability have been and may in the future be materially and adversely affected by general economic and financial market conditions, such as inflation, increased global macroeconomic uncertainty, major currency fluctuations, higher interest rates and financing costs, and other developments in the economies where we operate.
We are a company with global operations with sales, R&D, manufacturing facilities, partners and suppliers located in various countries around the world. Adverse developments in and the weakness of global economic conditions in general have an adverse effect on us and the spending of our customers. For instance, the uncertain nature, magnitude, and duration of hostilities stemming from Russia's military invasion of Ukraine, including the potential effects of sanctions, retaliatory attacks on the world economy and markets, and any other geopolitical escalation, for instance in the US-China relations, in the Middle East or East Asia, and adverse developments in policies governing international trade such as

Risk factors continued

export and import controls, including increases in tariffs, could contribute to increased market volatility and uncertainty, which could have an adverse impact on macroeconomic factors affecting market demand, inflationary development and supply. We are dependent on the purchase behavior of final end-users. Any adverse developments in economies, such as increases in the level of inflation, interest rates or unemployment, may affect market demand for consumables, such as mobile devices, mobile subscriptions and both the services that end-users subscribe to and the usage levels of such services, which may lead communications service providers to invest less in related infrastructure and services or to invest in low-margin products and services. This may further be mirrored as an adverse effect on the business of our patent, technology or brand licensees and our patent licensing income. Likewise, adverse developments in economic conditions may lead certain customer segments, such as webscale companies, transportation & logistics, energy, manufacturing, and public sector verticals, to invest less or delay spend in infrastructure and services to digitize their operations or to invest in low-margin products and services. Further, the purchasing power of our customers, particularly in developing markets, depends to a greater extent on the price development of basic commodities and currency fluctuations, which may render our products or services unaffordable. Economic slowdown may also lead to an overcapacity in supply and inflated inventories, and to delays and shortages in case of sharp recovery and ramp-up of demand with a potentially adverse effect on our ability and our suppliers' ability to deliver products and services in time. Increasing inflation and other current market conditions are driving cost increases in operations, materials and labor, and may also result in strikes and other industrial actions.

General uncertainty and adverse developments in the financial markets could have a material adverse effect on our customers', suppliers' and other partners' ability to obtain sufficient or affordable financing on satisfying terms. Higher interest rates increase cost of financing. Uncertain market conditions may increase the price of financing or decrease its availability if the banks and investors were to tighten lending standards or increase interest rates, or if certain assets would decline in value, which could lead to difficulties in raising funds or accessing liquidity necessary to maintain our financial condition and ongoing operations.

We face intense competition and are dependent on development of the industries and markets in which we operate. The markets are cyclical and are affected by many factors, including the general economic environment, technological changes or the speed of technological adoption, competitor behavior, customer consolidation, customers' spending appetite and purchase behavior, including mix of supply, deployments and rollout timing. Our existing competition and new competition challenging the connectivity business models of our customers are driving price erosion.
The competitive environment in the markets in which we operate, including the related services markets, is characterized by maturing industry technologies, 5G and related new technologies, diversification of supplier ecosystems, equipment price erosion and aggressive price competition. Our competition endeavors to gain market share in selected regions where Nokia has a large footprint. Despite strong growth in mobile data traffic, most of our customer base has been facing persistent erosion in unit revenue and is reverting to vendors to compensate for it. Competition for new customers, as well as for new infrastructure deployment, is particularly intense and focused on the favorability of price and agreement terms. We compete with companies that have large overall scale, which affords such companies more flexibility compared to us. In addition, new competition may be entering the network infrastructure and related services business through adoption of new technologies or business models, such as virtualized RAN and Open RAN or as-a-service models for products or services.

We are particularly dependent on the investments made by communications service providers in mobile connectivity, network infrastructure and related services. The pace and size of such investments are in turn dependent on the ability of communications service providers to increase their subscriber numbers, reduce churn, maintain or increase their average revenue per user, and compete with business models eroding revenue from traditional voice, messaging and data transport services, as well as the financial condition of such service providers. Their cost containment actions and merger activity have in the past constricted capital expenditure, and may continue to do so in the future, resulting in further competition and pressure on pricing and profitability. In addition, the investments of the communications service providers in the new spectrum assets may reduce their funds available for investing in the new network infrastructure and related services. Furthermore, the level of demand by communications service providers, enterprise and other customers that purchase our products and services is dependent on their ability to monetize their investment and introduce new use cases and can therefore change quickly and vary over short periods of time. Communications service providers may also consolidate their supplier base to our disadvantage — all the way to a one-supplier model, for instance in a specific product area. In addition, a portion of our revenues is driven by the timing of completion and customer acceptances. As a result of the uncertainty and variations in the telecommunications and vertical industries, accurate forecasting of revenues, results and cash flow remains difficult. Furthermore, significant reduction of business with us could result in the loss of benefits related to economies of scale.

We may be unable to respond successfully to technological changes or to alternative technologies in the markets in which we operate. Market developments favoring new technological solutions, such as cloud, virtualization, edge computing, programmable networks, AI-enabled automation and alternatives such as satellite communications may result in reduced spending to the benefit of our competitors who have, or may have, a stronger position in such technologies. The technological viability of standardized, low-margin hardware products in combination with the virtualization of functions can induce a change in purchase behavior, resulting in favoring other vendors or in higher bargaining power versus Nokia due to more alternative vendors. Our customers may prefer best-of-breed from multiple vendors, a single vendor or turn to alternative vendors to maintain end-to-end services. Additionally, new competitors may enter the industry as a result of acquisitions or shifts in technology. Furthermore, some companies, including webscale companies, may drive a faster pace of innovation in telecommunications infrastructure through more collaborative approaches and open technologies across access, backhaul, core and management.

We expect to generate a significant share of our growth from new customers, including webscale companies and vertical customers, for example in transportation & logistics, energy, manufacturing, defense and public sector verticals. Each of these sectors may face adverse industry developments, which may significantly impact the size of investments addressable by us and our ability to address these investments, in terms of both having the right products available and being able to obtain new customers and having the right go-to-market

Risk factors continued

capabilities and expertise to address the specific needs of these sectors. Furthermore, there are various incumbent and new actors competing with Nokia in these customer groups we strategically target. With these types of customers, the nature of competition and the required capabilities can be significantly different from the communications service provider market, including competition based on access network, core network, cloud infrastructure, platforms, applications and devices, and related services.

Competitive intensity remains high in the market as competitors seek to take share in 5G rollouts, which is creating a risk of persistent high price erosion in the industry. If domestic and global economic conditions worsen, overall spending on 5G infrastructure may be reduced or delayed, and spending in our other network products and services might be even more rapidly reduced to preserve the customer investment in 5G, which would adversely impact demand for our products and services in these markets. Further, any reduction in our market share in 5G compared with our installed base in 4G due to decisions to protect our profitability, inability to meet the customers' requirements or other reasons, may have a material negative effect on our scale and profitability.

We are dependent on a limited number of big customers and large multi-year agreements. The loss of a single customer or contract, operator consolidation, unfavorable contract terms or other issues related to a single agreement may have a material adverse effect on our business and financial condition.
A significant proportion of the net sales and profits that we generate have historically been derived from a limited number of customers. As consolidation among existing customers continues, it is possible that an even greater portion of our net sales will be attributable to a smaller number of large communications service providers. These developments are also likely to increase the impact on our net sales based on the outcome of certain individual agreement tenders. Communications service providers are also increasingly entering into asset sharing arrangements, as well as joint procurement agreements, which may reduce their investments and the number of networks available for us to service. Furthermore, procurement organizations of certain large communications service providers sell consulting services to enhance the negotiating position of small operators with their vendors.

As a result of the intense competition in the industry, we may increasingly be required to agree to less favorable contractual terms in order to remain competitive. Any unfavorable developments in relation to, or any change in the agreement terms applicable to, a major customer may have a material adverse effect on our business, results of operations and financial condition. Also, agreements in the networks business are typically complex and long term in nature and it is possible that over time the contract terms of the agreement may prove less favorable to us than originally expected, for instance due to changes in costs and product portfolio decisions, and those may be difficult to amend promptly to address new developments, such as the recent period of accelerating inflation. Furthermore, in particular given the bargaining power of our customers or limited legal ability to deviate from the standard governmental contract terms, we may be exposed to onerous terms and liabilities in our customer contracts.

Loss of a single customer, its significant business or contract, or other issues related to a single agreement, may have a material adverse effect on our business and financial condition. We have lost customers and contracts in the past and the same may happen in the future. Furthermore, any suspension, termination or non-performance by us under an agreement's terms may have a material adverse effect on us, for example due to penalties for breaches, early termination or reduced orders or customer footprint. In addition, we may lose existing agreements, or we may be unable to renew or gain new agreements, for instance due to customer policies that limit the ability of customers to have one network provider exceeding a certain threshold of business in a given market or as a result of merger activity where the customer may decide to concentrate their spending elsewhere.

The timing of sales and results of operations associated with large multi-year agreements or turnkey projects may differ significantly from expectations. For instance, recognition of sales and related costs in network implementation projects are often linked with achievement of customer acceptances, which may delay for reasons that may or may not be attributable to us. Moreover, such agreements often require dedication of substantial amounts of working capital and other resources, which may adversely affect our cash flow, particularly in the early stages of an agreement's term, or may require us to continue to sell certain products and services, or to sell in certain markets that would otherwise be discontinued or exited, thereby diverting resources from developing more profitable or strategically important products and services, or focusing on more profitable or strategically important markets. Furthermore, our customer agreements may involve complex transformation of the networks as the customers deploy new technologies and the related costs and scope of required deliverables may differ from our expectations at the time we enter into such agreements.

We may be adversely affected by developments with respect to customer financing or extended payment terms that we provide to our customers. Unwillingness of banks or other institutions to provide guarantees or financing to our customers or purchase our receivables could impair our capability to enter agreements with new customers or markets, to mitigate payment risk and to manage our liquidity.
Requests for customer financing and extended payment terms are typical for our industry and uncertainty or lack of liquidity in the financing markets, among other things, may result in increased customer financing requests. In the event that export credit agencies face constraints on their ability or willingness to provide guarantees or financing to our customers, or there is insufficient demand from banks or other financial institutions to purchase receivables, such events could have a material adverse effect on our business and financial condition. Furthermore, reduced availability of credits by export credit agencies supporting our sales could affect our ability to attract customers and enter new markets thus facing the possibility of reduced sales.

In certain cases, the amounts and duration of these financings and trade credits, and the associated impact on our working capital, may be significant. We have agreed to extended payment terms for a number of our customers and may continue to do so in the future. Extended payment terms may result in a material aggregate amount of trade credits and even when the associated risk is mitigated by a diversified customer portfolio, defaults in the aggregate could have a material adverse effect on us.

Our ability to manage our total customer financing and trade credit exposure depends on a number of factors, including, but not limited to, the market conditions affecting our customers, the levels and terms of credit available to us and our customers, the cooperation of export credit agencies and our ability to mitigate exposure on acceptable terms. We may be unsuccessful in managing the challenges associated with the

Risk factors continued

customer financing and trade credit exposure that we may face from time to time, particularly in difficult financial conditions in the market. While defaults under financings, guarantees and trade credits to our customers resulting in impairment charges and credit losses have not been significant for us in the past, these may increase in the future. Further, commercial banks may not continue to be able or willing to provide sufficient long-term financing, even if backed by export credit agency guarantees, due to their own constraints, and certain of our competitors may also have greater access to such financing, which could adversely affect our competitiveness. Additionally, we have sold certain receivables to banks or other financial institutions, and any significant change in our ability to continue this practice could impair our capability to mitigate such payment risk and to manage our liquidity.

Nokia also arranges bank guarantees and bonds in customers' favor in relation to our business. In the event we are unable to collect outstanding guarantees and bonds, this could limit our possibilities to issue new guarantees and bonds, which are required in customer agreements or practices. We also face a risk that such commercial guarantees/bonds may be unfairly called.

Risks impacting our competitiveness

We may fail to invest effectively and profitably in new competitive high-quality products, services, upgrades and technologies or bring them to the market in a timely manner. We also may fail to adapt to changing business models.
Our business performance and results of operations will depend to a significant extent on our ability to succeed in the following areas:

- maintaining and developing a competitive product portfolio and service capability that is attractive to our customers, for instance by keeping pace with technological advances in our industry and pursuing technologies that become commercially accepted and price competitive;
- maintaining compliance with regulatory requirements and standards;
- introducing new products, services and upgrades of current products and doing so on a cost-efficient and timely basis;
- developing new or enhancing existing processes and tools for our service offerings;
- optimizing the amount of customer or market-specific technology, product and feature variants in our product portfolio;
- continuing to meet evolving expectations and enhancing the quality of our products and services, complying with emerging industry standards as well as introducing products and services that have desired features and attributes, such as energy efficiency;
- maintaining and building up strategic partnerships in our value creation chain (e.g., in product creation and project delivery); and
- leveraging our technological strengths and addressing competing technological and product developments carried out by competitors while keeping prices and costs at competitive levels.

The industries in which we operate are characterized by rapidly evolving technologies, frequent new technological requirements, product feature introductions and evolving industry standards. The participants in the markets where we operate compete on the basis of product and service offerings, technical capabilities and quality in addition to price and affordability.

The R&D of new, innovative and technologically advanced products, such as 5G-Advanced, Open RAN, 6G, IoT, the cloud and software as well as upgrades to current products and new generations of technologies, is a complex and an uncertain process requiring high levels of innovation and investment, including trying to accurately anticipate technological, regulatory and market trends. We may focus our resources on products and technologies that do not become widely accepted or ultimately prove unviable. Additionally, many of our current and planned products are highly complex and may contain defects or errors that are, for instance, detected only after deployment in telecommunications networks. Even if we invest in new competitive products, services, upgrades or technologies and proactively manage the costs related to our portfolio of products and services, including component sourcing, manufacturing, logistics and other operations, we may still fail to maintain or improve our market position, competitiveness or scale, keep prices and costs at competitive levels or provide high-quality products and services.

Certain of our competitors have significant resources to invest in market exploration and may seek new monetization models or drive industry development and capture value in areas where we may not currently be competitive or do not have similar resources available to us. These areas may include monetization models linked to large amounts of consumer data, large connected communities, home or other entertainment services, alternative payment mechanisms or marketing products. We also face competition from various companies that may be able to develop technologies or products that become preferred over those developed by us or result in adverse effects on us through, for instance, developing technological innovations that make our innovations less relevant. In addition, reduced government funding and support for our R&D activities could affect our ability to develop new technology or products.

Inefficiencies, incidents, malfunctions or disruptions of information technology systems and processes could have a material adverse effect on our business and results of operations. As our business operations, including those we have outsourced, rely on complex IT systems, networks and related services, our reliance on the precautions taken by us and external companies to ensure the reliability of our own and third-party IT systems, networks and related services is increasing. Consequently, certain disruptions in IT systems and networks affecting us and our external providers could also have a material adverse effect on our business.
All IT systems, networks and processes are potentially vulnerable to damage, incidents, malfunction or interruption from a variety of sources. Our own and customer-facing operations rely on the efficient and uninterrupted operation of complex and centralized IT systems, networks and processes, which are integrated with those of third parties. The ongoing migration to cloud-based architectures and network function virtualization has introduced further complexity and associated risk.

We are, to a significant extent, relying on third parties for the provision of IT services. While we have outsourced certain functions, we have also increased our dependence on the reliability of external providers as well as on the security of communication with them. We may experience disruptions if our partners do not deliver as expected or if we are unable to successfully manage systems and processes together with our business partners. We will often need to use new service providers and may, due to technical developments or choices regarding technology, increase our reliance on certain new technologies, such as cloud, and certain other services that are used over the internet rather than using a traditional licensing

Risk factors continued

model. Switching to new service providers and introducing new technologies is inherently risky and may expose us to an increased risk of disruptions in our operations, for instance due to network inefficiency or outage, a cybersecurity or a compliance incident, malfunctions, failure in disaster recovery or IT service continuity or other disruptions resulting from IT systems and processes.

We are constantly seeking to improve the quality and security of our IT systems. However, despite precautions taken by us, we may fail to successfully secure our IT and any malfunction or disruption of our current or future systems or networks, such as an outage in a telecommunications network used by any of our IT systems, or a cybersecurity incident, such as an attack, malware, ransomware or other event that leads to an unanticipated interruption or malfunction of our IT systems, processes, networks or data leakages, could have a material adverse effect on our business, results of operations and brand value. A disruption of services relying on our IT, for instance, could cause significant discontent among customers and their end-users and may result in claims, contractual penalties or deterioration of our brand value. Further, while we are increasing our investments in digitalizing our operations and transforming our IT, the legacy IT systems may be gradually more vulnerable to malfunction, disruptions or security incidents than the new IT systems replacing them.

We are exposed to risks related to information security. Our business model relies on solutions for distribution of services and software or data storage, which entail inherent risks relating to applicable regulatory regimes, cybersecurity incidents and other unauthorized access to network or data. Our business and operations rely on data confidentiality and security incidents may adversely affect of privacy and/or our business.
Our business and operations rely on confidentiality of proprietary and other sensitive information, for instance related to our employees and our customers, including our government customers. Our business models rely on certain centralized data processing solutions and cloud or remote delivery-based services for distribution of services and software or data storage, accessible by our partners or subcontractors according to the roles and responsibilities defined.

We, our service companies and joint ventures, products and online services, marketing and developer sites and third parties that we contract have been and may in the future be subject to cybersecurity incidents, including hacking, ransomware, viruses, worms and other malicious software, unauthorized modifications, or other illegal activities that may cause potential security risks and other harm to us, our customers or consumers and other end-users of our products and services. Information Technology is rapidly evolving, the techniques used to obtain unauthorized access or sabotage systems change frequently and the parties behind cyber-attacks and other industrial espionage are sophisticated and have extensive resources, and it is not commercially or technically feasible to mitigate all known vulnerabilities in a timely manner or to eliminate all risk of cyber-attacks and data breaches. The widespread availability of artificial intelligence capabilities adds an extra dimension to cyber threats. Additionally, we contract with multiple third parties in various jurisdictions who collect and use certain data on our behalf. Although we have processes in place designed to ensure appropriate collection, handling and use of such data, third parties may use the data inappropriately or breach laws and agreements in collecting, handling or using or leaking such data. Our business is also vulnerable to theft, fraud or other forms of deception, sabotage and intentional acts of vandalism and espionage by third parties and employees. Further, compared to our fully integrated group companies, our ability to mitigate and oversee risk of cyber-attacks and data breaches may be more limited in our joint venture companies and other group companies having their own governance and system infrastructure, such as our local service companies focusing on network field services.

The cybersecurity incidents may lead to lengthy and costly incident response, remediation of the attack or breach, legal proceedings and fines imposed on us, as well as adverse effects to our reputation and brand value. Additionally, cyber-attacks can be difficult to prevent, detect or contain. We cannot rule out the possibility that there may have been cyber-attacks that have been successful and/or evaded our detection. We continue to invest in risk mitigating actions; however, there can be no assurance that such investments and actions will prevent or detect future cyber-attacks. Additionally, the cost and operational consequences of implementing further information system protection measures, especially if prescribed by national authorities, could be significant. We may not be successful in implementing such measures in due time, which could lead to business disruptions and the implementation to be more expensive, time-consuming and resource-intensive. There are increasing regulatory requirements globally mandating how incidents should be managed and reported. Multi-faceted, multi-jurisdictional reporting requirements may be difficult to comply with the timescales required.

In connection with providing products and services to our customers, certain personal and consumer data is collected, stored and processed through us, either by us or by our business partners or subcontractors in various jurisdictions. Loss, improper disclosure or processing or leakage of any personal or consumer data collected by us, or which is made available to us or our partners or subcontractors or stored in or through our products and services, could have a material adverse effect on us and harm our reputation and brand. Additionally, governmental authorities may seek to misuse our network products to access the personal data of individuals without our involvement; for example, through the so-called lawful intercept capabilities of network infrastructure, impairing our reputation.

We may face problems or disruptions in manufacturing, service creation, delivery, logistics or supply chain. Such challenges include securing availability of resources or components to meet the demand, ability to adapt supply, defects in products or related software or services, and achieving required efficiencies and flexibility. Our suppliers and partners may fail to meet product quality, health, safety or security requirements or comply with other regulations or local laws, such as environmental, social or labor laws. Additionally, adverse events, such as geopolitical disruptions, natural or man-made disasters, civil unrest or health crises, have and may continue to have an impact on our service delivery, production sites or the production sites of our suppliers and partners which are geographically concentrated.
We have an extensive supply network, including a geographically dispersed manufacturing network consisting of both our own manufacturing and contract manufacturing partners. We, or third parties that we have outsourced manufacturing and services delivery to, may experience difficulties in adapting supply to meet the changing customer demand, ramping up and down production, adjusting network implementation capabilities as needed on a timely basis, maintaining an optimal inventory level, adopting new manufacturing processes, finding the most timely way to develop the best technical manufacturing solutions for new products, managing the increasingly complex manufacturing process, service creation and delivery process or achieving

Risk factors continued

required efficiencies and flexibility. In addition, these operations are exposed to various risks and potential liabilities, including those related to geopolitics, transition to a low carbon economy, compliance with laws and regulations, exposure to environmental non-compliance and liabilities or other claims. In addition to operational complexity, these may increase our costs related to our supply chain.

Our manufacturing operations depend on obtaining sufficient quantities of fully functional products, components, sub-assemblies, software, services, energy and other resources on a timely basis. In certain cases, a particular component or service may be available only from a limited number of suppliers or from a single supplier in the supply chain. Suppliers have and may, from time to time, extend lead times, limit supplies, change their partner preferences, increase prices, provide poor quality supplies or be unable to adapt to changes in demand due to capacity constraints or other factors, which could adversely affect our ability to deliver our products and services on a timely basis or increase our costs. For example, the past global semiconductor components shortage constrained our deliveries and led to increase in procurement prices. The continuing concerns around components and raw material availability and potential energy shortages in the market, if realized may have an impact on our ability to deliver to our customers and increase our costs. For instance, we see that the data center buildouts driven by AI are starting to impact prices of semiconductors. Also, certain raw materials, such as Gallium have seen price increases due to increased geopolitical tensions. The semiconductor supply chains are highly interdependent and sensitive to policy disruptions. We are working closely not only with our suppliers to ensure component availability but also with our customers to ensure we can meet their needs. We are also continuously optimizing our critical material buffer to prepare for balancing short-term disruptions. Many of our competitors and also companies from other industries utilize the same contract manufacturers, component suppliers and service vendors. If they have purchased capacity or components ahead of us, or if there is significant consolidation in the relevant supplier base, this could prevent us from acquiring the required components or services, which could limit our ability to supply our customers and increase our costs. Our increasing involvement in defense related projects may trigger the need to involve specialized and unique suppliers. Disruptions in this specialized supply chain may adversely impact our ability to fulfill contractual obligations.

Our products are highly complex and defects in their design, manufacture and associated hardware, software, content and installation have occurred in the past and may continue to occur in the future. Quality issues may cause, for instance, delays in deliveries, loss of intellectual property, liabilities for network outages, court fees and fines due to breaches of significantly increasing regulatory privacy requirements and related negative publicity, and additional repair, product replacement or warranty costs to us, and harm our reputation and our ability to sustain or obtain business with our current and potential customers. With respect to our services, quality issues may relate to the challenges of having the services fully operational at the time they are made available to our customers and maintaining them on an ongoing basis. We may also be subject to damages due to product liability claims arising from defective products and components. We make provisions to cover our estimated warranty costs for our products and pending liability claims. We believe our provisions are appropriate, although the ultimate outcome may materially differ from the provisions that are provided for, which could have a material adverse effect on us.

A large proportion of our manufacturing, service creation and delivery is carried out by third-party suppliers. These vary in size and often engage a number of tiers of suppliers, which limits our direct control. Suppliers may fail to meet our supplier requirements or customer expectations, such as related to product quality, safety and security. Certain suppliers may not comply with local laws, including, among others, local labor law, health and safety or environmental requirements. The activities we manage or that are managed by third parties for us may also be subject to negative publicity and purchasing boycotts, strikes or other forms of social, political, economic or environmental activism. These all can lead to exposure in the form of litigation, product recalls or brand damage through association.

Many of our production sites or the production sites of our suppliers and partners are geographically concentrated, with a majority of such suppliers and partners based in Asia. We rely on efficient logistics chain elements, such as regional distribution hubs and transport chain elements (main ports, streets and airways). In the recent years, we have regionalized our supply network to increase resilience. However, in the event that any of these geographic areas are affected by any adverse conditions that disrupt production or deliveries from our suppliers and partners, such as trade restrictions, severe impacts of environmental events, geopolitical events, man-made or natural disasters (for instance, flooding, heavy rain or extreme heat that climate change is expected to further intensify or current unrest by the Red Sea), war, civil unrest or health crises such as the COVID-19 pandemic, our ability to deliver our products on a timely basis could be adversely affected. In a similar manner, these adverse conditions may also cause disruption to our service creation and delivery, which, in either case, may lead to a material adverse effect on our business and results of operations.

Competition for employees and leaders is increasing globally. We may be unable to retain, motivate, develop, reskill and recruit appropriately skilled employees or we may fail in workforce balancing. Employees may face change fatigue or reduction in motivation and energy as our efforts to evolve our business and improve efficiency continue.
Our success in executing our strategy, to address opportunities in new technologies, business models and customer segments in particular, requires and is dependent on our ability to retain, motivate, develop, reskill and recruit appropriately skilled employees and, in particular, those with relevant technical expertise. Competition for employees and leaders particularly in some critical technology functions and niche markets such as system-on-chip and artificial intelligence is increasing globally.

Our workforce has fluctuated over recent years as we have introduced changes in our strategy to respond to our business targets and endeavors. We continue with the strategic and operational changes announced in October 2023. The related program is expected to lead to a 72 000 to 77 000-employee organization. Such changes and uncertainty may cause disruption, fatigue and dissatisfaction among employees as our efforts to evolve our business and maximize operational efficiency continue. Employee motivation, energy, focus, morale and productivity may be reduced, causing inefficiencies and other problems across the organization resulting in the loss of key employees and increased costs in resolving and addressing such matters. The loss of key employees could result in resource gaps, some of which may only be noticed after a certain period of time or which negatively impact our relationship with customers, vendors or other business partners.

Risk factors continued

Our efforts to rebalance our workforce as planned may fail, for instance due to legal restrictions or collective bargaining agreements, which may result in a non-optimal workforce, larger than expected costs and not meeting our financial targets for such plans. Our inability to negotiate successfully with employee representatives or failures in our relationships with such representatives could result in strikes and other industrial actions by the employees which may in turn result in significant disruption in our day-to-day operations and higher ongoing labor costs. The market for skilled employees is increasingly competitive, particularly given the similar technology trends affecting various industries simultaneously and increased remote working expanding the job market for individual employees. We have encountered, and may in the future encounter, shortages of appropriately skilled employees or lose key employees or senior management. There can be no assurances that we will be able to implement measures successfully to retain or hire the employees we need. This may require significant time, attention and resources from our senior management and other key employees within our organization and may result in increased costs or otherwise have a material adverse effect on us.

We have a hybrid workforce where employees can choose to work remote or from the office. With this there is a risk of dispersed collaboration which can impact our ability to innovate. In addition, newly joined employees may experience a lack of connection and sense of community.

Risks associated with intellectual property rights and technology licensing

Our patent licensing income and other intellectual property-related revenues are subject to risks and uncertainties such as our ability to maintain our existing sources of intellectual property-related revenue, establish new sources of revenue and protect our intellectual property from infringement. A proportionally significant share of the current patent licensing income is generated from the smartphone market, which is rapidly changing and features a limited number of large vendors.

The continued strength of our intellectual property portfolios depends on our ability to create new relevant technologies, products and services through our R&D activities and to protect and, where necessary, enforce our intellectual property rights (IPR). If those technologies, products and services do not become relevant, and therefore attractive to potential licensees, the strength of our intellectual property portfolios could be reduced. Despite the steps that we have taken to protect our technology investments with IPR, we cannot be certain that any rights or pending applications will be granted or that the rights granted in connection with any future patents or other IPR will be valid and sufficiently broad to protect our innovations and maintain the relative strength of our portfolio. Third parties may infringe our intellectual property relating to our proprietary technologies or disregard their obligation to seek necessary licenses under our patents or seek to pay less than reasonable licensing fees. As a result, we may be unable to continue to develop or protect our intellectual property-related revenue or establish new sources of revenue.

Regulatory, geopolitical and other developments regarding protection awarded to technology innovations, compensation trends with respect to licensing and the underlying businesses of our licensees, over which we have limited control, may impact our ability to protect, monetize or divest our intellectual property. Any patents or other IPR may be challenged, invalidated or circumvented, and any right granted under our patents may not provide competitive advantages for us. In the technology sector generally, certain licensees are actively avoiding concluding license agreements on fair and reasonable commercial terms, or are withholding making license payments, while some suggest that licensors may be able to collect unreasonably high license payments, with both behaviors attracting regulatory attention. Authorities in various countries have increasingly monitored patent monetization and may aim to influence the terms on which patent licensing arrangements or patent divestments may be executed, which could compromise control over or protection of our technology and proprietary information. Such terms may be limited to a certain country or region, which may, for example, lead to fragmentation of the global framework for licensing of global technology standards; however, authorities could potentially seek to widen the scope and even impose global terms, potentially resulting in further an adverse effect on our ability to monetize our patent portfolios.

There is no assurance that past levels are indicative of future levels of intellectual property-related revenue. Poor performance by any of Nokia's patent or technology licensees may impact Nokia financially, for example, if a licensee's ability to pay is reduced, the licensee decides to divest or scale back a particular part of its business or it becomes insolvent or bankrupt. Additionally, poor performance of potential or current licensees may limit a licensee's motivation to seek new or renew existing licensing arrangements with us. Furthermore, patent license agreements can cover both past and future sales of licensees, and the portion of the income that relates to licensees' past sales is not expected to have a recurring benefit. Ongoing patent income from licensing is generally subject to various factors (for instance, sales by the licensees) that we have little or no control over, and it can vary considerably from time to time based on factors such as the terms of agreements we enter into with licensees.

We seek to expand the scope of our licensing activities to other areas, in particular those that implement mobile communications and multimedia technologies, such as the automotive, consumer electronics, IoT and multimedia. The actors in some of these industries may not have traditionally paid intellectual property-related royalties and the expansion of our licensing activities into such industries may involve litigation. In addition, entering highly fragmented markets or markets with a high volume of licensees may affect our effectiveness and/or profitability.

We retained our patent portfolio after the sale of the Devices & Services business in 2014. Following the sale of the Devices & Services business, Nokia is no longer required to agree upon cross-licenses to cover Nokia's handset business, which has contributed to growing our licensing revenue. While this has been our practice, there can be no guarantee that this can be continued in the future. Also, in the past, parts of our intellectual property development were driven by innovation from the Devices & Services business. As we no longer own this business, our future intellectual property relating to the mobile phone sector may lessen and our ability to influence industry trends and technology selections may reduce.

We also enter into business agreements on behalf of our business groups, which may grant certain licenses to our patents. Some of these agreements may inadvertently grant licenses to our patents with a broader scope than intended, or they may otherwise make the licensing and enforcement of our patents more difficult.

Risk factors continued

To renew existing license agreements and conclude new license agreements with potential licensees, we may and have engaged in legal actions to enforce our intellectual property rights against unlawful infringement, the outcomes of which are uncertain.
Although the majority of our license agreements are concluded amicably, and while we strive to reach negotiated settlements of any disputes in relation to license agreements with companies using our intellectual property, sometimes it is necessary to engage in litigation or arbitration in order to renew existing license agreements which have expired or to conclude new license agreements with unlicensed parties. In certain cases, we have engaged in litigation or arbitration proceedings to enforce our rights, for instance to enforce our patents or to establish the terms of a patent license agreement. Due to the nature of litigation and arbitration proceedings, there can be no assurances as to the final outcome, timing or costs involved in such litigation or arbitration proceedings or as to our ability to renew existing license agreements or conclude new license agreements with potential licensees on acceptable commercial terms. Such litigation may also have an adverse effect on customer relationships.

In other cases, other companies have commenced and may continue to commence actions against us seeking to challenge the validity of our intellectual property, including our patents, or to contest our licensing practices or file competition law complaints with courts or competition authorities. In the event that one or more of our patents is challenged, a court may invalidate the patent or determine that the patent is not enforceable. The outcome of court proceedings is difficult to predict and, consequently, our ability to use intellectual property for revenue generation may from time to time depend on favorable court rulings. Additionally, if any of our patents is invalidated, or if the scope of the claims in any patents is limited by a court decision, we could be prevented from using such patents as a basis for product differentiation or from licensing the invalidated or limited portion of our IPR. Even if such a patent challenge is not successful, the related proceedings could be expensive and time-consuming, divert the attention of our management and technical experts from our business and have an adverse effect on our reputation. Any diminution in the protection of our IPR could cause us to lose certain benefits of our R&D investments.

While the primary source of Nokia Technologies business group net sales and profits is licensing of the Nokia patents, we are also engaged with licensing of technologies, as well as with other business ventures, including technology innovation and incubation. Expected net sales and profitability for these businesses may not materialize as planned or, for some of these businesses, at all.
There can be no assurances that our Nokia Technologies business group, or any other part of Nokia, will be successful in innovation and incubation or in generating net sales and profits through its business plans, for instance, in patent and technology licensing. The industries in which we operate, or may operate in the future, are generally fast paced, rapidly evolving, innovative and at different levels of maturity. Additionally, we are entering into new business areas based on our technology assets and may explore new business ventures. Such business areas or plans may be adversely affected by adverse industry and market developments in the numerous diverse markets in which we operate, and the investments we make may not achieve the targeted scale, intended benefits or yield expected rates of return.

Our products, services and business models depend on technologies that we have developed as well as technologies that are licensed to us by certain third parties. As a result, evaluating the rights related to the technologies we use or intend to use is increasingly challenging, and we expect to continue to face claims that we have allegedly infringed third parties' IPR. The use of these technologies may also result in increased licensing costs for us, restrictions on our ability to use certain technologies in our products and/or costly and time-consuming litigation.
Our products and services include increasingly complex technologies that we have developed or that have been licensed to us by certain third parties. The amount of such proprietary technologies and the number of parties claiming to own relevant IPR continue to increase. The holders of patents and other IPR potentially relevant to these complex technologies may be unknown to us, may have different business models, may refuse to grant licenses to their proprietary rights or may otherwise make it difficult for us to acquire a license on commercially acceptable terms. If licensing agreements are not available on commercially acceptable terms, we could be precluded from making and selling the affected products or could face increased licensing costs. As new features are added to our products, we may need to acquire further licenses, including from new and sometimes unidentified owners of intellectual property. The lack of availability of licenses for copyrighted content, delayed negotiations or restrictive IPR license terms may have a material adverse effect on the cost or timing of content-related services and products offered by us, mobile network operators or third-party service providers. The cumulative costs of obtaining any necessary licenses are difficult to predict and may be significant.

Additionally, although we endeavor to ensure that we and the companies collaborating with us possess appropriate IPR or licenses, we cannot fully avoid the risks of IPR infringement by suppliers of components, processes and other various layers in our products, or by companies with which we collaborate. Similarly, we and our customers may face claims of infringement in connection with the use of our products. Any restrictions on our ability to sell our products due to expected or alleged infringements of third-party IPR and any IPR claims, regardless of merit, could result in a material loss of profits, costly litigation, the obligation to pay damages and other compensation, the diversion of the attention of our key employees, product shipment delays or the need for us to develop non-infringing technology or to enter into a licensing agreement on unfavorable commercial terms.

In line with standard practice in our industry, we generally indemnify our customers for certain intellectual property-related infringement claims initiated by third parties relating to products or services purchased from us. These may include claims from non-practicing entities having no product or service business. If such claims are made directly against our customers, we may in certain cases have limited opportunities to participate in the process addressing such claims including in negotiations and in defenses, or to evaluate the outcomes and resolutions in advance. All IPR indemnifications can result in significant payment obligations for us that are difficult to estimate in advance. Moreover, our indemnification responsibilities typically arise whether or not the IPR assertions against our customers have merit.

Since all technology standards that we use and rely on, including mobile communication technologies such as the Universal Mobile Telecommunications System (UMTS), Long-Term Evolution (LTE) and 5G, or fixed line communication technologies, include certain IPR, we cannot avoid risks of facing claims for infringement of such rights due to our reliance on such standards. We believe the number of third parties

Risk factors continued

declaring their patents to be potentially relevant to these standards is increasing, which may increase the likelihood that we will be subject to such claims in the future. As the number of market entrants and the complexity of technologies increase, it remains likely that we will need to obtain licenses with respect to existing and new standards from other licensors. While we believe most of such IPR actually found to be essential to a particular standard carries an obligation to be licensed on fair, reasonable and non-discriminatory terms, not all intellectual property owners agree to apply such terms, nor do all owners agree on what is fair, reasonable and non-discriminatory. As a result, we have experienced costly and time-consuming litigation proceedings against us and our customers or suppliers over such issues, and we may continue to experience such litigation in the future.

From time to time, certain existing patent licenses may expire or otherwise become subject to renegotiation. The inability to renew or finalize such arrangements or renew licenses with acceptable commercial terms may result in litigation, which may be expensive and time-consuming and divert the efforts of our management and technical experts from our business and, if decided against us, could result in unfavorable judgments or restrictions on our ability to sell certain of our products or require us to pay increased licensing fees, fines or other penalties and expenses, and/or to enter into costly settlements.

Our patent license agreements may not cover all the future businesses that we may enter, our existing business may not necessarily be covered by our patent license agreements if there are changes in our corporate structure or our subsidiaries, or our newly acquired businesses may already have patent license agreements with terms that differ from similar terms in our patent license agreements. This may result in increased costs, restrictions in the use of certain technologies or time-consuming and costly disputes whenever there are changes in our corporate structure or our subsidiaries, or whenever we enter into new business areas or acquire new businesses.

We make accruals and provisions to cover our estimated total direct IPR costs for our allegedly infringing products. Our estimated total direct IPR costs take into account items such as payments to licensors, accrued expenses under existing agreements and provisions for potential liabilities. We believe our accruals and provisions are at an appropriate level. The ultimate outcome, however, may differ from the provided level, which could have an adverse impact on us.

Risks stemming from geopolitical, legal, regulatory and compliance environment

Current international trends show increased enforcement activity in areas such as national security, competition law, export control and sanctions, privacy, cybersecurity, climate change, human rights and anti-corruption. Furthermore, we have observed an increase in the adoption of surveillance, data localization, national sourcing and national hiring requirements, regulations and policies, as well as regulators' increased interest in regulatory reform and reorganization and their growing appetite for tackling topics such as non-personal data, artificial intelligence, open access and net neutrality.

We conduct our business globally, being subject to direct and indirect regulation and exposed to geopolitical and regulatory risks, such as complex regulatory frameworks, unfavorable or unpredictable treatment in relation to trade sanctions, tariffs, tax matters and export controls (such as the changes in the U.S. and international trade policies, including the export and import controls and laws, particularly with regard to China, Mexico and Canada), exchange controls and other restrictions. We are also exposed to geopolitical conflicts and military actions, labor unrest, civil unrest, and public security and safety threats. These all could have a material adverse effect on us and our supply chain and our ability to sell or supply products and services, including network infrastructure equipment and components manufactured in such countries.

We have witnessed political unrest and open conflicts in the past in various markets in which we conduct business or in which we have operations, which have adversely affected our sales, profitability or operations in these markets, including the safety and security of our employees, and also in certain cases affected us outside these countries or regions. Any reoccurrence or escalation of such unrest could have a further material adverse effect on our people, sales or results of operations. For instance, an expansion of the current tensions in the Middle East with open conflict between sovereign states in the region or any further deterioration of the security situation in countries in the Sahel and West Africa, could impact our business on multiple levels such as market access over supply chain, general economic developments, security and safety of our operations in concerned countries, potential sanctions or boycotts, and reputational impacts. Escalating tensions in East Asia and territorial disputes by the South China Sea could lead to various risks, including short- or long-term supply chain disruptions from Taiwan. Should we decide to exit or otherwise alter our presence in a particular market, this may have an adverse effect on us through, for example, disruption to our operations in the event we need to relocate significant parts of our operations, triggered investigations, tax audits by authorities, claims by contracting parties or reputational damage.

At Nokia, we make our sales in a transparent, regulated and compliant manner and in accordance with applicable laws and regulations. Notwithstanding our compliance measures, there exists a risk that the equipment we sell may subsequently be misused, relocated or resold without our knowledge or consent. The results and costs of investigations or claims against our international operations may be difficult to predict and could lead to lengthy disputes, fines or fees, indemnities or costly settlements.

The regulatory, trade controls and sanctions legal environment can be difficult to navigate for companies with global operations, impacting ability to grow or maintain business in specific markets or enter new markets. As a global operator, Nokia conducts business subject to export controls regulations and in countries subject to various sanctions and our business may be impacted by new, existing or tightened export control regulations, sanctions, embargoes or other forms of economic and trade restrictions imposed on certain countries, regions and entities. Although we strive to conduct all operations of Nokia, and in particular any operations undertaken in countries targeted by sanctions, in accordance with our compliance program, we cannot ensure that breaches will not occur.

Export controls, tariffs or other fees or levies imposed on our products and environmental, health, product safety, data protection and security, consumer protection, money laundering and other regulations that adversely affect the export, import, technical design, pricing or costs of our products could adversely affect our sales and results of operations. Further, we rely on multilateral trade regimes to help ensure a balanced playing field. Conflicts between countries and geopolitical tensions may lead to implementation of multiple and possibly conflicting unilateral measures or uncertainties impacting trade of products and services and which may also affect our customers' ability or willingness to invest in capital expenditures and increase our costs or have adverse impacts on our operations and supply chain. For instance, we use products, components and sub-assemblies that are sourced from China, Mexico and Canada and are therefore subject to risks associated with international trade

Risk factors continued

conflicts including between the U.S. and such countries, particularly with respect to export and import controls and laws. Furthermore, President Trump has spoken regularly about his desire to implement additional tariffs on foreign products. Rising political tensions could reduce trade volume, investment, technological exchange and other economic activities between major international economies, resulting in a material adverse effect on global economic conditions and the stability of global financial markets. Additionally, increasing tariffs could impact raw material prices, the cost of component parts and transportation. Any of the foregoing could have an adverse effect on our business, prospects, financial condition and results of operations.

We have a significant presence in emerging markets in which the political, economic, legal and regulatory systems are less predictable than in countries with more developed institutions. These markets represent a significant portion of our total sales, and a significant portion of expected future industry growth. Most of our suppliers are located in, and our products are manufactured and assembled in, emerging markets, particularly in Asia. Our business and investments in these markets may be subject to risks and uncertainties, including unfavorable or unpredictable treatment in relation to tax matters, exchange controls, restrictions affecting our ability to make cross-border transfers of funds, regulatory proceedings, unsound or unethical business practices, challenges in protecting our IPR, information security, nationalization, inflation, currency fluctuations or the absence of or unexpected changes in regulation, as well as other unforeseeable operational risks.

Our business and results of operations may be adversely affected by regulation favoring the local industry participants, as well as other measures with potentially protectionist objectives or outcomes that host governments in various countries may take, including the introduction of local technical standards that divert from the globally adopted standards. Governments and regulators, particularly after changes in political regimes, may make legal and regulatory changes, slow down or reverse the adoption of favorable policy measures, or interpret and apply existing laws in ways that make our products and services less appealing to customers or require us to incur substantial costs, change our business practices or prevent us from offering our products and services. In particular, there is a growing trend in many countries to require minimum local content in products and/or services, and we may be required to invest in certain movement of operations or joint ventures to retain market share. Restrictive government policies or actions, such as the ones we saw in relation to the COVID-19 pandemic, or limitations on visas or work permits for certain foreign workers, may make it difficult for us to move our employees into and out of these jurisdictions. Our operations as well as employee recruitment and retention depend on our ability to obtain the necessary visas and work permits for our employees to travel and work in the jurisdictions in which we operate. The impact of changes in or uncertainties related to general regulation and trade policies could adversely affect our business and results of operations even in cases where the regulations do not directly apply to us or our products and services.

Changes in various existing regulations or in their application and emerging new regulation in areas such as security, privacy, artificial intelligence, digital economy and sustainability, including rolling back, variation and divergence of certain legislative acts, impacting current or new technologies, products or telecommunications and technology sectors in general, may adversely affect our operations and business results.

We develop our products based on existing regulations and technical standards. In the case of new technology, we must often rely on our predictions for and interpretation of unfinished technical standards and upcoming or draft regulations or, in certain cases, have products developed in the absence of applicable regulations and standards. Fragmentation of rules, lengthy legislative processes and unpredictability of regulatory changes present a particular challenge. Due in part to this fragmentation, we face a risk in the inability to meet regulatory or market expectations on security and privacy in our products and services, and perceived or actual breaches of our information systems or customer information systems if fault is attributable to Nokia.

An increase in regulation of the digital economy and telecommunications following the European Commission's ambitious Green Deal and Path to Digital Decade could fail to find the right balance between political ambitions and practical considerations, which might negatively affect Nokia and have a stifling effect on innovation due to strict product liability requirements, limits on the use of data, and extensive due diligence and reporting requirements. From a spectrum policy perspective, unrealistic spectrum pricing, failure to enable access to additional spectrum in various bands and/or failure to achieve frequency band harmonization could also adversely impact Nokia's customers and Nokia itself.

New development and changes in applicable data and privacy-related regulatory frameworks, such as the EU General Data Protection Regulation (GDPR), the EU Data Act and the recent adoption of EU AI Act, eEvidence Regulations and the upcoming ePrivacy Regulations, including similar regulations in other countries and their application may adversely affect our business, including possible changes that increase costs, limit or restrict possibilities to offer products or services, or reduce or could be seen to reduce the privacy aspects of our offerings. For instance, countries could require governmental interception capabilities or issue regulations aimed at allowing direct governmental access to data for the products and services we offer. Such requirements or regulations could adversely affect us, if, among other things, we decide to reduce our sales to such markets, or if such requirements or regulations would be limiting our ability to use components, products or software that we have developed or sourced from other companies.

Our current business models and operations rely on certain centralized data processing solutions and cloud or remote delivery-based services for distribution of services and software or data storage, which have certain inherent risks, including those stemming from applicable regulatory regimes, including data protection or data localization, that may cause limitations in implementing such business models or conducting business. An increase in the protectionist stances of governments around the world, which impact the free flow of data across borders, has already affected and may further affect our global service delivery model. Furthermore, we observe that enforcement actions and investigations by regulatory authorities related to data security incidents and privacy violations continue to increase. Unauthorized disclosure, transfer or loss of sensitive or confidential data, whether through systems failure, employee negligence, fraud or misappropriation, by us, our vendors or other parties with whom we do business (if they fail to meet the standards we impose) could subject us to significant litigation, monetary damages, regulatory enforcement actions, fines and criminal prosecution in one or more jurisdictions. In addition, our involvement in defense related projects lead to applicability of defense industry regulations.

Risk factors continued

In addition to the existing data protection regulations, we recognize the increasing importance of security regulations that impact various aspects of our operations. These regulations are not limited to data protection but also encompass network security, product compliance, and associated costs. Recent regulatory moves in various jurisdictions highlight the need for compliance with security standards that affect our product lines and operational decisions. These regulations may lead to increased costs and complexities due to the lack of harmonization across different jurisdictions. While these regulations may not directly impact us at present, they have indirect effects on our business operations and strategic planning.

Artificial intelligence has the potential to revolutionize our operations by providing valuable tools that augment our capabilities and enable the delivery of higher-performing products and services. By leveraging AI, we can efficiently and reliably process large volumes of data, automate tasks that are too complex or time-consuming to perform manually, and unlock new insights that inform our decision making. While AI adoption offers numerous benefits, it also presents several risks and challenges. One of the main risks is the potential for non-responsible use of AI, which could lead to non-compliance with relevant regulations, such as the new EU AI Act, loss of sensitive data or intellectual property, or inadvertent infringement of third-party rights. Additionally, careless use of AI can lead to errors in work product and create new vulnerabilities in our systems, which could be exploited by malicious actors, leading to data breaches or other security incidents. Another risk associated with AI is the potential for bias in AI decision making. AI systems can perpetuate existing biases and discriminatory practices, which could lead to unfair treatment of customers or employees. Furthermore, the regulatory landscape around artificial intelligence is evolving and there is a risk that regulation outside the EU may be less robust and more permissive, which could reduce our innovative agility and competitiveness.

We are seeing an increase in climate and other sustainability-related regulations and customer requirements globally. In the longer term, such regulations or requirements could impact, for instance, our energy, component and logistic costs or competitiveness of our product offering, as well as affect availability of financing from ESG-focused investors or financial institutions. Changes to existing regulation related to Sustainable Finance, such as the EU Taxonomy Regulation and its delegated acts, the new EU Corporate Sustainability Reporting Directive and the related delegated acts, as well as recently set regulations such as the EU Carbon Border Adjustment Mechanism Regulation, the EU Corporate Due Diligence Directive, the US SEC Climate Disclosure Rule, the California Corporate Data Accountability Act and the Climate Related Financial Risk Act will lead to more detailed reporting obligations, controls and documentation requirements and could also affect our ability to work with certain suppliers, as well as have an impact on how our products and sustainability footprint are perceived by the markets. For example, the EU Taxonomy Regulation aims to define rules for which economic activities contribute to sustainability objectives and mandates companies to report the share of their turnover, capital expenses and operating expenses aligned with specified technical criteria. If our business activities do not meet all the technical criteria as defined in the EU Taxonomy Regulation, or if our offering is not recognized by other similar standards developed around the world, it could potentially have some impact on our financing costs, share price or brand value in the longer term, depending on how such standards are interpreted and used by the markets, financial institutions and investors in the future.

We operate in many jurisdictions around the world, and we are subject to various legal frameworks addressing corruption, fraud, competition, privacy, security, trade policies, environment, human rights, supply chains and other risk areas. At any given time, we may be subject to inspections, investigations, claims, and government proceedings, and the extent and outcome of such proceedings may be difficult to estimate with any certainty. We may be subject to material fines, penalties and other sanctions as a result of such investigations.
Bribery and anti-corruption laws in effect in many countries prohibit companies and their intermediaries from making improper payments to public officials or private individuals for the purpose of obtaining new business, maintaining existing business relationships or gaining any business advantage. Certain anti-corruption laws such as the United States Foreign Corrupt Practices Act (FCPA) also require the maintenance of proper books and records, and the implementation of controls and procedures in order to ensure that a company's operations do not involve corrupt payments. Since we operate throughout the world and given that some of our customers are government-owned entities and that our projects and agreements often require approvals from public officials, there is a risk that our employees, suppliers or commercial third-party representatives may take actions that are in violation of our compliance policies and of applicable anti-corruption laws.

In many parts of the world where we operate, local practices and customs may be inconsistent with our policies, including the Nokia Code of Conduct, and could violate anti-corruption laws, including the FCPA and the UK Bribery Act 2010, and applicable European Union regulations, as well as applicable economic sanctions, embargoes and applicable competition and privacy laws. Our employees, or other parties acting on our behalf, could violate policies and procedures intended to promote compliance with anti-corruption laws, economic sanctions, competition or privacy laws or other applicable regulations. Violations of these laws by our employees or other parties acting on our behalf, regardless of whether we had participated in such acts or had knowledge of such acts, could result in us or our employees becoming subject to criminal or civil enforcement actions, including fines or penalties, disgorgement of profits and suspension or disqualification of sales. Additionally, violations of law or allegations of violations may result in reputational harm and loss of business and adversely affect our brand and reputation. Detecting, investigating and resolving such situations may also result in significant costs, including the need to engage external advisers, and consume significant time, attention and resources from our management and other key employees. The results and costs of such investigations or claims may be difficult to predict and could lead to, for instance, lengthy disputes, fines, fees or indemnities, costly settlement or the deterioration of the Nokia brand. Furthermore, even without allegations of misconduct against us, our employees or other parties acting on our behalf, we may face loss of business as a result of improper conduct or alleged improper conduct by our competitors.

As part of mergers and acquisitions, we may be subject to claims, fines, investigations or assessments for conduct that we failed to or were unable to discover or identify in the course of performing our due diligence, including unknown or unasserted liabilities and issues relating to fraud, trade compliance, non-compliance with applicable laws and regulations, improper accounting policies or other improper activities.

Risk factors continued

We are subject to litigation proceedings, which may be disruptive and expensive. In addition, an unfavorable outcome of litigation, arbitration, agreement-related disputes or product liability-related allegations against our business could have a material adverse effect on us.
We are a party to lawsuits, arbitration proceedings, agreement-related disputes and product liability-related allegations in the normal course of our business. Litigation, arbitration or agreement-related disputes can be expensive, lengthy and disruptive to normal business operations and divert the efforts of our management. Moreover, the outcomes of complex legal proceedings or agreement-related disputes are difficult to predict. An unfavorable resolution of a particular lawsuit, arbitration proceeding or agreement-related dispute could have a material adverse effect on us.

Although our products are designed to meet all relevant safety standards and other recommendations and regulatory requirements globally, we cannot guarantee we will not become subject to product liability claims or be held liable for such claims, which could have a material adverse effect on us. We have been involved in several lawsuits alleging adverse health effects associated with our products, including those caused by electromagnetic fields, and the outcome of such procedures is difficult to predict, including potentially significant fines or settlements. Even a perceived risk of adverse health effects of mobile devices or base stations could have a material adverse effect on us, for instance, through a reduction in the demand for mobile devices, and a decreased demand for mobile networks or increased difficulty in obtaining sites for base stations.

We record provisions for pending claims when we determine that an unfavorable outcome is likely and the loss can reasonably be estimated. Although we believe our provisions for pending claims are appropriate, due to the inherent uncertain nature of legal proceedings, the ultimate outcome or actual cost of settlement may materially differ from estimates.

For a more detailed discussion of litigation to which we are a party, refer to Note 6.1. Commitments, contingencies and legal proceedings, in our consolidated financial statements.

Our governance, internal controls and compliance processes could fail to detect errors or wrongdoings and to prevent regulatory penalties at corporate level, in operating subsidiaries and joint ventures.
Nokia is a publicly listed company and, as such, subject to various securities, reporting and accounting rules and regulations. For instance, we must monitor and assess our internal control over financial and sustainability reporting and the compliance of those with the applicable rules and regulations. Furthermore, the maturity of our internal control over sustainability reporting is still to reach the level of internal control over financial reporting. A failure of our corporate functions, our business groups, our operating subsidiaries or our joint ventures to maintain effective internal control over financial and sustainability reporting, or to comply with the applicable securities, reporting and accounting rules and regulations, could adversely affect the accuracy and timeliness of our financial reporting, which could result, for instance, in loss of confidence in us or in the accuracy and completeness of our financial reports and the Sustainability Statement, or otherwise in the imposition of fines or other regulatory measures, which could have a material adverse effect on us.

Integrity and high ethical standards are an essential part of our culture. However, despite our Group-wide compliance measures, including ethical business trainings and other actions (including towards our suppliers), we may not be able to prevent breaches of law or governance standards within our business, subsidiaries, joint ventures or in our supply chain. If we fail to or are unable to comply with applicable law and regulations, we could experience penalties and adverse rulings in enforcement and other proceedings.

We are involved in joint ventures and other affiliated companies with their own governance and system infrastructure and are exposed to risks inherent to companies under joint management or not having direct management control.
We have a number of joint ventures, including those where Nokia is the minority partner, and other affiliated companies with their own governance and system infrastructure where Nokia does not have direct management control. The agreements related to our joint ventures may require unanimous consent or the affirmative vote of a qualified majority of the shareholders to take certain actions, thereby possibly slowing down the decision-making process or impairing our ability to implement our key policies and practices, such as our compliance processes and culture, in a comprehensive or timely manner. In addition, joint venture companies and other affiliated companies having their own governance and system infrastructure, such as our local service companies focusing on networks field services, involve inherent risks such as those associated with a complex corporate governance structure, lack of transparency or uniform controls and procedures and consequent risks of compliance breaches or other similar issues, or issues in dissolving such entities or divesting their shareholdings, assets and liabilities, and may also involve negative public perceptions caused by the joint venture partner that are adverse to us.

Financial and tax-related uncertainties

We have operations in many countries with different tax laws and rules, which may result in complex tax issues and disputes.
Taxation or other fees collected by governments or governmental agencies may result in unexpected payment obligations, and in response to prevailing difficult economic conditions in the public sector, coupled with already enacted and proposed fundamental changes in international tax regulations, there may be an increased aggressiveness in collecting such fees or taxes. We may be obliged to pay additional taxes for past periods as a result of changes in law, or changes of tax authority practice or interpretation (possibly with retroactive effect in certain cases), or inaccurate interpretations of tax laws by us resulting potentially in a material adverse effect on our cash flow and financial position. In particular, potential changes in reallocation of taxing rights and other fundamental international tax principles, the OECD Pillar project and digital business-related initiatives, our wide geographical footprint of operations and activities and changes in tax laws or global laws regarding transfer pricing could adversely impact our business, operating results and overall tax burden. There may also be unforeseen tax expenses that turn out to have an unfavorable impact on us, adverse tax consequences related to past acquisitions and divestments, and potential tax liabilities that we are currently not aware of. As a result, and given the inherently unpredictable nature of taxation, our tax rate may change from its current level and our cash flows regarding taxes may not be stable.

As a company with global operations, we are subject to tax investigations in various jurisdictions, and such proceedings can be lengthy, involve actions that can hinder local operations and affect unrelated parts of our business, and the outcome of such proceedings is difficult to predict. While we have made provisions for certain tax issues, the provisions we have made may not be adequate to cover such increases.

In the context of our sale of the Devices & Services business to Microsoft, we are required to indemnify Microsoft for certain tax liabilities, including (i) tax liabilities of the Nokia entities acquired by Microsoft in connection with the closing of the sale

Risk factors continued

of the Devices & Services business; (ii) tax liabilities associated with the assets acquired by Microsoft and attributable to tax periods ending on or prior to the closing date of the sale of the Devices & Services business; and (iii) tax liabilities relating to the pre-closing portion of any taxable period that includes the closing date of the sale of the Devices & Services business.

Our actual or anticipated performance, among other factors, could reduce our ability to utilize our tax attributes and deferred tax assets.
Deferred tax assets recognized on tax losses, unused tax credits and tax-deductible temporary differences are dependent on our ability to offset such items against future taxable income within the relevant tax jurisdiction. Such deferred tax assets are also based on our assumptions on future taxable earnings, and these may not be realized as expected which may cause the deferred tax assets to be materially reduced. Any such reduction could have a material effect on us. As an example, Nokia derecognized EUR 2.9 billion deferred tax assets related to Finland in 2020 and re-recognized EUR 2.5 billion of deferred tax assets related to Finland in 2022. Additionally, our earnings have been unfavorably affected in the past, and may continue to be in the future, in the event that no tax benefits are recognized for certain deferred tax items.

We may not have access to sources of funding on favorable terms, or at all.
In periods when the capital and credit markets experience significant volatility, the amounts, sources and cost of capital available to us may be adversely affected. Deteriorating economic conditions or financial uncertainty in any of the markets in which we sell our products could reduce business confidence and adversely impact spending patterns, and thereby could adversely affect the amounts, sources and cost of capital available to us. Our business requires a significant amount of cash as we continue to invest in our R&D and other future capabilities. We rely on multiple sources of funding for short-term and long-term capital and aim to minimize the liquidity risk by maintaining a sufficient cash position and having committed credit lines in place. However, if economic conditions deteriorate or the credit market tightens, there can be no assurances that we will be able to generate sufficient amounts of capital or to maintain an efficient capital structure from time to time.

We also may not be able to have access to additional sources of funds that we may need from time to time with reasonable terms, or at all. If we cannot access capital or sell receivables on a commercially viable basis, our business, financial condition and cash flow could materially suffer.

We may not be able to maintain our investment grade credit ratings
Moody's, S&P Global Ratings, Fitch and other credit rating agencies have assigned credit ratings to us. Our goal is to maintain our investment grade credit ratings. However, there can be no assurances that we will be able to maintain our current investment grade credit ratings.

In the event our credit rating is downgraded, it could have a material adverse effect, for instance, on our cost of funds and related margins, our business and results of operations, financial condition, liquidity, or access to capital markets.

Due to our global operations, our net sales, costs and results of operations, as well as the US dollar value of our dividends and market price of our ADSs, are affected by exchange rate fluctuations.
We operate globally and are therefore exposed to foreign exchange risks in the form of both transaction risks and translation risks. Our policy is to monitor and hedge foreign exchange rate exposures within defined exposure identification horizons. We manage our operations to mitigate, but not to eliminate, the impacts of exchange rate fluctuations and our hedging activities may prove unsuccessful in mitigating the potentially negative impact of exchange rate fluctuations. Additionally, significant volatility in the relevant exchange rates and interest rates may increase our hedging costs, as well as limit our ability to hedge our exchange rate exposures including, in particular certain emerging market currencies. Furthermore, exchange rate fluctuations may have an adverse effect on our net sales, costs and results of operations, as well as our competitive position, through their impact on our customers, suppliers and competitors.

We also experience other financial market-related risks, including changes in interest rates and in prices of marketable securities that we own. We may use derivative financial instruments to reduce certain of these risks. If our strategies to reduce such risks are not successful, our financial condition and results of operations may be harmed.

Additionally, exchange rate fluctuations may materially affect the US dollar value of any dividends or other distributions that are paid in euro, as well as the market price of our ADSs.

Our pension and other post-employment benefit obligations are subject to numerous factors that could result in a need for increased funding, adversely affecting our results of operations and cash flow.
We are exposed to various employee cost-related risks, including those related to pension, and other post-employment benefits (OPEB). In the US, we maintain significant employee pension benefit plans and a significant retiree welfare benefit plan (providing post-employment healthcare benefits and post-employment life insurance coverage). Outside the US, we contribute to pension schemes for large numbers of current and former employees. The US and non-US plans and schemes have funding requirements that depend on, among other things, various legal requirements, how assets set aside to pay for those obligations are invested, the performance of financial markets, interest rates, assumptions regarding the life expectancy of covered employees and retirees, and medical cost inflation and medical care utilization. To the extent that any of those variables change, the funding required for those plans and schemes may increase, adversely affecting our results of operations and cash flow.

The most significantly underfunded plans are in Germany which do not currently have minimum regulatory funding requirements. With respect to other significantly underfunded plans, there are the OPEB plans in the US where Nokia is able to fund the liabilities by utilizing IRC Section 420 transfers from the US pension surplus up until 2032. More details about these plans can be found in Note 3.4. Pensions and other post-employment benefits in our consolidated financial statements.

The carrying amount of our goodwill may not be recoverable.
We assess the carrying amount of goodwill annually, or more frequently if events or changes in circumstances indicate that such carrying amount may not be recoverable. We assess the carrying amount of other identifiable assets if events or changes in circumstances indicate that their carrying amounts may not be recoverable, for instance, if we would not generate revenues from our businesses as anticipated, or if our businesses would not generate sufficient positive operating cash flows. These, or other factors, may lead to a decrease in the value of our assets, including intangible assets and the goodwill attributed to our businesses, resulting in impairment

Risk factors continued

charges that may adversely affect our net profit for the year. While we believe the estimated recoverable values are reasonable, actual performance in the short and long term and our assumptions on which we base our calculations could materially differ from our forecasts, which could impact future estimates of our businesses' recoverable values, and may result in impairment charges.

Risks associated with ownership of our shares

The amount of dividend and/or repayment of capital and other profit distributions such as share buybacks to shareholders for each financial period is uncertain.
As announced on 30 January 2025, our Board proposes that the Annual General Meeting 2025 authorizes the Board to resolve on the distribution of an aggregate maximum of EUR 0.14 per share as dividend from the retained earnings and/or as assets from the reserve for invested unrestricted equity in respect of financial year 2024.

Our Annual General Meeting 2024, held on 3 April 2024, authorized the Board to resolve on the distribution of an aggregate maximum of EUR 0.13 per share as dividend from the retained earnings and/or as assets from the reserve for invested unrestricted equity in respect of the financial year 2023.

Furthermore, in the first quarter of 2024, under the authorization granted to the Board by the Annual General Meeting 2023, we announced a share buyback program to repurchase shares to return up to EUR 600 million of cash to shareholders in tranches over a period of two years. The program was launched in March 2024, and it was accelerated in July by increasing the number of shares to be repurchased during the year 2024. The whole EUR 600 million program was completed in November 2024. Additionally, in November 2024, the Board initiated a share buyback program under the authorization granted by the Annual General Meeting 2024 to offset the dilutive effect of the Infinera acquisition. The program targets to repurchase 150 million shares for an aggregate purchase price not exceeding EUR 900 million. The repurchases commenced in November 2024 and will end latest by 31 December 2025.

We cannot assure that we will distribute dividends and/or capital repayments on the shares issued by us, nor is there any assurance as to the amount of any dividend and/or repayment of capital we may pay, including but not limited to situations where we make commitments to increase our dividends. Neither can we guarantee that we finalize the announced share buyback program. The payment and the amount of any dividend and/or repayment of capital as well as additional share buyback programs is subject to the discretion of the general meeting of our shareholders and our Board, and will depend on available cash balances, expected cash flow generation, anticipated cash needs, retained earnings, the results of our operations and our financial condition and terms of outstanding indebtedness, as well as other relevant factors such as restrictions, prohibitions or limitations imposed by applicable laws. Further, even if any conditions or factors covering the issuance or distribution of dividends are met, the Board or the shareholders have in the past decided, and may going forward decide, not to issue or distribute dividends or initiate additional buyback programs.

Our share and/or ADS price may be volatile and subject to fluctuations.
Our share and/or ADS price may be volatile and could be subject to fluctuations in response to various factors, some of which are beyond our control. In addition to the factors described in this "Risk Factors" section, other factors that could cause fluctuations in our share price include, among others, high volatility in the securities markets generally and volatility in telecommunications and technology companies' securities in particular, trading volumes, speculation in the media or retail or institutional investment communities regarding the Company and our prospects, future developments in our industry and competitors, our financial results and the expectations of financial analysts, as well as the timing or content of any public communications, including reports of operating results, by us or our competitors. Further, factors in the public trading market for our stock may produce price movements that may or may not comport with macro, industry or company-specific fundamentals, including, without limitation, the sentiment of retail investors (including as may be expressed on financial trading and other social media sites and online forums), the direct access by retail investors to broadly available trading platforms, the amount and status of short interest in our securities, access to margin debt, trading in options and other derivatives on our common stock and any related hedging and other trading factors.

The capital markets have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. In addition, in the past, following periods of volatility in the market price of a company's securities, stockholders often institute securities class action litigation against that company. This type of litigation could result in substantial costs and divert our management's attention and resources, which could have a material adverse effect on our cash flows, our ability to execute our business strategy and our ability to make distributions to our stockholders.

Requirement for non-Finnish shareholders to provide detailed information to obtain advantageous withholding tax treatment for dividends.
As described in more detail under "General facts on Nokia–Taxation", non-Finnish shareholders are required to provide certain information in order to benefit from the reduced dividend withholding tax rates set out in the applicable tax treaties. Furthermore, custodians are required to fulfill certain strict requirements, take over certain responsibilities and assume liability for incorrectly applied withholding tax, or a higher withholding tax rate will apply. Such requirements will likely impose an additional administrative burden on shareholders or result in the higher withholding rate becoming applicable for non-Finnish shareholders.

Significant subsequent events

Change of President and CEO

On 10 February 2025, Nokia announced its President and CEO, Pekka Lundmark, will step down effective 31 March 2025. The Board of Directors has appointed Justin Hotard as the next President and CEO. He will start in his new role on 1 April 2025. Mr. Lundmark will stay on as an advisor to Mr. Hotard until the end of the year to ensure a smooth transition.

Mr. Hotard joins Nokia with more than 25 years' experience with global technology companies, driving innovation, technology leadership and delivering revenue growth. He currently leads the Data Center & AI Group at Intel. Prior to this role, he held several leadership roles at large technology companies, including Hewlett Packard Enterprise and NCR Corporation.

Infinera acquisition

On 28 February 2025, Nokia completed the acquisition of Infinera Corporation (Infinera), pursuant to the definitive agreement announced on 27 June 2024. Infinera, the San Jose based global supplier of innovative open optical networking solutions and advanced optical semiconductors, has become part of the Nokia group effective as of the closing with Nokia holding 100% of its equity and voting rights. The acquisition will significantly improve Nokia's scale and profitability in optical networks, and accelerate Nokia's growth strategy in data centers and strengthen its presence both in North America and with webscale customers.

The aggregated consideration transferred of EUR 1.7 billion is a combination of cash of EUR 1.1 billion and Nokia shares in the form of American Depository Shares of EUR 0.6 billion, corresponding to 127 434 986 shares. Additionally, the acquisition resulted in a make whole conversion for Infinera's convertible senior notes in line with relevant bond indentures. Following the ongoing conversion and subsequent observation period for Nokia stock price, any surrendered notes are expected to be settled in cash during the second quarter of 2025.

Nokia will report the acquired business as part of its Network Infrastructure segment.

General facts on Nokia

General facts on Nokia

American Depositary Shares

Fees and charges

ADS holders may have to pay the following service fees to the Depositary:

Service	Fees, USD
Issuance of ADSs	Up to 5 cents per ADS[1]
Cancellation of ADSs	Up to 5 cents per ADS[1]
Distribution of cash dividends or other cash distributions	Up to 2 cents per ADS
Distribution of ADSs pursuant to (i) stock dividends, free stock distributions or (ii) exercises of rights to purchase additional ADSs	Up to 5 cents per ADS
Distribution of securities other than ADSs or rights to purchase additional ADSs	Up to 5 cents per ADS[1]
ADS transfer fee	1.50 cents per transfer[1]

(1) These fees are typically paid to the Depositary by the brokers on behalf of their clients receiving the newly issued ADSs from the Depositary and by the brokers on behalf of their clients delivering the ADSs to the Depositary for cancellation. The brokers in turn charge these transaction fees to their clients.

Additionally, ADS holders are responsible for certain fees and expenses incurred by the Depositary on their behalf and certain governmental charges such as taxes and registration fees, transmission and delivery expenses, conversion of foreign currency and fees relating to compliance with exchange control regulations. The fees and charges may vary over time.

In the event of refusal to pay the depositary fees, the Depositary may, under the terms of the deposit agreement, refuse the requested service until payment is received or may set off the amount of the depositary fees from any distribution to be made to the ADS holder.

Payments

In 2024, our Depositary made the following payments on our behalf in relation to our ADS program:

Category	Payment, USD
Settlement infrastructure fees (including the Depositary Trust Company fees)	935 600.91
Proxy process expenses (including printing, postage and distribution)	1 555 337.94
Legal fees	167 439.00
NYSE listing fees	500 000.00
Investor relations expenses	—
Total	**3 158 377.85**

Additionally for 2024, our Depositary reimbursed us USD 1 900 000 mainly related to contributions towards our investor relations activities, including investor meetings and conferences and fees of investor relations service vendors, and other miscellaneous expenses related to the listing of our ADSs in the United States.

Controls and procedures

Our management, with the participation of our President and CEO and our Chief Financial Officer, conducted an evaluation pursuant to Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the Exchange Act), of the effectiveness of our disclosure controls and procedures at 31 December 2024. Based on such evaluation, our President and CEO and our Chief Financial Officer have concluded that our disclosure controls and procedures were effective.

Disclosure controls and procedures mean controls and other procedures that are designed to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Commission's rules and forms, and that such information required to be disclosed by us in the reports that we file or submit under the Exchange Act is accumulated and communicated to our management, including our President and CEO and our Chief Financial Officer, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosures.

Management's annual report on internal control over financial reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting for Nokia. Our internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation and fair presentation of published financial statements. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Our management evaluated the effectiveness of our internal control over financial reporting using the criteria described in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this evaluation, our management has assessed the effectiveness of Nokia's internal control over financial reporting at 31 December 2024 and concluded that such internal control over financial reporting was effective.

The effectiveness of our internal control over financial reporting at 31 December 2024 has been audited by Deloitte Oy, an independent registered public accounting firm. Refer to section "Reports of independent registered public accounting firm".

Changes in internal control over financial reporting

There have been no changes in our internal control over financial reporting during 2024 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

General facts on Nokia continued

Attestation report of the registered public accounting firm

Refer to section "Reports of independent registered public accounting firm".

Exchange controls

There are currently no Finnish laws that may affect the import or export of capital, or the remittance of dividends, interest or other payments.

Government regulation

Nokia and its businesses are subject to direct and indirect regulation in each of the countries in which we and our customers do business. As a result, changes in or uncertainties related to various types of regulations applicable to current or new technologies, intellectual property, products, services, company operations and business environment (e.g., labor laws, taxation) could affect our business adversely. Moreover, the implementation of technological or legal requirements could impact our products and services, technology and patent licensing activities, manufacturing and distribution processes, and could affect the timing of product and services introductions and the cost of our production, products and services, as well as their commercial success. Also, our business is subject to the impacts of changes in economic and trade policies. Export control, tariffs or other fees or levies imposed on our products and services and environmental, product safety and security and other regulations that adversely affect the export, import, pricing or costs of our products and services, as well as export prohibitions (sanctions) enacted by the EU, the United States or other countries or regions could adversely affect our net sales and results of operations. Further, potential governmental intervention in supply chain (e.g., prohibiting imports from certain geographies or imposing certain criteria on selection of suppliers) may impact Nokia's operations.

For example, depending on the geography, our products and services are subject to a wide range of government regulations that might have a direct impact on our business, including, but not limited to, regulation related to product certification, standards, spectrum management, provision of telecommunications services, privacy and data protection, competition and sustainability. The EU-level or local member state regulation has a direct impact on many areas of our business, markets and customers within the EU. The European regulation influences, for example, conditions for innovation for telecommunications infrastructure and internet and related services, as well as technology and patent licensing, investment in fixed and wireless broadband communication infrastructure and operation of global data flows. Additionally, with respect to certain developing market countries, the business environment we operate in can be affected by localization requirements.

We proactively exchange views and address the impact of any planned changes to the regulatory environment on our business activities with state agencies, regulators and other decision-makers either through our government relations representatives in various geographies and through our experts, or indirectly through memberships in industry associations.

Sales in United States-sanctioned countries

General

We are a global company and have sales in most countries of the world. Nokia is committed to the highest standards of ethical conduct, and adheres to all applicable national and international trade-related laws. As a leading international telecommunications company with global operations, Nokia has a presence also in countries subject to international sanctions. All operations of Nokia, and in particular any operations undertaken in countries targeted by sanctions, are conducted in accordance with our comprehensive and robust internal compliance program to ensure that they are in full compliance with all applicable laws and regulations. In addition, we continuously monitor international developments and assess the appropriateness of our presence and business in these, and all, markets. Nevertheless, business in these markets is marked by complexity and uncertainty.

We cannot exclude the possibility that third parties may unlawfully divert our products to these countries from other countries in which we sell them, or that, for services distributed through the internet, third parties could have accessed them in markets or countries for which they are not intended by circumventing the industry standard protective mechanisms, such as IP address blocks, despite our efforts in implementing measures to prevent such actions.

Disclosure pursuant to Section 219 of the Iran Threat Reduction and Syria Human Rights Act of 2012

We operate in Iran in compliance with applicable economic sanctions and other trade-related laws. We ceased providing telecommunications equipment and services to any of our former customers including but not limited to network operator customers and internet service providers. We never delivered equipment and services to Iran for military purposes, or for the purpose of limiting political discourse, blocking legitimate forms of free speech or conducting surveillance of individuals.

In connection with the activities relating to Iran, we have a local office in Iran that employed one employee at the end of 2024 through a branch of a Finnish subsidiary. Nokia is the controlling shareholder in Pishahang Communications Network Development Company (Pishahang). The other minority shareholder in Pishahang is Information Technology Application Development TACFAM Company (Tacfam).

We continue to maintain routine contacts with governmental agencies in Iran as required, for example, to maintain a legal presence and office facilities in Iran, pay taxes and employ an Iranian national.

In 2024, we had no sale activity in Iran.

Although it is difficult to evaluate with any reasonable degree of certainty, we have concluded that we cannot exclude the possibility that Tacfam is owned or controlled, directly or indirectly, by the government of Iran. None of our activities involve US affiliates of Nokia, or any persons from the United States.

Nokia does not normally allocate net profit on a country-by-country or activity-by-activity basis, other than as set forth in Nokia's consolidated financial statements prepared in accordance with IFRS. Therefore, for this exercise in the past, Nokia reflected its sales margin in lieu of the net profit/loss. In 2024, we recognized no sales or sales margin from any customer.

Although we evaluate our business activities on an ongoing basis, we intend to continue not accepting any new business in Iran in 2025.

General facts on Nokia continued

Taxation

General

The statements of the United States and Finnish tax laws set out below are based on the laws in force as of the date of this report and may be subject to any changes in US or Finnish law, and in any double taxation convention or treaty between the United States and Finland, occurring after that date, possibly with retroactive effect.

For purposes of this discussion, “US Holders” are beneficial owners of ADSs that: (i) hold the ADSs as capital assets; (ii) are citizens or residents of the United States, corporations created in or organized under US law, estates whose income is subject to US federal income tax, or trusts that elect to be treated as a US person or are both subject to the primary supervision of a US court and controlled by a US person; and (iii) in each case, are considered residents of the United States for purposes of the current income tax convention between the United States and Finland, referred to as the “Treaty”, and the limitation on benefits provisions therein. Special rules apply to US Holders that are also residents of Finland and to citizens or residents of the United States that do not maintain a substantial presence, permanent home or habitual abode in the United States. For purposes of this discussion, it is assumed that the Depositary and its custodian will perform all actions as required by the deposit agreement with the Depositary and other related agreements between the Depositary and Nokia.

If a partnership holds ADSs (including for this purpose any entity or arrangement treated as a partnership for US federal income tax purposes), the tax treatment of a partner will depend upon the status of the partner and activities of the partnership. If a US Holder is a partnership or a partner in a partnership that holds ADSs, the holder is urged to consult its own tax adviser regarding the specific tax consequences of owning and disposing of its ADSs.

Because this summary is not exhaustive of all possible tax considerations – such as situations involving financial institutions, banks, tax-exempt entities, pension funds, US expatriates, real estate investment trusts, persons that are dealers in securities, persons who own (directly, indirectly or by attribution) 10% or more of the share capital or voting stock of Nokia, persons who acquired their ADSs pursuant to the exercise of employee stock options or otherwise as compensation, or US Holders whose functional currency is not the US dollar, who may be subject to special rules that are not discussed herein – holders of shares or ADSs that are US Holders are advised to satisfy themselves as to the overall US federal, state and local tax consequences, as well as to the overall Finnish and other applicable non-US tax consequences, of their ownership of ADSs and the underlying shares by consulting their own tax advisers. This summary does not discuss the treatment of ADSs that are held in connection with a permanent establishment or fixed base in Finland, and it does not address the US Medicare tax on certain investment income.

For the purposes of both the Treaty and the US Internal Revenue Code of 1986, as amended, referred to as the “Code”, US Holders of ADSs will be treated as the owners of the underlying shares that are represented by those ADSs. Accordingly, the following discussion, except where otherwise expressly noted, applies equally to US Holders of ADSs, on the one hand, and to shares on the other.

The holders of ADSs will, for Finnish tax purposes, be treated as the owners of the shares that are represented by the ADSs. The Finnish tax consequences for the holders of shares, as discussed below, also apply to the holders of ADSs.

US taxation of cash dividends

For US federal income tax purposes, the gross amount of dividends paid to US Holders of shares or ADSs out of our current or accumulated earnings and profits, including any related Finnish withholding tax, generally will be included in gross income as foreign source dividend income. We do not expect to maintain calculations of our earnings and profits under US federal income tax principles; therefore, US Holders should expect that the entire amount of any distribution generally will be reported as dividend income. Dividends will not be eligible for the dividends received deduction allowed to corporations under the Code. The amount includible in income (including any Finnish withholding tax) will equal the US dollar value of the payment, determined at the time such payment is received by the Depositary (in the case of ADSs) or by the US Holder (in the case of shares), regardless of whether the payment is in fact converted into US dollars. Generally, any gain or loss resulting from currency exchange rate fluctuations during the period between the time such payment is received and the date the dividend payment is converted into US dollars will be treated as US source ordinary income or loss to a US Holder.

Special rules govern and specific elections are available to accrual method taxpayers to determine the US dollar amount includible in income in the case of a dividend paid (and taxes withheld) in foreign currency. Accrual basis taxpayers are urged to consult their own tax advisers regarding the requirements and elections applicable in this regard.

Dividends received generally will constitute foreign source “passive category income” for foreign tax credit purposes. Subject to certain limitations, Finnish taxes withheld may be eligible for credit (not in excess of the applicable Treaty rate) against a US Holder’s US federal income tax liability. Additionally, if Nokia makes a distribution from its reserve for invested unrestricted equity when it does not have current or accumulated earnings and profits, a US Holder may not be able to claim such credit.

In lieu of a credit, a US Holder may elect to claim a deduction in respect of its Finnish income taxes provided the deduction is claimed for all of the foreign taxes paid by the US Holder in that particular taxable year. A deduction does not reduce US tax on a dollar-for-dollar basis like a tax credit. The deduction, however, is not subject to the limitations applicable to foreign tax credits.

Provided that certain holding period and other requirements are met, individuals and certain other non-corporate US Holders are eligible for reduced rates of US federal income tax at a maximum rate of 20% in respect of “qualified dividend income”. Dividends that Nokia pays with respect to its shares and ADSs generally will be qualified dividend income if certain holding periods are met and Nokia was neither a passive foreign investment company (PFIC) in the taxable year prior to the year in which the dividend was paid nor in the taxable year in which the dividend is paid. Nokia currently believes that dividends it pays with respect to its shares and ADSs will constitute qualified dividend income for US federal income tax purposes; however, this is a factual matter and is subject to change. Nokia anticipates that its dividends will be reported as qualified dividends on Forms 1099-DIV delivered to US Holders. US Holders of shares or ADSs are urged to consult their own tax advisers regarding the availability to them of the reduced dividend tax rate in light of their own particular situation and the computations of their foreign tax credit limitation with respect to any qualified dividends paid to them, as applicable.

General facts on Nokia continued

We believe we should not be classified as a PFIC for US federal income tax purposes for the taxable year ended 31 December 2024 and we do not expect to become a PFIC in the foreseeable future. US Holders are advised, however, that this conclusion is a factual determination that must be made annually and thus may be subject to change. If we were to be classified as a PFIC, the tax on distributions on our shares or ADSs and on any gains realized upon the disposition of our shares or ADSs generally would be less favorable than as described herein. Dividends paid by a PFIC are not "qualified dividend income" and are not eligible for reduced rates of taxation. Additionally, US persons who are shareholders in a PFIC generally will be required to file an annual report disclosing the ownership of such shares and certain other information. US Holders should consult their own tax advisers regarding the application of the PFIC rules, including the related reporting requirements, to their ownership of our shares or ADSs.

Finnish withholding taxes on cash dividends

Under the Finnish Income Tax Act and Act on Taxation of Non-residents' Income, non-residents of Finland are generally subject to a withholding tax at a rate of 30% on dividends paid by a Finnish resident company. Further, under the Finnish Prepayment Act, 50% preliminary tax must be withheld on dividends paid in certain situations. However, pursuant to the Treaty, dividends paid to US Holders are generally subject to Finnish withholding tax at reduced rates. Under the Finnish Income Tax Act and tax court practice, the distribution of funds from reserves for invested unrestricted equity by a listed company such as Nokia is taxed as a distribution of a dividend.

As of 1 January 2021, nominee-registered shares are generally subject to a withholding tax at a rate of 35% on dividends paid by Nokia. This withholding tax regime is based on OECD's TRACE (Treaty Relief and Compliance Enhancement) model. Under the rules, the 35% withholding tax will generally be applied on dividend distributions on nominee-registered shares by listed companies such as Nokia, unless custodians fulfill certain strict requirements and are willing to take over certain responsibilities (e.g., registration with the Finnish Tax Administration (so-called authorized intermediary), identification of the beneficial owner of the dividend and collecting and submitting detailed recipient information to the Finnish Tax Administration using specific filing procedures). Furthermore, application of reduced withholding tax rates at source require that the custodian and dividend distributor are willing to assume liability of incorrectly applied withholding tax. If the custodian only registers with the Finnish Tax Administration and submits (or undertakes to submit) the detailed recipient details to the Finnish Tax Administration, the 30% withholding tax rate can be applied, instead of 35%.

Any tax withheld in excess can be reclaimed after the calendar year of the dividend payment by submitting a refund application to the Finnish Tax Administration no later than by the end of the third calendar year following the dividend payment year. During the year of dividend payment, the refund can be processed if custodians and dividend distributor fulfill the above-mentioned requirements laid down for actual dividend distribution.

It is exceptionally also possible that any tax not withheld at source is later assessed directly to the shareholder by the Finnish Tax Administration, in cases where the failure to withhold tax at source is not due to negligence of the custodian or the dividend distributor.

Holders of shares or ADSs are urged to consult their own custodian regarding the availability of reduced withholding tax rates in light of their own particular situation and approach their custodian in terms of their responsibilities, as well as consult their own tax advisers regarding the availability to them of the tax credit from dividend withholding tax.

US and Finnish tax on sale or other disposition

A US Holder generally will recognize taxable capital gain or loss on the sale or other disposition of ADSs in an amount equal to the difference between the US dollar value of the amount realized and the adjusted tax basis (determined in US dollars) in the ADSs. If the ADSs are held as a capital asset, this gain or loss generally will be long-term capital gain or loss if, at the time of the sale, the ADSs have been held for more than one year. Any capital gain or loss, for foreign tax credit purposes, generally will constitute US source gain or loss. In the case of a US Holder that is an individual, long-term capital gain generally is subject to US federal income tax at preferential rates. The deductibility of capital losses is subject to significant limitations.

The deposit or withdrawal by a US Holder of shares in exchange for ADSs or of ADSs for shares under the deposit agreement generally will not be subject to US federal income tax or Finnish income tax.

The sale by a US Holder of the ADSs or the underlying shares, other than an individual who, by reason of his residence in Finland for a period exceeding six months, is or becomes liable for Finnish income tax according to the relevant provisions of Finnish tax law, generally will not be subject to income tax in Finland, in accordance with Finnish tax law and the Treaty.

Finnish transfer tax

The transfer of our shares and ADSs for cash through a broker or other appropriate intermediary is generally not subject to Finnish transfer tax. Non-brokered transfers will generally be exempted from the transfer tax if the transferee has been approved as a trading party in the market where the transfer is executed, or other conditions are met. Transfers of ADSs on the New York Stock Exchange are exempt. Where the transfer does not fulfill the above requirements, and either the buyer or the seller is a Finnish resident or a Finnish branch office of a specified foreign financial service provider, the buyer is liable to pay transfer tax of 1.5% of the transaction price where the resulting tax is at least EUR 10. Selling shareholders should consult their tax advisers regarding the specific tax considerations of a sale of our shares or ADSs.

Finnish inheritance and gift taxes

A transfer of an underlying share by gift or by reason of the death of a US Holder and the transfer of an ADS are not subject to Finnish gift or inheritance tax, provided that none of the deceased person, the donor, the beneficiary of the deceased person or the recipient of the gift is resident in Finland.

General facts on Nokia continued

Non-residents of the United States

Beneficial owners of ADSs that are not US Holders will not be subject to US federal income tax on dividends received with respect to ADSs unless such dividend income is effectively connected with the conduct of a trade or business within the United States. Similarly, non-US Holders generally will not be subject to US federal income tax on any gain realized on the sale or other disposition of ADSs, unless (a) the gain is effectively connected with the conduct of a trade or business in the United States or (b) in the case of an individual, that individual is present in the United States for 183 days or more in the taxable year of the disposition and other conditions are met.

The United States information reporting and backup withholding

Dividend payments with respect to shares or ADSs and proceeds from the sale or other disposition of shares or ADSs may be subject to information reporting to the Internal Revenue Service and possible US backup withholding. Backup withholding will not apply to a holder if the holder furnishes a correct taxpayer identification number or certificate of foreign status and makes any other required certification in connection therewith, or if it is a recipient otherwise exempt from backup withholding (such as a corporation). Any US persons required to establish their exempt status generally must furnish a duly completed IRS Form W-9 (Request for Taxpayer Identification Number and Certification). Non-US holders generally are not subject to US information reporting or backup withholding. However, such holders may be required to provide certification of non-US status (generally on IRS Form W-8BEN for individuals and Form W-8BEN-E for corporations) in connection with payments received in the United States or through certain US-related financial intermediaries. Backup withholding is not an additional tax. Amounts withheld as backup withholding may be credited against a holder's US federal income tax liability, and the holder may obtain a refund of any excess amounts withheld under the backup withholding rules by timely filing the appropriate claim for refund with the Internal Revenue Service and furnishing the proper required information.

General facts on Nokia continued

Key ratios

Earnings per share (basic)

$$\frac{\text{Profit/(loss) attributable to equity holders of the parent}}{\text{Weighted average number of shares outstanding during the year}}$$

Earnings per share (diluted)

$$\frac{\text{Profit/(loss) attributable to equity holders of the parent adjusted for the effect of dilution}}{\text{Adjusted weighted average number of shares during the year}}$$

P/E ratio

$$\frac{\text{Closing share price at 31 December}}{\text{Earnings per share (basic) for continuing operations}}$$

Payout ratio

$$\frac{\text{Proposed dividend per share}}{\text{Earnings per share (basic) for continuing operations}}$$

Dividend yield %

$$\frac{\text{Proposed dividend per share}}{\text{Closing share price at 31 December}}$$

Shareholders' equity per share

$$\frac{\text{Capital and reserves attributable to equity holders of the parent}}{\text{Number of shares at 31 December – number of treasury shares at 31 December}}$$

Market capitalization

(Number of shares at 31 December – number of treasury shares at 31 December) x closing share price at 31 December

Share turnover %

$$\frac{\text{Number of shares traded during the year}}{\text{Average number of shares during the year}}$$

Alternative performance measures

Certain financial measures presented in this report are not measures of financial performance, financial position or cash flows defined in IFRS Accounting Standards. As these measures are not defined in IFRS Accounting Standards, they may not be directly comparable with financial measures used by other companies, including those in the same industry. The primary rationale for presenting these measures is that the management uses these measures in assessing the financial performance of Nokia and believes that these measures provide meaningful supplemental information on the underlying business performance of Nokia. These financial measures should not be considered in isolation from, or as a substitute for, financial information presented in compliance with IFRS Accounting Standards.

Return on capital employed %

Definition

Return on capital employed is defined as Profit before tax + Interest expense on interest-bearing liabilities / Average capital and reserves attributable to equity holders of the parent + average non-controlling interests + average interest-bearing liabilities.

Purpose

Return on capital employed indicates how efficiently Nokia uses its capital to generate profits.

Composition of return on capital employed %:

EURm	2024	2023	2022
Profit before tax	2 091	1 469	2 169
Interest expense on interest-bearing liabilities	209	201	102
Total	**2 300**	**1 670**	**2 271**
Average capital and reserves attributable to equity holders of the parent(1)	20 597	20 935	19 347
Average non-controlling interests(1)	91	92	98
Average interest-bearing liabilities(1)	4 040	4 334	4 565
Total capital employed	**24 728**	**25 361**	**24 010**
Return on capital employed %	**9.3%**	**6.6%**	**9.5%**

(1) Calculated as the average of opening and closing balance for the year as presented in the consolidated statement of financial position. Refer to the consolidated financial statements.

Return on shareholders' equity %

Definition

Return on shareholders' equity is defined as Profit/(loss) for the year attributable to equity holders of the parent / Average capital and reserves attributable to equity holders of the parent.

Purpose

Return on shareholders' equity indicates how efficiently Nokia uses the capital invested by its shareholders to generate profits.

Composition of return on shareholders' equity %:

EURm	2024	2023	2022
Profit for the year attributable to equity holders of the parent	1 277	665	4 250
Average capital and reserves attributable to equity holders of the parent(1)	20 597	20 935	19 347
Return on shareholders' equity %	**6.2%**	**3.2%**	**22.0%**

(1) Calculated as the average of opening and closing balance for the year as presented in the consolidated statement of financial position. Refer to the consolidated financial statements.

Equity ratio %

Definition

Equity ratio % is defined as Total capital and reserves attributable to equity holders of the parent + non-controlling interests / Total assets.

Purpose

Equity ratio indicates the proportion of assets financed by the capital provided by the equity holders of the parent to the total assets of Nokia.

Composition of equity ratio %:

EURm	2024	2023	2022
Total capital and reserves attributable to equity holders of the parent	20 657	20 537	21 333
Non-controlling interests	90	91	93
Shareholders' equity	**20 747**	**20 628**	**21 426**
Total assets	**39 149**	**39 860**	**42 943**
Equity ratio %	**53.0%**	**51.8%**	**49.9%**

General facts on Nokia continued

Total cash and interest-bearing financial investments

Definition
Total cash and interest-bearing financial investments consist of cash and cash equivalents, current interest-bearing financial investments and non-current interest-bearing financial investments.

Purpose
Total cash and interest-bearing financial investments is used to indicate funds available to Nokia to run its current and invest in future business activities as well as provide return for security holders.

Composition of total cash and interest-bearing financial investments:

EURm	2024	2023	2022
Cash and cash equivalents	6 623	6 234	5 467
Current interest-bearing financial investments	1 661	1 565	3 080
Non-current interest-bearing financial investments	457	715	697
Total cash and interest-bearing financial investments	**8 741**	**8 514**	**9 244**

Net cash and interest-bearing financial investments

Definition
Net cash and interest-bearing financial investments equals total cash and interest-bearing financial investments less long-term and short-term interest-bearing liabilities.

Purpose
Net cash and interest-bearing financial investments is used to indicate Nokia's liquidity position after cash required to settle the interest-bearing liabilities.

Composition of net cash and interest-bearing financial investments:

EURm	2024	2023	2022
Total cash and interest-bearing financial investments			
Cash and cash equivalents	6 623	6 234	5 467
Current interest-bearing financial investments	1 661	1 565	3 080
Non-current interest-bearing financial investments	457	715	697
Interest-bearing liabilities			
Long-term interest-bearing liabilities	(2 918)	(3 637)	(4 249)
Short-term interest-bearing liabilities	(969)	(554)	(228)
Net cash and interest-bearing financial investments	**4 854**	**4 323**	**4 767**

Net debt to equity (gearing) %

Definition
Net debt to equity (gearing) % is defined as Interest-bearing liabilities less Total cash and interest-bearing financial investments / (Total capital and reserves attributable to the equity holders of the parent + Non-controlling interests).

Purpose
Net debt to equity ratio presents the relative proportion of shareholders' equity and interest-bearing liabilities used to finance Nokia's assets and indicates the leverage of Nokia's business.

Composition of net debt to equity (gearing) %:

EURm	2024	2023	2022
Interest-bearing liabilities			
Long-term interest-bearing liabilities	2 918	3 637	4 249
Short-term interest-bearing liabilities	969	554	228
Total cash and interest-bearing financial investments			
Cash and cash equivalents	(6 623)	(6 234)	(5 467)
Current interest-bearing financial investments	(1 661)	(1 565)	(3 080)
Non-current interest-bearing financial investments	(457)	(715)	(697)
Net debt	**(4 854)**	**(4 323)**	**(4 767)**
Total capital and reserves attributable to equity holders of the parent	20 657	20 537	21 333
Non-controlling interests	90	91	93
Shareholders' equity	**20 747**	**20 628**	**21 426**
Net debt to equity (gearing) %	**(23.4)%**	**(21.0)%**	**(22.2)%**

Free cash flow

Definition
Free cash flow is defined as Net cash flows from operating activities – purchases of property, plant and equipment and intangible assets (capital expenditures).

Purpose
Free cash flow is the cash that Nokia generates after investments in property, plant and equipment and intangible assets, and we believe it provides meaningful supplemental information as it represents the cash available to service and repay interest-bearing financial liabilities, including lease liabilities, make investments to grow business and distribute funds to shareholders. It is a measure of cash generation, working capital efficiency and capital discipline of the business.

General facts on Nokia continued

Composition of free cash flow:

EURm	2024	2023	2022
Net cash flows from operating activities	2 493	1 317	1 474
Purchase of property, plant and equipment and intangible assets (capital expenditures)	(472)	(652)	(601)
Free cash flow	**2 021**	**665**	**873**

Capital expenditure

Definition

Purchases of property, plant and equipment and intangible assets (excluding assets acquired under business combinations).

Purpose

Capital expenditure is used to describe investments in future profit-generating activities.

Composition of capital expenditure:

EURm	2024	2023	2022
Purchase of property, plant and equipment and intangible assets	(472)	(652)	(601)
Capital expenditure	**(472)**	**(652)**	**(601)**

Comparable operating profit

Definition

Comparable operating profit excludes intangible asset amortization and other purchase price fair value adjustments, goodwill impairments, restructuring-related charges and certain other items affecting comparability.

Purpose

We believe that our comparable operating profit provides meaningful supplemental information to both management and investors regarding Nokia's underlying business performance by excluding certain items of income and expenses that may not be indicative of Nokia's business operating results. Comparable operating profit is used also in determining management remuneration.

Composition of comparable operating profit:

EURm	2024	2023	2022
Operating profit	1 999	1 661	2 299
Restructuring and associated charges	445	356	177
Amortization of acquired intangible assets	314	341	397
Divestment of associates	(190)	—	—
Impairment and write-off of assets, net of reversals	89	25	97
Divestment of businesses	(67)	(20)	—
Costs associated with country exit	—	(49)	98
Other	29	23	8
Comparable operating profit	**2 619**	**2 337**	**3 076**

Comparable operating margin %

Definition

Comparable operating margin is defined as Comparable operating profit / Net sales.

Purpose

Comparable operating margin is used as a measure of Nokia's operating profitability as a percentage of net sales excluding intangible asset amortization and other purchase price fair value adjustments, goodwill impairments, restructuring-related charges and certain other items affecting comparability.

As with comparable operating profit, we believe that our comparable operating margin provides meaningful supplemental information to both management and investors regarding Nokia's underlying business performance by excluding certain items of income and expenses that may not be indicative of Nokia's business operating results.

Composition of comparable operating margin:

EURm	2024	2023	2022
Comparable operating profit	2 619	2 337	3 076
Net sales	19 220	21 138	23 761
Comparable operating margin %	**13.6%**	**11.1%**	**12.9%**

Financial statements

Consolidated income statement
For the year ended 31 December

EURm	Note	2024	2023	2022
Net sales	2.1, 2.2	**19 220**	**21 138**	**23 761**
Cost of sales	2.3	(10 356)	(12 592)	(13 660)
Gross profit		**8 864**	**8 546**	**10 101**
Research and development expenses	2.3	(4 512)	(4 277)	(4 503)
Selling, general and administrative expenses	2.3	(2 890)	(2 878)	(2 956)
Other operating income	2.3	432	167	95
Other operating expenses	2.3	105	103	(438)
Operating profit		**1 999**	**1 661**	**2 299**
Share of results of associates and joint ventures	6.4	7	(39)	(26)
Financial income	2.4	405	426	178
Financial expenses	2.4	(320)	(579)	(282)
Profit before tax		**2 091**	**1 469**	**2 169**
Income tax (expense)/benefit	2.5	(380)	(820)	2 033
Profit from continuing operations		**1 711**	**649**	**4 202**
(Loss)/profit from discontinued operations	2.6	(427)	30	57
Profit for the year		**1 284**	**679**	**4 259**
Attributable to:				
Equity holders of the parent		1 277	665	4 250
Non-controlling interests		7	14	9

Earnings per share attributable to equity holders of the parent	2.7	EUR	EUR	EUR
Basic				
Profit from continuing operations		0.31	0.11	0.75
Profit for the year		0.23	0.12	0.76
Diluted				
Profit from continuing operations		0.31	0.11	0.74
Profit for the year		0.23	0.12	0.75

In June 2024, Nokia classified its Submarine Networks business as a discontinued operation, refer to Note 2.6. Discontinued operations for further details. The comparative information for 2023 and 2022 presented in the consolidated income statement and disclosed in the related notes has been recast on the same basis.

The notes are an integral part of these consolidated financial statements.

Consolidated statement of comprehensive income
For the year ended 31 December

EURm	Note	2024	2023	2022
Profit for the year		**1 284**	**679**	**4 259**
Items that will not be reclassified to profit or loss				
Remeasurements of defined benefit plans		408	(343)	(424)
Income tax related to items that will not be reclassified to profit or loss	2.5	(85)	61	77
Total of items that will not be reclassified to profit or loss		**323**	**(282)**	**(347)**
Items that may be reclassified to profit or loss				
Translation differences				
Exchange differences on translating foreign operations		615	(554)	696
Transfer to income statement		(78)	19	14
Net investment hedges				
Net fair value (losses)/gains		(40)	135	(127)
Cash flow and other hedges				
Net fair value gains/(losses)		23	(24)	(15)
Transfer to income statement		(2)	(37)	98
Financial assets at fair value through other comprehensive income				
Net fair value gains/(losses)		83	(110)	(264)
Transfer to income statement		(64)	120	218
Other increase/(decrease), net		3	(4)	(3)
Income tax related to items that may be reclassified to profit or loss	2.5	8	(10)	(21)
Total of items that may be reclassified to profit or loss		**548**	**(465)**	**596**
Other comprehensive income/(loss), net of tax		**871**	**(747)**	**249**
Total comprehensive income/(loss) for the year		**2 155**	**(68)**	**4 508**
Attributable to:				
Equity holders of the parent				
Continuing operations		2 624	(91)	4 394
Discontinued operations		(477)	13	106
Total		2 147	(78)	4 500
Non-controlling interests		8	10	8

The notes are an integral part of these consolidated financial statements.

Consolidated statement of financial position
At 31 December

EURm	Note	2024	2023
ASSETS			
Non-current assets			
Goodwill	4.1	5 736	5 504
Other intangible assets	4.1	802	1 086
Property, plant and equipment	4.2	1 362	1 951
Right-of-use assets	4.3	758	906
Investments in associated companies and joint ventures	6.4	124	88
Non-current interest-bearing financial investments	5.2, 5.4	457	715
Other non-current financial assets	5.2, 5.4	1 182	1 100
Defined benefit pension assets	3.4	6 932	6 258
Deferred tax assets	2.5	3 599	3 873
Other non-current receivables	4.6	210	213
Total non-current assets		**21 162**	**21 694**
Current assets			
Inventories	4.4	2 163	2 719
Trade receivables	4.5, 5.2, 5.4	5 248	4 921
Contract assets	4.5	694	1 136
Current income tax assets	2.5	202	307
Other current receivables	4.6	767	764
Current interest-bearing financial investments	5.2, 5.4	1 661	1 565
Other current financial and firm commitment assets	5.2, 5.3, 5.4	629	441
Cash and cash equivalents	5.2, 5.4	6 623	6 234
Total current assets		**17 987**	**18 087**
Assets held for sale		—	79
Total assets		**39 149**	**39 860**

EURm	Note	2024	2023
SHAREHOLDERS' EQUITY AND LIABILITIES			
Equity			
Share capital		246	246
Share premium		734	628
Treasury shares		(431)	(352)
Translation differences		263	(249)
Fair value and other reserves		3 963	3 605
Reserve for invested unrestricted equity		13 926	15 255
Retained earnings		1 956	1 404
Total shareholders' equity		**20 657**	**20 537**
Non-controlling interests		90	91
Total equity	5.1	**20 747**	**20 628**
Non-current liabilities			
Long-term interest-bearing liabilities	5.2, 5.3, 5.4	2 918	3 637
Long-term lease liabilities	5.4	664	799
Defined benefit pension and post-employment liabilities	3.4	2 083	2 299
Deferred tax liabilities	2.5	562	725
Contract liabilities	4.5	185	210
Other non-current liabilities	4.6	117	111
Provisions	4.7	479	518
Total non-current liabilities		**7 008**	**8 299**
Current liabilities			
Short-term interest-bearing liabilities	5.2, 5.3, 5.4	969	554
Short-term lease liabilities	5.4	199	198
Other financial and firm commitment liabilities	5.2, 5.3, 5.4	1 668	830
Contract liabilities	4.5	1 506	2 157
Current income tax liabilities	2.5	207	203
Trade payables	5.2, 5.4	3 213	3 423
Other current liabilities	4.6	2 883	2 824
Provisions	4.7	749	744
Total current liabilities		**11 394**	**10 933**
Total liabilities		**18 402**	**19 232**
Total shareholders' equity and liabilities		**39 149**	**39 860**

The notes are an integral part of these consolidated financial statements.

Consolidated statement of cash flows
For the year ended 31 December

EURm	Note	2024	2023	2022
Cash flow from operating activities				
Profit for the year		1 284	679	4 259
Adjustments, total[1]		2 157	2 559	(446)
Change in net working capital[2]		(569)	(1 282)	(1 843)
Cash flows from operations		2 872	1 956	1 970
Interest received		226	178	65
Interest paid	4.3, 5.2	(263)	(241)	(180)
Income taxes paid, net		(342)	(576)	(381)
Net cash flows from operating activities		**2 493**	**1 317**	**1 474**
Cash flow from investing activities				
Purchase of property, plant and equipment and intangible assets		(472)	(652)	(601)
Proceeds from sale of property, plant and equipment and intangible assets		97	189	33
Acquisition of businesses, net of cash acquired		(37)	(19)	(20)
Proceeds from disposal of businesses, net of cash disposed		(29)	17	—
Proceeds from disposal of shares in associated companies		259	8	3
Purchase of interest-bearing financial investments		(924)	(1 855)	(3 595)
Proceeds from interest-bearing financial investments		1 138	3 382	2 397
Purchase of other financial assets		(280)	(83)	(115)
Proceeds from other financial assets		70	34	49
Other		61	22	(31)
Net cash flows (used in)/from investing activities		**(117)**	**1 043**	**(1 880)**
Cash flow from financing activities				
Acquisition of treasury shares	5.1	(680)	(300)	(300)
Proceeds from long-term borrowings	5.4	101	496	8
Repayment of long-term borrowings	5.4	(462)	(798)	(2)
(Repayment of)/proceeds from short-term borrowings	5.4	(6)	(40)	27
Payment of principal portion of lease liabilities	4.3, 5.4	(233)	(239)	(217)
Dividends paid	5.1	(723)	(621)	(353)
Net cash flows used in financing activities		**(2 003)**	**(1 502)**	**(837)**
Translation differences		16	(91)	19
Net increase/(decrease) in cash and cash equivalents		**389**	**767**	**(1 224)**
Cash and cash equivalents at 1 January		6 234	5 467	6 691
Cash and cash equivalents at 31 December		**6 623**	**6 234**	**5 467**

The consolidated statement of cash flows combines cash flows from both continuing and discontinued operations.

The notes are an integral part of these consolidated financial statements.

(1) Adjustments

EURm	2024	2023	2022
Depreciation and amortization	1 014	1 087	1 140
Share-based payments	241	202	149
Impairment charges	611	25	152
Restructuring charges	388	316	125
Gain on sale of businesses and associated companies	(286)	(19)	(5)
Gain on sale of property, plant and equipment	(94)	(143)	(30)
(Gain)/loss from other financial assets	(47)	56	(27)
Financial income and expenses	(78)	148	28
Income tax expense/(benefit)	385	825	(2 030)
Other adjustments, net	23	62	52
Total	**2 157**	**2 559**	**(446)**

Restructuring charges in adjustments represent the non-cash portion recognized in the consolidated income statement.

(2) Change in net working capital

EURm	2024	2023	2022
(Increase)/decrease in receivables	(364)	304	(451)
Decrease/(increase) in inventories	404	443	(991)
Decrease in non-interest-bearing liabilities	(609)	(2 029)	(401)
Total	**(569)**	**(1 282)**	**(1 843)**

Consolidated statement of changes in shareholders' equity

EURm	Note	Share capital	Share premium	Treasury shares	Translation differences	Fair value and other reserves	Reserve for invested unrestricted equity	Retained earnings/ (accumulated deficit)	Total shareholders' equity	Non-controlling interests	Total equity
1 January 2022		**246**	**454**	**(352)**	**(396)**	**4 219**	**15 726**	**(2 537)**	**17 360**	**102**	**17 462**
Profit for the year								4 250	4 250	9	4 259
Other comprehensive income	5.1				565	(314)		(1)	250	(1)	249
Total comprehensive income for the year		**—**	**—**	**—**	**565**	**(314)**	**—**	**4 249**	**4 500**	**8**	**4 508**
Share-based payments			149						149		149
Settlement of share-based payments			(100)				73		(27)		(27)
Acquisition of treasury shares	5.1			(300)			(12)		(312)		(312)
Cancellation of treasury shares	5.1			300			(300)		—		—
Dividends	5.1							(337)	(337)	(17)	(354)
Total transactions with owners		**—**	**49**	**—**	**—**	**—**	**(239)**	**(337)**	**(527)**	**(17)**	**(544)**
31 December 2022		**246**	**503**	**(352)**	**169**	**3 905**	**15 487**	**1 375**	**21 333**	**93**	**21 426**
Profit for the year								665	665	14	679
Other comprehensive loss	5.1				(418)	(300)		(25)	(743)	(4)	(747)
Total comprehensive loss for the year		**—**	**—**	**—**	**(418)**	**(300)**	**—**	**640**	**(78)**	**10**	**(68)**
Share-based payments			202						202		202
Settlement of share-based payments			(77)				59		(18)		(18)
Acquisition of treasury shares	5.1			(303)			12		(291)		(291)
Cancellation of treasury shares	5.1			303			(303)		—		—
Disposal of subsidiaries									—	(2)	(2)
Dividends	5.1							(611)	(611)	(10)	(621)
Total transactions with owners		**—**	**125**	**—**	**—**	**—**	**(232)**	**(611)**	**(718)**	**(12)**	**(730)**
31 December 2023		**246**	**628**	**(352)**	**(249)**	**3 605**	**15 255**	**1 404**	**20 537**	**91**	**20 628**
Profit for the year								1 277	1 277	7	1 284
Other comprehensive income	5.1				512	358			870	1	871
Total comprehensive income for the year		**—**	**—**	**—**	**512**	**358**	**—**	**1 277**	**2 147**	**8**	**2 155**
Share-based payments			241						241		241
Settlement of share-based payments			(135)				99		(36)		(36)
Acquisition of treasury shares(1)	5.1			(686)			(821)		(1 507)		(1 507)
Cancellation of treasury shares	5.1			607			(607)		—		—
Adjustment to financial liability to acquire non-controlling interest								(11)	(11)		(11)
Dividends	5.1							(714)	(714)	(9)	(723)
Total transactions with owners		**—**	**106**	**(79)**	**—**	**—**	**(1 329)**	**(725)**	**(2 027)**	**(9)**	**(2 036)**
31 December 2024		**246**	**734**	**(431)**	**263**	**3 963**	**13 926**	**1 956**	**20 657**	**90**	**20 747**

(1) In connection with the share buyback program launched in November 2024, Nokia has recorded a liability and a reduction of reserve for invested unrestricted equity of EUR 821 million to reflect Nokia's commitment under the agreement with a third-party broker conducting the share repurchases on Nokia's behalf. For more information on Nokia's share buyback programs, refer to Note 5.1. Equity.

The notes are an integral part of these consolidated financial statements.

Section 1

Basis of preparation

This section describes the general accounting policies applied in preparation of these consolidated financial statements, including the basis of presentation and key consolidation principles. This section also summarizes the accounting matters that involve most judgment or estimation uncertainty. The specific accounting policies as well as details of key accounting estimates and judgments are provided in the related notes.

1.1. Corporate information

Nokia Corporation, a public limited liability company incorporated and domiciled in Helsinki, Finland, is the parent company (Parent Company or Parent) for all its subsidiaries (together Nokia or the Group). Nokia is a global provider of mobile, fixed and cloud network solutions combining hardware, software and services, as well as licensing of intellectual property, including patents, technologies and the Nokia brand. Nokia's operational headquarters are located in Espoo, Finland. The shares of Nokia Corporation are listed on the Nasdaq Helsinki Stock Exchange, the New York Stock Exchange and the Euronext Paris Stock Exchange.

These consolidated financial statements for the year ended 31 December 2024 were authorized for issuance and filing by the Board of Directors on 13 March 2025.

1.2. General accounting policies

Basis of presentation and statement of compliance

The consolidated financial statements are prepared in accordance with IFRS Accounting Standards as issued by the International Accounting Standards Board (IASB) and as adopted by the European Union (EU). The consolidated financial statements also conform to Finnish accounting and company legislation.

The consolidated financial statements are presented in millions of euros (EURm), except when otherwise noted, and are prepared under the historical cost convention, except when otherwise disclosed in the accounting policies in the specific notes.

Other information

This paragraph is included in connection with statutory reporting requirements in Germany. The fully consolidated German subsidiary, Nokia Solutions and Networks GmbH & Co. KG, registered in the commercial register of Munich under HRA 88537, has made use of the exemption available under § 264b and § 291 of the German Commercial Code (HGB).

Principles of consolidation

The consolidated financial statements comprise the financial statements of the Parent Company, and each of those companies over which it exercises control. Control over an entity exists when Nokia is exposed, or has rights, to variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. Presumption is that a majority of voting rights results in control. To support this presumption, Nokia considers all relevant facts and circumstances in assessing whether it has power over the entity including voting rights and potential voting rights, rights to appoint key management personnel and rights arising from other contractual arrangements. Consolidation of a subsidiary begins when Nokia obtains control over the subsidiary and ceases when it loses control over the subsidiary.

All intercompany transactions are eliminated as part of the consolidation process. Non-controlling interest represents the proportion of net profit or loss, other comprehensive income and net assets in subsidiaries that is not attributable to the equity holders of the Parent.

Investments in associates and joint ventures

An associate is an entity over which Nokia exercises significant influence. A joint venture is a type of joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the arrangement.

Nokia's investments in associates and joint ventures are accounted for using the equity method. Under the equity method, the investment in an associate or joint venture is initially recognized at cost. The carrying amount of the investment is adjusted to recognize changes in Nokia's share of net assets of the associate or joint venture since the acquisition date. Nokia's share of profits and losses of associates and joint ventures is reflected in the consolidated income statement. Any change in other comprehensive income of associates and joint ventures is presented as part of Nokia's other comprehensive income.

Foreign currency translation

Functional and presentation currency
The consolidated financial statements are presented in euro, the functional and presentation currency of the Parent Company. The financial statements of all Group companies are measured using the functional currency, which is the currency of the primary economic environment in which the entity operates.

Transactions in foreign currencies
Transactions in foreign currencies are recorded at exchange rates prevailing at the date of the transaction. For practical reasons, a rate that approximates the actual rate at the date of the transaction is often used. Monetary assets and liabilities denominated in foreign currency are translated at the exchange rates prevailing at the end of the reporting period.

Foreign exchange gains and losses arising from monetary assets and liabilities as well as fair value changes of related hedging instruments are recognized in financial income and expenses. Unrealized foreign exchange gains and losses related to non-monetary non-current financial investments are included in the fair value measurement of these investments and recognized in other operating income and expenses.

Foreign Group companies
On consolidation, the assets and liabilities of foreign operations whose functional currency is other than euro are translated into euro at the exchange rates prevailing at the end of the reporting period. The income and expenses of these foreign operations are translated into euro at the average exchange rates for the reporting period. The exchange differences arising from translation for consolidation are recognized as translation differences in other comprehensive income. On disposal of a foreign operation, the cumulative amount of translation differences relating to that foreign operation is reclassified to profit or loss.

1.3. Use of estimates and critical accounting judgments

The preparation of financial statements requires use of management judgment in selecting and applying accounting policies as well as making estimates and assumptions about the future. These judgments, estimates and assumptions may have a significant effect on the amounts recognized in the financial statements.

The estimates and assumptions used in determining the carrying amounts of assets and liabilities are based on historical experience, expected outcomes and various other factors that were available when these financial statements were prepared, and they are believed to be reasonable under the circumstances. The estimates and assumptions are reviewed continually and revised if changes in circumstances occur, or as a result of new information. As estimates and assumptions inherently contain a varying degree of uncertainty, actual outcomes may differ resulting in adjustments to the carrying amounts of assets and liabilities in subsequent periods.

The accounting matters listed below are determined to involve the most difficult, subjective or complex judgments, or are considered as major sources of estimation uncertainty that may have a significant risk of resulting in a material adjustment to the carrying amounts of assets and liabilities within the next financial year. Please refer to the specific notes for further information on the key accounting estimates and judgments.

Key accounting estimates and judgments	Note
Judgment related to recognition of deferred tax assets	2.5. Income taxes
Judgment related to classification of Submarine Networks as a discontinued operation	2.6. Discontinued operations
Estimate of pension and other post-employment benefit obligations	3.4. Pensions and other post-employment benefits

1.4. New and amended standards and interpretations

On 1 January 2024, Nokia adopted the following amendments to the accounting standards issued by the IASB and endorsed by the EU:

- Amendments to IFRS 16 Leases: Lease Liability in a Sale and Leaseback;
- Amendments to IAS 1 Presentation of Financial Statements: Classification of Liabilities as Current or Non-current;
- Amendments to IAS 1 Presentation of Financial Statements: Non-current Liabilities with Covenants; and
- Amendments to IAS 7 Statement of Cash Flows and IFRS 7 Financial Instruments: Disclosures: Supplier Finance Arrangements.

The amendments had no material impact on the measurement, recognition or presentation of any items in Nokia's consolidated financial statements for 2024.

Nokia has not early adopted any new or amended standards or interpretations that have been issued but are not yet effective. The new and amended standards and interpretations issued by the IASB that are effective in future periods are not expected to have a material impact on the consolidated financial statements of Nokia when adopted, except for IFRS 18 Presentation and Disclosure in Financial Statements which was published in April 2024.

IFRS 18 sets out the requirements for presentation and disclosures in financial statements and it will replace IAS 1 Presentation of Financial Statements. The new standard is effective for annual reporting periods beginning on or after 1 January 2027, with earlier application permitted. IFRS 18 is yet to be endorsed by the EU. Nokia is assessing the impact of IFRS 18 on its consolidated financial statements but as IFRS 18 is not changing the recognition and measurement requirements it is not expected to have significant impact other than on the presentation of financial information.

Nokia intends to adopt IFRS 18 and other new and amended standards and interpretations, if applicable, when they become effective and are endorsed by the EU.

Section 2

Results for the year

This section provides details of items presented in the income statement including disaggregation of net sales by region and customer type, results of Nokia's operating segments, and information on operating expenses and other operating income. Additionally, this section contains details of financial income and expenses and income taxes, as well as the results of discontinued operations. The calculation of earnings per share is presented at the end of this section.

2.1. Net sales

Accounting policies

Nokia accounts for a contract with a customer when the contract has been approved in writing, which is generally when both parties are committed to perform their respective obligations, the rights, including payment terms, regarding the goods and services to be transferred can be identified, the contract has commercial substance, and collection of the consideration to which Nokia expects to be entitled is probable. Management considers only legally enforceable rights in evaluating the accounting for contracts with customers. As such, frame agreements that do not create legally enforceable rights and obligations are accounted for based on the issuance of subsequent legally binding purchase orders under the frame agreements.

A contract modification or a purchase order is accounted for as a separate contract if the scope of the contract increases by additional distinct goods or services, and the price of the contract increases by an amount that reflects the standalone selling price of those additional goods or services. In cases where the additional goods or services are distinct but not sold at a standalone selling price, the contract modification is accounted for prospectively. In cases where the additional goods or services are not distinct, the modification is accounted for through a cumulative catch-up adjustment.

Nokia recognizes revenue from contracts with customers to reflect the transfer of promised goods and services to customers for amounts that reflect the consideration to which Nokia expects to be entitled in exchange for those goods and services. The consideration may include a variable amount, which Nokia estimates based on the most likely amount. Items causing variability include volume discounts and sales-based or usage-based royalties. Nokia includes variable consideration into the transaction price only to the extent that it is highly probable that a significant revenue reversal will not occur. The transaction price also excludes amounts collected on behalf of third parties.

In cases where the timing of payments provides either the customer or Nokia with a significant benefit of financing, the transaction price is adjusted for the effect of financing and the related interest revenue or interest expense is presented separately from revenue. As a practical expedient, Nokia does not account for financing components if, at contract inception, the consideration is expected to be received within one year before or after the goods or services have been transferred to the customer.

Nokia enters into contracts with customers consisting of any combination of hardware, services and intellectual property. Hardware and software sold by Nokia includes warranty, which can either be assurance-type for repair of defects and replacement of hardware recognized as a centralized warranty provision, or service-type for scope beyond the repair of defects or for a time period beyond the standard assurance-type warranty period and considered as a separate performance obligation within the context of the contract.

The associated revenue recognized for such contracts depends on the nature of the underlying goods and services provided. The promised goods or services in the contract might include sale of goods, license of intellectual property and grant of options to purchase additional goods or services that may provide the customer with a material right. Nokia conducts an assessment at contract inception to determine which promised goods and services in a customer contract are distinct and accordingly identified as performance obligations.

The standalone selling price of each performance obligation is determined by considering factors such as the price of the performance obligation if sold on a standalone basis and the expected cost of the performance obligation plus a reasonable margin when price references are not available. The portion of the transaction price allocated to each performance obligation is then recognized when the revenue recognition criteria for that performance obligation have been met.

Notes to the consolidated financial statements continued

Nokia allocates the transaction price to each distinct performance obligation on the basis of their standalone selling prices, relative to the overall transaction price. If a standalone selling price is not observable, it is estimated. The transaction price may include a discount or a variable amount of consideration that is generally allocated proportionately to all performance obligations in the contract unless Nokia has observable evidence that the entire discount relates to only one or more, but not all, performance obligations in a contract. The amount of revenue recognized is the amount allocated to the satisfied performance obligation based on the relative standalone selling prices. A performance obligation may be satisfied at a point in time or over time.

As described in Note 4.5. Trade receivables and other customer-related balances, Nokia presents its customer contracts in the statement of financial position as either a contract asset or a contract liability, depending on the relationship between Nokia's performance and the customer's payment for each individual contract.

Sale of products
Nokia manufactures and sells a range of networking equipment, covering the requirements of network operators. Revenue for these products is recognized when control of the products has transferred, the determination of which may require judgment. Typically, for standard equipment sales, control transfers upon delivery. For more complex solutions, control generally transfers upon acceptance.

In some arrangements, mainly within the Submarine Networks business which is presented as a discontinued operation and was sold in 2024, Nokia's performance does not create an asset with an alternative use and Nokia recognizes revenue over time using the output method, which faithfully depicts the manner in which the asset is transferred to the customer as well as Nokia's enforceable rights to payment for the work completed to date, including margin. The output measure selected by Nokia for each contract may vary depending on the nature of the contract.

Sale of services
Nokia provides services related to the provision of networking equipment, ranging from managing a customer's network and product maintenance services to network installation, integration and optimization. Revenue for each separate service performance obligation is recognized as or when the customer obtains the benefits of Nokia's performance. Service revenue is recognized over time for managed and maintenance services, as in these cases Nokia performs throughout a fixed contract term and the customer simultaneously receives and consumes the benefits as Nokia performs. In some cases, Nokia performs services that are subject to customer acceptance where revenue is recognized when the customer acceptance is obtained.

Sale of intellectual property licenses
Nokia provides its customers with licenses to intellectual property (IP) owned by Nokia by granting software licenses and rights to benefit from Nokia's IP in their products. When a software license is sold, revenue is recognized upon delivery or acceptance of the software, as Nokia has determined that each software release is distinct, and the license is granted for software as it exists when the control transfers to the customer.

When Nokia grants customers a license to use IP owned by Nokia, the associated license fee revenue is recognized in accordance with the substance of the relevant agreements. In the majority of cases, Nokia retains obligations to continue to develop and make available to the customer the latest IP in the licensed assets during the contract term, and therefore revenue is recognized pro rata over the period during which Nokia is expected to perform.

Recognition of the revenue as pro rata over the term of the license is considered the most faithful depiction of Nokia's satisfaction of the performance obligation as the IP being licensed towards the customer includes new inventions patented by Nokia that are highly interdependent and interrelated and created through the course of continuous research and development (R&D) efforts that are relatively stable throughout the year. In some contracts, Nokia has no remaining obligations to perform after granting a license to the initial IP, and licensing fees are non-refundable. In these cases, revenue is recognized at the beginning of the license term.

Notes to the consolidated financial statements continued

Revenue disaggregation

Management has determined that Nokia's geographic areas are considered as the primary determinants to depict how the nature, amount, timing and uncertainty of revenue and cash flows are affected by economic factors. Nokia's primary customer base consists of companies that operate on a country-specific or a regional basis. Although Nokia's technology cycle is similar around the world, different countries and regions are inherently in a different stage of that cycle, often influenced by macroeconomic conditions specific to those countries and regions. In addition to Net sales to external customers by region, the chief operating decision-maker, as described in Note 2.2. Segment information, also reviews Net sales by aggregated regions and Net sales by customer type disclosed in this note.

Each reportable segment, as described in Note 2.2. Segment information, consists of customers that operate in all geographic areas. No reportable segment has a specific revenue concentration in any geographic area other than Nokia Technologies, which is included within Europe.

Net sales to external customers by region

Net sales to external customers by region are based on the location of the customer, except for Nokia Technologies IPR and licensing net sales which are allocated to Europe.

EURm	2024	2023	2022
Americas	**6 276**	**6 779**	**9 611**
Latin America	895	1 046	1 223
North America	5 381	5 733	8 388
APAC	**4 549**	**6 436**	**5 519**
Greater China	1 134	1 303	1 581
India	1 373	2 842	1 290
Rest of APAC	2 042	2 291	2 648
EMEA	**8 395**	**7 923**	**8 631**
Europe	6 362	5 873	6 662
Middle East & Africa	2 033	2 050	1 969
Total	**19 220**	**21 138**	**23 761**

Segment net sales by region

EURm	2024	2023	2022
Network Infrastructure	**6 518**	**6 917**	**7 897**
Americas	2 726	2 813	3 717
APAC	1 426	1 580	1 553
EMEA	2 366	2 524	2 627
Mobile Networks	**7 725**	**9 797**	**10 671**
Americas	2 365	2 618	4 371
APAC	2 461	4 184	3 191
EMEA	2 899	2 995	3 109
Cloud and Network Services	**3 022**	**3 220**	**3 351**
Americas	1 184	1 306	1 368
APAC	649	649	752
EMEA	1 189	1 265	1 231
Nokia Technologies	**1 928**	**1 085**	**1 595**
Group Common and Other(1)	**27**	**119**	**248**
Total	**19 220**	**21 138**	**23 761**

(1) Includes eliminations of inter-segment revenues.

Net sales by customer type

EURm	2024	2023	2022
Communications service providers	15 085	17 652	19 921
Enterprise	2 180	2 282	1 997
Licensees	1 928	1 085	1 595
Other(1)	27	119	248
Total	**19 220**	**21 138**	**23 761**

(1) Includes net sales of Radio Frequency Systems (RFS), which had been managed as a separate entity and was substantially divested in 2024, and certain other items, such as eliminations of inter-segment revenues. RFS net sales also include revenue from communications service providers and enterprise customers.

Order backlog

At 31 December 2024, the aggregate amount of the transaction price allocated to partially or wholly unsatisfied performance obligations arising from fixed contractual commitments amounted to EUR 20.0 billion (EUR 22.0 billion in 2023, of which EUR 1.7 billion related to discontinued operations sold in 2024). Management has estimated that these unsatisfied performance obligations will be recognized as revenue as follows:

	2024	2023
Within 1 year	53%	51%
2-3 years	27%	30%
More than 3 years	20%	19%
Total	**100%**	**100%**

The estimated timing of the satisfaction of these performance obligations is subject to change owing to factors beyond Nokia's control such as customer and network demand, market conditions and, in some cases, restrictions imposed by the weather or other factors impacting project logistics. Revenue recognized in the reporting period from performance obligations satisfied (or partially satisfied) in previous periods (for example, due to changes in transaction price) was not material.

2.2. Segment information

Accounting policies

Nokia has four operating and reportable segments for financial reporting purposes: (1) Network Infrastructure, (2) Mobile Networks, (3) Cloud and Network Services and (4) Nokia Technologies. In addition, Nokia provides net sales disclosure for the following business units within the Network Infrastructure segment: (i) IP Networks, (ii) Optical Networks and (iii) Fixed Networks.

The President and CEO is the chief operating decision-maker monitoring the operating results of segments for the purpose of assessing performance and making decisions about resource allocation. Key financial performance measures of the segments comprise primarily net sales and segment operating profit. The evaluation of segment performance and allocation of resources is primarily based on segment operating profit which the management believes is the most relevant measure for this purpose. Segment operating profit excludes intangible asset amortization and other purchase price fair value adjustments, goodwill impairments, restructuring-related charges and certain other items of income and expenses that may not be indicative of the business operating results.

Accounting policies of the segments are the same as those for the Group except for the aforementioned items of income and expenses that are not allocated to the segments. Inter-segment revenues and transfers are accounted for as if the revenues were to third parties, that is, at current market prices.

Segment descriptions

Network Infrastructure

The Network Infrastructure segment serves communications service providers, enterprises, webscales and public sector customers. It comprises the following business units:
(i) IP Networks, which provides IP networks and services for residential, mobile, enterprise and cloud applications;
(ii) Optical Networks, which provides optical transport networks for metro, regional and long-haul applications
(iii) Fixed Networks, which provides fiber, fixed wireless access and copper technologies.

The results of the Submarine Networks business, which were previously reported as part of Network Infrastructure operating segment, are presented in discontinued operations in these consolidated financial statements. For more information on discontinued operations, refer to Note 2.6. Discontinued operations.

Mobile Networks

The Mobile Networks segment creates products and services covering all mobile technology generations. Its portfolio includes products for radio access networks (RAN) and microwave radio (MWR) links for transport networks, and solutions for network management, as well as network planning, optimization, network deployment and technical support services.

Cloud and Network Services

Cloud and Network Services segment provides open, fully automated, and scalable software and solutions that accelerate the journey of service providers and enterprises to autonomous networks and new value creation.

Cloud and Network Services segment invests in technologies that are critical to our customers' growth: 5G core, secure autonomous networks, private wireless and industrial edge, and network APIs. Delivered in a secure, Software-as-a-Service first model, these solutions help customers capture the opportunities of digitalization, AI and cloud.

Nokia Technologies

Nokia Technologies segment monetizes Nokia's intellectual property, including patents, technologies and the Nokia brand, building on Nokia's continued innovation leadership, long-term investment into research and development, and decades of driving technology standards development. The majority of net sales and related costs and expenses attributable to licensing and patenting the patent portfolio of Nokia is recorded in Nokia Technologies, while each segment separately records its own research and development expenses.

Group Common and Other

Despite not being a reportable segment, Nokia also provides segment-level information for Group Common and Other. Group Common and Other includes Radio Frequency Systems which had been managed as a separate entity and was substantially divested in 2024. In addition, Group Common and Other includes certain corporate-level and centrally managed operating expenses, as well as fair value gains and losses on investments in venture funds, including investments managed by NGP Capital.

Notes to the consolidated financial statements continued

Segment results

EURm	Network Infrastructure[1]	Mobile Networks	Cloud and Network Services	Nokia Technologies	Group Common and Other	Eliminations and unallocated items[2]	Nokia Group
2024							
Net sales to external customers	6 517	7 721	3 021	1 928	33	—	**19 220**
Net sales to other segments	1	4	1	—	1	(7)	**—**
Operating profit/(loss)	**761**	**409**	**249**	**1 514**	**(314)**	**(620)**	**1 999**
Share of results of associated companies and joint ventures	—	1	7	(1)	—	—	**7**
Financial income and expenses							**85**
Profit before tax							**2 091**
Other segment items							
Depreciation and amortization	(167)	(369)	(75)	(32)	(16)	(314)	**(973)**
2023							
Net sales to external customers	6 919	9 791	3 219	1 085	124	—	**21 138**
Net sales to other segments	(2)	6	1	—	6	(11)	**—**
Operating profit/(loss)	**1 016**	**723**	**255**	**734**	**(391)**	**(676)**	**1 661**
Share of results of associated companies and joint ventures	—	(30)	7	12	—	(28)	**(39)**
Financial income and expenses							**(153)**
Profit before tax							**1 469**
Other segment items							
Depreciation and amortization	(171)	(366)	(81)	(39)	(14)	(341)	**(1 012)**
2022							
Net sales to external customers	7 894	10 658	3 350	1 583	276	—	**23 761**
Net sales to other segments	3	13	1	12	19	(48)	**—**
Operating profit/(loss)	**1 069**	**940**	**177**	**1 208**	**(318)**	**(777)**	**2 299**
Share of results of associated companies and joint ventures	—	(11)	6	(8)	—	(13)	**(26)**
Financial income and expenses							**(104)**
Profit before tax							**2 169**
Other segment items							
Depreciation and amortization	(176)	(347)	(91)	(34)	(28)	(397)	**(1 073)**

(1) Includes IP Networks net sales of EUR 2 583 million (EUR 2 606 million in 2023 and EUR 3 063 million in 2022), Optical Networks net sales of EUR 1 636 million (EUR 1 942 million in 2023 and EUR 1 891 million in 2022) and Fixed Networks net sales of EUR 2 299 million (EUR 2 369 million in 2023 and EUR 2 943 million in 2022).
(2) Unallocated items comprise costs related to intangible asset amortization, restructuring-related charges, divestments of businesses and associates, impairments and certain other items.

Material reconciling items between total segment operating profit and operating profit for the Group

EURm	2024	2023	2022
Total segment operating profit	**2 619**	**2 337**	**3 076**
Restructuring and associated charges	(445)	(356)	(177)
Amortization of acquired intangible assets	(314)	(341)	(397)
Divestment of associates	190	—	—
Impairment and write-off of assets, net of reversals	(89)	(25)	(97)
Divestment of businesses	67	20	—
Costs associated with country exit	—	49	(98)
Other	(29)	(23)	(8)
Operating profit for the Group	**1 999**	**1 661**	**2 299**

Notes to the consolidated financial statements continued

Information by geographies and customer concentration

Net sales to external customers by country

EURm	2024	2023	2022
Finland	2 060	1 192	1 697
United States	5 032	5 328	7 911
India	1 366	2 832	1 280
France	751	750	788
Other	10 011	11 036	12 085
Total	**19 220**	**21 138**	**23 761**

Net sales to external customers by country are based on the location of the customer, except for Nokia Technologies IPR and licensing net sales which are allocated to Finland.

Major customers

As is typical for our industry, Nokia's net sales are largely driven by multi-year customer agreements with a limited number of significant customers. In 2024 and in 2023, no single customer represented more than 10% of net sales. In 2022, net sales to the largest customer were 11% of net sales to external customers. Net sales to the largest customer were reported by Network Infrastructure, Mobile Networks and Cloud and Network Services, as well as Group Common and Other.

Non-current assets by country

EURm	2024	2023
Finland	1 476	1 549
United States	4 493	4 383
France	1 647	2 139
Other	1 042	1 376
Total	**8 658**	**9 447**

Non-current assets consists of goodwill, other intangible assets, property, plant and equipment and right-of-use assets.

2.3. Operating expenses and other operating income

Accounting policies

Nokia presents its income statement based on the function of expenses as it considers this to provide more relevant information about its financial performance. Information about the nature of expenses is provided in the notes. Certain items of income and expenses, such as gains and losses from venture funds, are presented as other operating income and expenses as Nokia considers these items to be related to its operating activities but not to any specific functions.

Government grants received as compensation for expenses incurred are recognized as a reduction of the related expenses except for certain non-recurring grants that are recognized as other operating income. Government grants received in the form of R&D tax credits are recognized as a reduction of R&D expenses if the tax credit relates to the R&D expenditures incurred by Nokia and the tax credit is reimbursed in cash by the government in cases where Nokia is not able to offset it against its income tax payable. R&D tax credits that do not meet both conditions are recognized as income tax benefit.

Expenses by nature

EURm	2024	2023	2022
Personnel expenses	7 563	7 294	7 732
Material and customer contract related expenses	7 660	9 947	10 748
Depreciation and amortization	973	1 012	1 073
IT services	370	388	368
Impairment charges	97	24	90
Other	990	979	1 546
Total operating expenses	**17 653**	**19 644**	**21 557**

Operating expenses include government grant income and R&D tax credits of EUR 160 million (EUR 160 million in 2023 and EUR 133 million in 2022) most of which have been recognized as a deduction against research and development expenses.

Restructuring charges by function(1)

EURm	2024	2023	2022
Cost of sales	155	153	85
Research and development expenses	135	61	37
Selling, general and administrative expenses	139	137	46
Total restructuring charges	**429**	**351**	**168**

(1) Restructuring charges include defined benefit plan curtailment income and expenses.

Notes to the consolidated financial statements continued

Other operating income

EURm	2024	2023	2022
Gain on sale of associated companies	192	—	5
Gain on sale of property, plant and equipment	95	139	2
Gain on sale of businesses	70	29	—
Gains/(losses) from venture funds	47	(56)	27
Subsidies and government grants	—	—	20
Other	28	55	41
Total	**432**	**167**	**95**

Other operating expenses

EURm	2024	2023	2022
Changes in provisions	(8)	37	(134)
Impairment of disposal groups	—	—	(72)
Foreign exchange gains/(losses) on hedging forecasted sales and purchases	23	94	(107)
Expected credit losses on trade receivables[1]	122	(5)	(106)
Other	(32)	(23)	(19)
Total	**105**	**103**	**(438)**

(1) In 2024, includes a decrease in loss allowance of EUR 111 million related to credit-impaired trade receivables for which payments were received. Refer to note 4.5 Trade receivables and other customer-related balances for further details.

2.4. Financial income and expenses

Financial income

EURm	2024	2023	2022
Interest income on financial investments	269	199	68
Interest income on financing components of other contracts	31	21	13
Net interest income on defined benefit plans	176	188	93
Other financial income[1][2]	(71)	18	4
Total	**405**	**426**	**178**

(1) In 2024, includes an expense of EUR 5 million (expense of EUR 2 million in 2023 and income of EUR 11 million in 2022) due to a change in the fair value of the financial liability related to Nokia Shanghai Bell. Refer to Note 6.3. Significant partly-owned subsidiaries.
(2) In 2024, includes EUR 79 million (EUR 0 million in 2023 and EUR 0 million in 2022) fair value loss on equity investment in Vodafone Idea.

Financial expenses

EURm	2024	2023	2022
Interest expense on interest-bearing liabilities	(209)	(201)	(102)
Negative interest on financial investments	(1)	(3)	(27)
Interest expense on financing components of other contracts[1]	(86)	(126)	(66)
Interest expense on lease liabilities	(31)	(27)	(25)
Net fair value (losses)/gains on hedged items under fair value hedge accounting	(13)	(93)	262
Net fair value gains/(losses) on hedging instruments under fair value hedge accounting	10	89	(265)
Net foreign exchange gains/(losses)	16	(192)	24
Other financial expenses[2]	(6)	(26)	(83)
Total	**(320)**	**(579)**	**(282)**

(1) In 2024, includes EUR 63 million (EUR 106 million in 2023 and EUR 46 million in 2022) related to the sale of receivables.
(2) In 2024, includes a decrease in loss allowance of EUR 7 million (increase in loss allowance of EUR 9 million in 2023 and impairment of EUR 61 million in 2022) related to credit-impaired customers financing-related loan receivables.

Notes to the consolidated financial statements continued

2.5. Income taxes

Accounting policies

Income tax expense comprises current tax and deferred tax. Tax is recognized in the income statement except to the extent that it relates to items recognized in other comprehensive income, or directly in equity, in which case the related tax is recognized in other comprehensive income or equity, respectively.

Current taxes are calculated based on the results of the Group companies in accordance with local tax laws and using tax rates that are enacted or substantively enacted at the reporting date. Corporate taxes withheld at the source of the income on behalf of Group companies are accounted for as income taxes when determined to represent a tax on net income.

Deferred tax assets and liabilities are determined using the balance sheet liability method for all temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the statement of financial position. Deferred tax assets are recognized to the extent it is probable that future taxable profit will be available against which the unused tax losses, unused tax credits and deductible temporary differences can be utilized in the relevant jurisdictions. Deferred tax assets are assessed for realizability at each reporting date. When facts and circumstances indicate it is no longer probable that deferred tax assets will be utilized, adjustments are made as necessary.

Deferred tax liabilities are recognized for taxable temporary differences, and for temporary differences that arise between the fair value and the tax base of identifiable net assets acquired in business combinations. Deferred tax liabilities are not recognized if they arise from the initial recognition of goodwill. Deferred tax liabilities are recognized on taxable temporary differences associated with investments in subsidiaries, associates and joint arrangements, unless the timing of the reversal of the temporary difference is controlled by Nokia, and it is probable that the temporary difference will not reverse in the foreseeable future. Nokia applies the exception to recognizing and disclosing information about deferred tax assets and liabilities related to Pillar Two income taxes, as provided in the amendments to IAS 12 issued in May 2023. Deferred tax assets and deferred tax liabilities are measured using the enacted or substantively enacted tax rates at the reporting date that are expected to apply in the period when the asset is realized or the liability is settled. Deferred tax assets and liabilities are not discounted.

Deferred tax assets and deferred tax liabilities are offset for presentation purposes when there is a legally enforceable right to set off current tax assets against current tax liabilities, and the deferred tax assets and deferred tax liabilities relate to income taxes levied by the same taxation authority on either the same taxable entity or different taxable entities which intend either to settle current tax liabilities and assets on a net basis, or realize the assets and settle the liabilities simultaneously in each future period in which significant amounts of deferred tax liabilities or deferred tax assets are expected to be settled or recovered.

Nokia periodically evaluates positions taken in tax returns in situations where applicable tax regulation is subject to interpretation. The amounts of current and deferred tax assets and liabilities are adjusted when it is considered probable, i.e. more likely than not, that certain tax positions may not be fully sustained upon review by tax authorities. The amounts recorded are based on the most likely amount or the expected value, depending on which method Nokia expects to better predict the resolution of the uncertainty, at each reporting date.

Critical accounting judgment

Nokia is subject to income taxes in the jurisdictions in which it operates. Judgment is required in determining current tax expense, uncertain tax positions, deferred tax assets and deferred tax liabilities; and the extent to which deferred tax assets can be recognized.

Estimates related to the recoverability of deferred tax assets are based on forecast future taxable income and tax planning strategies. Based on these estimates and assumptions, at 31 December 2024, Nokia has EUR 21 853 million (EUR 21 569 million in 2023) of unused tax losses, unused tax credits and deductible temporary differences for which no deferred tax assets are recognized due to uncertainty of utilization. The majority of the unrecognized deferred tax assets relate to France.

The utilization of deferred tax assets is dependent on future taxable profit in excess of the profit arising from the reversal of existing taxable temporary differences. The recognition of deferred tax assets is based on the assessment of whether it is probable that sufficient taxable profit will be available in the future to utilize the unused tax losses, unused tax credits and deductible temporary differences before the unused tax losses and unused tax credits expire. Recognition of deferred tax assets involves judgment regarding the future financial performance of the particular legal entity or tax group that has recognized the deferred tax asset. At 31 December 2022, Nokia re-recognized deferred tax assets of EUR 2.5 billion related to Finland in the statement of financial position.

Notes to the consolidated financial statements continued

Components of the income tax expense/benefit

EURm	2024	2023	2022
Current tax expense	(439)	(429)	(421)
Deferred tax benefit/(expense)	59	(391)	2 454
Total	**(380)**	**(820)**	**2 033**

Income tax reconciliation

Reconciliation of the difference between income tax computed at the statutory rate in Finland of 20% and income tax recognized in the income statement:

EURm	2024	2023	2022
Income tax expense at statutory rate	(418)	(294)	(434)
Permanent differences	149	146	76
Non-creditable withholding taxes	(44)	(38)	(66)
Income taxes for prior years	10	23	2
Effect of different tax rates of subsidiaries operating in other jurisdictions	(46)	(143)	(66)
Effect of deferred tax assets not recognized(1)	(44)	(533)	(99)
Benefit arising from previously unrecognized deferred tax assets(2)	81	25	2 646
Net (increase)/decrease in uncertain tax positions	(29)	(15)	9
Change in income tax rates	(27)	32	24
Income taxes on undistributed earnings	(12)	(23)	(59)
Total	**(380)**	**(820)**	**2 033**

(1) In 2023, includes a remeasurement of deferred tax assets related to internal operating model change.
(2) In 2022, includes a re-recognition of deferred tax assets related to Finland.

Income tax liabilities and assets include a net liability of EUR 207 million (EUR 184 million in 2023) relating to uncertain tax positions with inherently uncertain timing of cash outflows.

Prior period income tax returns for certain Group companies are under examination by local tax authorities. Nokia has ongoing tax investigations in various jurisdictions, including Australia, Brazil, Canada, China, France, India and United States. Nokia's business and investments, especially in emerging market countries, may be subject to uncertainties, including unfavorable or unpredictable tax treatment. Management judgment and a degree of estimation are required in determining the tax expense or benefit. Even though management does not expect that any significant additional taxes in excess of those already provided for will arise as a result of these examinations, the outcome or actual cost of settlement may vary materially from estimates.

Deferred tax assets and liabilities

Deferred tax assets and liabilities relate to the following:

	2024			2023		
EURm	Deferred tax assets	Deferred tax liabilities	Net balance	Deferred tax assets	Deferred tax liabilities	Net balance
Tax losses carried forward and unused tax credits	1 019	—		1 062	—	
Undistributed earnings	—	(213)		—	(215)	
Intangible assets and property, plant and equipment	2 957	(152)		2 962	(312)	
Right-of-use assets	—	(131)		—	(177)	
Defined benefit pension assets	—	(2 106)		—	(1 913)	
Other non-current assets	24	(17)		83	(37)	
Inventories	148	(12)		185	(18)	
Other current assets	160	(69)		221	(93)	
Lease liabilities	137	—		156	—	
Defined benefit pension and other post-employment liabilities	917	—		991	—	
Other non-current liabilities	8	—		14	(1)	
Provisions	254	(75)		245	(138)	
Other current liabilities	287	(106)		301	(184)	
Other temporary differences	34	(27)		33	(17)	
Total before netting	**5 945**	**(2 908)**	**3 037**	**6 253**	**(3 105)**	**3 148**
Netting of deferred tax assets and liabilities	(2 346)	2 346	—	(2 380)	2 380	—
Total after netting	**3 599**	**(562)**	**3 037**	**3 873**	**(725)**	**3 148**

In 2023, Nokia recognized a deferred tax expense and a decrease in deferred tax assets of EUR 0.4 billion due to an internal transaction related to an operating model change that led to a remeasurement of deferred tax assets in Finland and the United States.

Nokia has undistributed earnings of EUR 377 million (EUR 356 million in 2023) for which a deferred tax liability has not been recognized as these earnings will not be distributed in the foreseeable future.

Notes to the consolidated financial statements continued

Movements in the net deferred tax balance during the year:

EURm	2024	2023	2022
1 January	**3 148**	**3 502**	**990**
Recognized in income statement, continuing operations	59	(391)	2 454
Recognized in income statement, discontinued operations	—	(3)	(2)
Recognized in other comprehensive income	(77)	51	56
Acquisitions through business combinations	2	—	—
Disposals	(75)	—	—
Other	—	(3)	2
Translation differences	(20)	(8)	2
31 December	**3 037**	**3 148**	**3 502**

In addition, at 31 December 2024, Nokia has unrecognized deferred tax assets of which the majority relate to France. These deferred tax assets have not been recognized due to uncertainty regarding their utilization. A significant portion of the French unrecognized deferred tax assets are indefinite in nature and available against future French tax liabilities, subject to a limitation of 50% of annual taxable profits.

The amount of temporary differences, tax losses carried forward and tax credits for which no deferred tax asset was recognized due to uncertainty of utilization:

EURm	2024	2023
Temporary differences	1 810	1 743
Tax losses carried forward	19 770	19 482
Tax credits	273	344
Total	**21 853**	**21 569**

Expiry of tax losses carried forward and unused tax credits:

	2024			2023		
EURm	Recognized	Unrecognized	Total	Recognized	Unrecognized	Total
Tax losses carried forward						
Within 10 years	1 356	1 022	2 378	1 375	1 025	2 400
Thereafter	74	—	74	17	—	17
No expiry	1 972	18 748	20 720	2 229	18 457	20 686
Total	**3 402**	**19 770**	**23 172**	**3 621**	**19 482**	**23 103**
Tax credits						
Within 10 years	126	254	380	143	329	472
Thereafter	45	4	49	48	1	49
No expiry	153	15	168	154	14	168
Total	**324**	**273**	**597**	**345**	**344**	**689**

Nokia continually evaluates the probability of utilizing its deferred tax assets and considers both positive and negative evidence in its assessment. As the majority of the recognized deferred tax assets relate to Finland, Nokia has considered the following factors in the assessment:

- The recent years' cumulative accounting and taxable profit in Finland;
- Expectations regarding future financial performance in Finland; and
- The relevant attributes underlying the deferred tax assets are generally not subject to expiry.

At 31 December 2022, Nokia concluded based on its assessment that it is probable that it will be able to utilize the unused tax losses and deductible temporary differences and re-recognized deferred tax assets of EUR 2.5 billion in the statement of financial position.

In 2023 and 2024, Nokia generated accounting and taxable profit in Finland and continued to recognize deferred tax assets related to Finland. In its assessment, Nokia has not applied any cut-off period, other than expiry under the relevant tax legislation. A significant portion of the tax attributes for which the deferred tax assets relate to are indefinite in nature and available fully against future Finnish tax liabilities. Due to the non-expiry of these assets, the sensitivity of future profit projections affects mainly the period over which the deferred tax assets are expected to be utilized. Nokia will continue to monitor the above factors related to Finland, including in particular its actual profit record, in upcoming periods.

Income tax related to items of other comprehensive income

	2024			2023			2022		
EURm	Gross	Tax	Net	Gross	Tax	Net	Gross	Tax	Net
Remeasurements of defined benefit plans	408	(85)	323	(343)	61	(282)	(424)	77	(347)
Translation differences	537	8	545	(535)	7	(528)	710	1	711
Net investment hedges	(40)	8	(32)	135	(27)	108	(127)	(20)	(147)
Cash flow and other hedges	21	(3)	18	(61)	10	(51)	83	(15)	68
Financial assets at fair value through other comprehensive income	19	(5)	14	10	—	10	(46)	13	(33)
Other increase/(decrease), net	3	—	3	(4)	—	(4)	(3)	—	(3)
Total	**948**	**(77)**	**871**	**(798)**	**51**	**(747)**	**193**	**56**	**249**

OECD Pillar Two model rules

Nokia is within the scope of the OECD Pillar Two model rules, which introduced a global minimum tax rate of 15% per jurisdiction. Pillar Two legislation has been enacted in Finland, the jurisdiction in which Nokia is incorporated, and is effective from 1 January 2024.

Nokia has performed an analysis of the impact of the Pillar Two legislation and based on this analysis, in 2024, the impact on income tax expense is immaterial. The main elements of this analysis were the following:

- Current understanding of the interpretation of the rules.
- Applicability of the safe harbors provided for in the Pillar Two legislation.
- Analysis and calculations of potential income tax expense in respect of jurisdictions not meeting safe harbor tests.

2.6. Discontinued operations

Accounting policies

Non-current assets or disposal groups are classified as held for sale if their carrying amounts will be recovered principally through a sale transaction rather than through continuing use. Non-current assets or disposal groups classified as held for sale are measured at the lower of their carrying amount and fair value less costs to sell. Non-current assets classified as held for sale, or included in a disposal group classified as held for sale, are not depreciated or amortized.

Discontinued operation is reported when a component of Nokia, comprising operations and cash flows that can be clearly distinguished both operationally and for financial reporting purposes from the rest of Nokia, has been disposed of or is classified as held for sale, and that component represents a major line of business or geographical area of operations or is part of a single coordinated plan to dispose of a separate major line of business or geographical area of operations. Profit or loss from discontinued operations is reported separately from income and expenses from continuing operations in the consolidated income statement, with prior periods presented on a comparative basis. Intra-group revenues and expenses between continuing and discontinued operations are eliminated.

On 27 June 2024, Nokia announced it had entered into a put option agreement to sell its wholly owned subsidiary Alcatel Submarine Networks (ASN) to the French State. Upon entering into the agreement Nokia classified the assets and liabilities of ASN as held for sale and recorded an impairment loss of EUR 514 million on the measurement of ASN's net assets to fair value less costs to sell. Beginning from the second quarter of 2024 the Submarine Networks business, which was previously reported as part of Network Infrastructure operating segment, is presented as a discontinued operation.

The sale was completed on 31 December 2024. Nokia recorded a gain of EUR 29 million related to the sale and received a cash consideration of EUR 98 million from the sale. Nokia expects to receive the remaining cash consideration of EUR 30 million from the sale in the first half of 2025. In addition, Nokia retained a 20% shareholding in ASN with board representation to ensure a smooth transition until targeted exit, at which point it is planned for the French State to acquire Nokia's remaining interest. Nokia accounts for its remaining interest in ASN as an investment in an associated company.

Critical accounting judgment

Nokia classified its non-core standalone Submarine Networks business, a global provider of submarine communication networks, as held-for-sale and a discontinued operation following the announcement of its sale on 27 June 2024. For financial reporting purposes the Submarine Networks business had been a separate cash-generating unit within the Network Infrastructure reportable segment. Judgment was applied in determining that the Submarine Networks business is a component of Nokia that represents a separate major line of business which should be presented as a discontinued operation.

Results of discontinued operations

EURm	2024	2023	2022
Net sales	**1 059**	**1 120**	**1 150**
Expenses	(989)	(1 090)	(1 105)
Operating profit	**70**	**30**	**45**
Financial income and expenses	(7)	5	15
Impairment loss recognized on the remeasurement to fair value less costs to sell	(514)	—	—
Gain on sale	29	—	—
(Loss)/profit from discontinued operations before tax	**(422)**	**35**	**60**
Income tax expense	(5)	(5)	(3)
(Loss)/profit from discontinued operations[1][2]	**(427)**	**30**	**57**

(1) Loss/profit from discontinued operations is attributable to the equity holders of the parent in its entirety.
(2) In 2022, the profit from discontinued operations includes EUR 50 million net income resulting from the resolution of a tax dispute related to Nokia's former Devices & Services business which was sold in 2014.

Cash flows from discontinued operations

EURm	2024	2023	2022
Net cash flows from/(used in) operating activities	193	(44)	41
Net cash flows used in investing activities[1]	(188)	(59)	(83)
Net cash flows used in financing activities	(18)	(14)	(11)
Net cash flows used in discontinued operations	**(13)**	**(117)**	**(53)**

(1) Cash proceeds from the disposal of the Submarine Networks business, net of cash disposed of, are included in net cash flows used in investing activities of discontinued operations.

Notes to the consolidated financial statements continued

Reconciliation of gain on sale of Submarine Networks business

EURm	31 December 2024
Cash proceeds	98
Deferred cash consideration	30
Total consideration	**128**
Carrying amount of net assets on disposal	(170)
Cumulative other comprehensive income	64
Transaction costs	(25)
Fair value of retained interest in associate	32
Gain on sale before tax	**29**
Income tax	—
Gain on sale after tax	**29**

Carrying amount of assets and liabilities on disposal

EURm	31 December 2024
ASSETS	
Property, plant and equipment	102
Deferred tax assets	80
Inventories	147
Trade receivables	99
Contract assets	293
Other current financial and firm commitment assets	98
Other assets	89
Cash and cash equivalents	227
Total assets	**1 135**
LIABILITIES	
Lease liabilities	36
Provisions	46
Other financial and firm commitment liabilities	50
Trade payables	93
Contract liabilities	347
Accrued expenses related to customer projects	184
Other liabilities	209
Total liabilities	**965**
Net assets on disposal	**170**

2.7. Earnings per share

Accounting policies

Basic earnings per share is calculated by dividing the profit or loss attributable to equity holders of the parent by the weighted average number of shares outstanding during the year. Diluted earnings per share is calculated by adjusting the profit or loss attributable to equity holders of the parent, and the weighted average number of shares outstanding, for the effects of all dilutive potential ordinary shares. Potential ordinary shares are excluded from the calculation of diluted earnings per share when they are determined to be antidilutive.

EURm	2024	2023	2022
Profit or loss attributable to equity holders of the parent			
Continuing operations	1 704	635	4 193
Discontinued operations	(427)	30	57
Profit for the year	1 277	665	4 250

Number of shares (000s)	2024	2023	2022
Weighted average number of shares outstanding	**5 475 817**	**5 549 468**	**5 614 182**
Effect of potentially dilutive shares			
Performance shares	1 118	8 190	46 187
Restricted shares and other[1]	53 668	28 265	9 651
Total effect of potentially dilutive shares	**54 786**	**36 455**	**55 838**
Adjusted weighted average number of shares	**5 530 603**	**5 585 923**	**5 670 020**

(1) Includes the matching shares related to the employee share purchase plan.

Earnings per share, EUR	2024	2023	2022
Basic earnings per share			
Continuing operations	0.31	0.11	0.75
Discontinued operations	(0.08)	0.01	0.01
Profit for the year	0.23	0.12	0.76
Diluted earnings per share			
Continuing operations	0.31	0.11	0.74
Discontinued operations	(0.08)	0.01	0.01
Profit for the year	0.23	0.12	0.75

Notes to the consolidated financial statements continued

Section 3

Compensation and benefits

This section provides information on Nokia's employee benefits including remuneration of the management and Board of Directors. Employee benefits comprise salaries and wages, short-term cash incentives and share-based payments, as well as post-employment benefits in accordance with the local conditions and practices in the countries in which Nokia operates.

Information about the remuneration of the President and CEO and Board of Directors is provided in compliance with Finnish Accounting Standards.

3.1. Summary of personnel expenses

EURm	2024	2023	2022
Salaries and wages(1)	6 163	5 859	6 318
Pensions and other post-employment benefits			
Defined contribution plans	242	249	239
Defined benefit plans(2)	157	155	192
Share-based payments	239	201	148
Social security costs	762	830	835
Total	**7 563**	**7 294**	**7 732**

(1) Includes termination benefits.
(2) Excludes amounts recorded in financial income and expenses, refer to Note 3.4. Pensions and other post-employment benefits.

Average number of employees

Number of employees	2024	2023	2022
Continued Operations	78 434	84 795	85 101
Discontinued Operations	1 927	1 894	1 795
Total	**80 361**	**86 689**	**86 896**

3.2. Remuneration of key management

Remuneration of the Group Leadership Team

The amounts below represent each member's time on the Group Leadership Team.

EURm	2024	2023	2022
Short-term benefits	14	13	17
Post-employment benefits(1)	1	1	1
Share-based payments	12	13	13
Termination benefits(2)	4	—	1
Total	**31**	**27**	**32**

(1) The members of the Group Leadership Team participate in the local retirement programs applicable to employees in the country where they reside.
(2) Includes both termination payments and payments made under exceptional contractual arrangements for lapsed equity awards.

Remuneration of the President and CEO

EUR	2024	2023	2022
Base salary	1 410 500	1 322 750	1 300 000
Cash incentive payments	1 824 834	1 079 695	2 342 438
Share-based payment expenses(1)	3 117 360	5 041 885	5 425 169
Pension expenses	310 937	422 274	406 806
Other benefits(2)	55 044	95 756	113 850
Total	**6 718 675**	**7 962 360**	**9 588 263**

(1) Represents the expense for all outstanding equity grants recorded during the year.
(2) Other benefits consist of telephone, car, driver, mobility, tax compliance support and medical insurance.

Terms of termination of service agreement of the President and CEO

On 10 February 2025, Nokia announced Pekka Lundmark will step down as President and CEO of Nokia effective 31 March 2025. Refer to Note 6.5. Subsequent events for more details.

In accordance with Mr. Lundmark's service agreement, he will receive salary and benefits during the 12-month notice period, and he is entitled to any short- or long-term incentives that will vest during the notice period. Any unvested equity awards would be forfeited after the notice period, unless the Board determines otherwise.

Notes to the consolidated financial statements continued

Remuneration of the Board of Directors

The annual remuneration paid to the members of the Board of Directors, as decided by the Annual General Meetings in the respective years:

	2024			2023			2022		
	Annual fee[(1)] EUR	Meeting fees[(2)] EUR	Shares received[(3)] number	Annual fee[(1)] EUR	Meeting fees[(2)] EUR	Shares received[(3)] number	Annual fee[(1)] EUR	Meeting fees[(2)] EUR	Shares received[(3)] number
Sari Baldauf, Chair [(4)(5)]	465 000	10 000	52 993	465 000	10 000	47 427	440 000	—	36 217
Søren Skou, Vice Chair[(5)]	220 000	14 000	25 072	225 000	14 000	22 948	210 000	9 000	17 285
Timo Ahopelto[(4)(6)]	210 000	10 000	23 932	210 000	10 000	21 418	—	—	—
Bruce Brown	—	—	—	—	5 000	—	210 000	17 000	17 285
Elizabeth Crain[(4)(5)]	220 000	12 000	25 072	215 000	15 000	21 928	—	—	—
Thomas Dannenfeldt[(4)(5)(7)]	240 000	14 000	27 351	230 000	9 000	23 458	200 000	9 000	16 462
Lisa Hook[(5)(7)]	210 000	14 000	23 932	200 000	17 000	20 399	185 000	7 000	15 227
Jeanette Horan	—	—	—	210 000	10 000	21 418	195 000	—	16 050
Edward Kozel	—	—	—	—	5 000	—	205 000	12 000	16 874
Mike McNamara [(6)(7)]	210 000	14 000	23 932	—	—	—	—	—	—
Thomas Saueressig[(6)]	195 000	14 000	22 223	195 000	14 000	19 889	180 000	7 000	14 816
Carla Smits-Nusteling[(7)]	215 000	9 000	24 502	215 000	14 000	21 928	200 000	9 000	16 462
Kai Öistämö[(6)]	205 000	10 000	23 362	205 000	10 000	20 908	180 000	5 000	14 816
Total	**2 390 000**	**121 000**		**2 370 000**	**133 000**		**2 205 000**	**75 000**	

(1) Annual fees consist of Board member fees and Committee chair and member fees.
(2) Meeting fees include all meeting fees paid for the term that ended at the Annual General Meeting held on 3 April 2024, and meeting fees accrued and paid in 2024 for the term that began at the same meeting.
(3) Approximately 40% of each Board member's annual compensation is paid in Nokia shares purchased from the market, and the remaining approximately 60% is paid in cash.
(4) Annual fees in 2024 include EUR 30 000 for Thomas Dannenfeldt as Chair and EUR 15 000 for Timo Ahopelto, Sari Baldauf and Elizabeth Crain as members of the Personnel Committee.
(5) Annual fees in 2024 include EUR 20 000 for Elizabeth Crain as Chair and EUR 10 000 for Sari Baldauf, Thomas Dannenfeldt, Lisa Hook and Søren Skou as members of the Strategy Committee.
(6) Annual fees in 2024 include EUR 20 000 for Kai Öistämö as Chair and EUR 10 000 for Timo Ahopelto, Mike McNamara and Thomas Saueressig as members of the Technology Committee.
(7) Annual fees in 2024 include EUR 30 000 for Carla Smits-Nusteling as Chair and EUR 15 000 for Thomas Dannenfeldt, Lisa Hook and Mike McNamara as members of the Audit Committee.

3.3. Share-based payments

Accounting policies

Nokia offers three types of global share-based compensation plans for employees: performance shares, restricted shares and the employee share purchase plan. All plans are equity-settled.

Employee services received and the corresponding increase in equity are measured by reference to the fair value of the equity instruments at the grant date, excluding the impact of any non-market vesting conditions. Plans that apply tranched vesting are accounted for under the graded vesting model. Share-based compensation plans are generally conditional on continued employment as well as the fulfillment of any performance conditions specified in the award terms. Until the Nokia shares are delivered, the participants do not have any shareholder rights, such as voting or dividend rights, associated with the shares. The share grants are generally forfeited if the employment relationship with Nokia terminates prior to vesting. Share-based compensation is recognized as an expense over the relevant service periods.

Share-based payment expense

In 2024, the share-based payment expense recognized in the income statement for continuing operations for all share-based compensation plans amounted to EUR 239 million (EUR 201 million in 2023 and EUR 148 million in 2022).

Performance shares

In 2024, Nokia had outstanding Performance shares from grants made in 2021, 2022, 2023 and 2024. Starting in 2021, grants made for Performance shares have been targeted on a more limited basis to senior level employees and executives.

Performance share plans at 31 December 2024:

Plan	Performance shares outstanding at target	Confirmed payout (% of target)	Performance period	Settlement year
2021	251 552	12%	2021–2023	2024/2025
2022	10 752 500	0%	2022–2024	2025/2026
2023	13 675 400	—	2023–2025	2026/2027
2024	19 057 490	—	2024–2026	2027/2028

The 2021 and 2022 Performance share grants have a three-year vesting period where Nokia's actual total shareholder return (ATSR) is compared to the target total shareholder return to determine the number of Nokia shares that will be delivered at settlement. The 2021 and 2022 Performance share grants do not include a minimum payout guarantee.

The 2023 Performance share grants apply the ATSR performance metric to two-thirds of the grant. For the remaining one-third of the granted shares, the metrics are either a service condition alone or a Relative total shareholder return (RTSR). RTSR grants measure Nokia's share performance against its peer group companies where minimum payout for this metric requires Nokia to be at least in the 25th percentile when compared with the peer group.

The 2024 Performance share grants apply the performance metrics to two-thirds of the grant. For the remaining one-third of the granted shares, the metrics are either a service condition or performance metrics. The performance metrics of the 2024 performance share grants are 50% RTSR, 40% Cumulative EPS targets adjusted for non-recurring events, and 10% carbon emissions targets.

Restricted shares

In 2024, there were outstanding Restricted shares from grants made in 2021, 2022, 2023 and 2024. Starting in 2021, Nokia has granted Restricted shares to selected employees as the primary method of equity compensation. Restricted shares are Nokia shares that will be delivered to eligible participants at a future point in time, subject to the fulfillment of predetermined service conditions. Restricted shares will either vest on the third anniversary of the award or follow a tranche vesting schedule whereby each plan vests in one or more tranches determined at the award date.

The Restricted share grants are generally forfeited if the employment relationship with Nokia terminates prior to vesting of the applicable tranche or tranches.

Employee share purchase plan

Nokia offers a voluntary Employee Share Purchase Plan (ESPP) to its employees. Participating employees make contributions from their net salary to purchase Nokia shares on a monthly basis during a 12-month savings period. Nokia delivers one matching share for every two purchased shares the employee holds at the end of the plan cycle. In 2024, 7 455 343 matching shares were issued as a settlement to the participants of the ESPP 2023 (6 726 190 matching shares issued under the 2022 Plan in 2023, and 5 243 560 matching shares issued under the 2021 Plan in 2022).

Notes to the consolidated financial statements continued

Share-based payment plans by instrument

	Performance shares		Restricted shares	
	Number of shares outstanding at target	Weighted average grant date fair value (EUR)	Number of shares outstanding	Weighted average grant date fair value (EUR)
1 January 2022	**79 827 008**		**26 763 693**	
Granted	12 661 300	3.49	32 238 100	4.15
Forfeited	(2 450 396)		(1 695 734)	
Vested[1]	(26 290 064)		(2 778 431)	
31 December 2022	**63 747 848**		**54 527 628**	
Granted	15 207 400	3.10	45 322 400	3.36
Forfeited	(3 916 744)		(1 998 801)	
Vested[1]	(31 691 700)		(3 175 287)	
31 December 2023	**43 346 804**		**94 675 940**	
Granted	19 202 484	3.65	57 602 936	3.48
Forfeited	(3 589 329)		(5 471 235)	
Vested[1]	(15 223 017)		(23 834 342)	
31 December 2024	**43 736 942**		**122 973 299**	

(1) Vested performance shares at target are to be multiplied by the confirmed payout (% of target) to calculate the total number of Nokia shares settled.

Estimation of grant date fair values

Plan	Grant date fair value
ATSR	Estimated considering the dividend-adjusted Nokia share price at the end of the performance period of the plan and the target payout levels set for the plan.
RTSR	Estimated considering a combination of the dividend-adjusted Nokia share price compared with benchmark companies' share prices at the end of the performance period of the plan and the target payout levels set for the plan.
Restricted Shares	Estimated using the grant date market price of the Nokia share less the present value of dividends expected to be paid during the vesting period.

3.4. Pensions and other post-employment benefits

Accounting policies

Nokia has various post-employment plans in accordance with the local conditions and practices in the countries in which it operates. Nokia's defined benefit plans comprise pension schemes as well as other benefit plans providing post-employment healthcare and life insurance coverage to certain employee groups. Defined benefit plans expose Nokia to various risks such as investment risk, interest rate risk, life expectancy risk, and regulatory/compliance risk. The characteristics and extent of these risks vary depending on the legal, fiscal and economic requirements in each country as well as the impact of global events. The plans are generally funded through payments to insurance companies or contributions to trustee-administered funds as determined by periodic actuarial calculations.

The costs of defined benefit plans are assessed using the projected unit credit method. The defined benefit obligation is measured as the present value of the estimated future cash outflows using interest rates on high-quality corporate bonds or government bonds with maturities most closely matching expected payouts of benefits. The plan assets are measured at fair value at the reporting date. The liability or asset recognized in the statement of financial position is the present value of the defined benefit obligation at the reporting date less the fair value of plan assets adjusted for effects of any asset ceiling.

Actuarial valuations for defined benefit plans are performed annually or when a material plan amendment, curtailment or settlement occurs. Service cost related to employees' service in the current period and past service cost resulting from plan amendments and curtailments, as well as gains and losses on settlements, are presented in cost of sales, research and development expenses or selling, general and administrative expenses. Net interest as well as pension plan administration costs not considered in determining the return on plan assets, are presented in financial income and expenses. Remeasurements, comprising actuarial gains and losses, the effect of the asset ceiling and the return on plan assets, excluding amounts recognized in net interest, are recognized in other comprehensive income. Remeasurements are not reclassified to profit or loss in subsequent periods.

In a defined contribution plan, Nokia's legal or constructive obligation is limited to the amount that it agrees to contribute to the plan. Nokia's contributions to defined contribution plans, multi-employer and insured plans are recognized in the income statement in the period to which the contributions relate. If a pension plan is funded through an insurance contract where Nokia does not retain any legal or constructive obligations, the plan is treated as a defined contribution plan. All arrangements that do not fulfill these conditions are considered defined benefit plans.

Defined benefit plans

Nokia's most significant defined benefit plans are in the United States, Germany, and the United Kingdom. Together, they account for 92% of Nokia's total defined benefit obligation (93% in 2023) and 91% of Nokia's total fair value of plan assets (91% in 2023).

Summary of defined benefit balances at 31 December

EURm	Defined benefit obligation	Fair value of plan assets	Effects of asset ceiling	Net defined benefit balance
2024				
United States, Pension	(10 688)	16 188	—	5 500
United States, OPEB	(1 393)	701	—	(692)
Germany	(1 959)	1 240	—	(719)
United Kingdom	(529)	736	—	207
Other	(1 220)	1 858	(85)	553
Total	**(15 789)**	**20 723**	**(85)**	**4 849**
2023				
United States, Pension	(11 325)	16 285	—	4 960
United States, OPEB	(1 471)	675	—	(796)
Germany	(2 037)	1 199	—	(838)
United Kingdom	(782)	957	—	175
Other	(1 253)	1 798	(87)	458
Total	**(16 868)**	**20 914**	**(87)**	**3 959**

Funded status of defined benefit obligation:

EURm	2024	2023
Wholly funded	12 665	12 782
Partly funded	2 252	3 149
Unfunded	872	937
Total	**15 789**	**16 868**

United States

Nokia has significant defined benefit pension plans and a significant post-employment welfare benefit plan (OPEB) providing post-employment healthcare benefits and life insurance coverage in the United States.

Defined Benefit Pension Plans

The defined benefit pension plans include both traditional service-based programs and cash-balance plans. Salaried, non-union-represented employees are covered by a cash-balance program. All other legacy programs, including legacy service-based programs, were frozen by 31 December 2009. For former employees who, when actively employed, were represented by a union, Nokia maintained two defined benefit pension plans, both of which are traditional service-based programs. On 31 December 2021, these two plans were merged.

Other Post-Employment Benefit Plan

The other post-employment benefit plan provides welfare benefits for certain retired former employees. Pursuant to an agreement with the Communications Workers of America (CWA) and the International Brotherhood of Electrical Workers (IBEW) unions, Nokia provides post-employment healthcare benefits and life insurance coverage for employees formerly represented by these two unions. That agreement was renewed in 2020, and the contract expires on 31 December 2027.

On 1 October 2024, Nokia transferred investment management operations for US Pension, OPEB and 401(k) assets to Mercer in an Outsourced Investment Management (OCIO) transaction.

Germany

Nokia maintains two primary plans in Germany which cover the majority of active employees: the cash-balance plan Beitragsorientierter Altersversorgungs Plan (BAP) for the Group's Nokia employees and a similar cash-balance program (AVK Basis-/Matchingkonto) for the Group's former Alcatel-Lucent employees. Individual benefits are generally dependent on eligible compensation levels, ranking within the Group and years of service. These plans are partially funded defined benefit pension plans, the benefits being subject to a minimum return guaranteed by the Group. The funding vehicle for the BAP is the NSN Pension Trust e.V. The trust is legally separate from the Group and manages the plan assets in accordance with the respective trust agreements.

All other plans have been frozen or closed in prior years and replaced by the cash-balance plans. Benefits are paid in annual installments, as monthly retirement pension, or as a lump sum on retirement in an amount equal to accrued pensions and guaranteed interest.

United Kingdom

Nokia maintains one primary plan in the UK, "Nokia Retirement Plan for former NSN & ALU employees", which is the result of the 2019 merger of the legacy Nokia plan where the plan was merged and members' benefits were transferred to the legacy Alcatel-Lucent plan. The combined plan consists of both money purchase sections with Guaranteed Minimum Pension (GMP) underpin and final salary sections. All final salary sections are closed to future benefit accrual: the legacy Nokia plan closed on 30 April 2012 and the legacy Alcatel-Lucent plan on 30 April 2018. Individual benefits for final salary sections are dependent on eligible compensation levels and years of service. For the money purchase sections with GMP underpin, individual benefits are dependent on the greater of the value of GMP at retirement date and the pension value resulting from the individual's invested funds. Nokia engages the services of an external trustee service provider to manage all investments for the combined pension plan. During 2024, Nokia completed a risk transfer buy-out in the amount of EUR 178 million, with insurer Aviva, for certain beneficiaries whose liability was covered by an existing insurance agreement.

With regard to the implications of the ruling by the High Court in June 2023, and the dismissal of appeal by the Court of Appeal in July 2024, in the case of Virgin Media Limited v NTL Pension Trustees II Ltd, Nokia's UK Pension Trustee will be undertaking an investigation pending further developments of this case in the courts expected in early 2025. As at 31 December 2024, management has not identified any benefit uncertainties for which the potential impact would need to be considered.

Notes to the consolidated financial statements continued

Movements in the defined benefit obligation, fair value of plan assets and the impact of the asset ceiling limitation for the years ended 31 December

Defined benefit obligation

	2024				2023			
EURm	United States pension	United States OPEB	Other pension	Total	United States pension	United States OPEB	Other pension	Total
1 January	**(11 325)**	**(1 471)**	**(4 072)**	**(16 868)**	**(12 340)**	**(1 615)**	**(4 357)**	**(18 312)**
Current service cost	(86)	—	(62)	(148)	(83)	—	(74)	(157)
Interest expense	(509)	(67)	(142)	(718)	(563)	(73)	(173)	(809)
Past service cost	(12)	—	7	(5)	(9)	—	3	(6)
Settlements[1]	—	—	178	178	—	—	501	501
Total	(607)	(67)	(19)	(693)	(655)	(73)	257	(471)
Remeasurements:								
Gain/(loss) from change in demographic assumptions	114	17	32	163	66	1	(12)	55
Gain/(loss) from change in financial assumptions	463	62	88	613	(114)	(26)	(161)	(301)
Experience gain/(loss)	94	27	(13)	108	(43)	28	(11)	(26)
Total	671	106	107	884	(91)	3	(184)	(272)
Translation differences	(664)	(87)	(32)	(783)	431	57	(12)	476
Contributions from plan participants	—	(76)	(4)	(80)	—	(60)	(24)	(84)
Benefits paid	1 237	212	272	1 721	1 330	229	249	1 808
Other[2]	—	(10)	40	30	—	(12)	(1)	(13)
Total	573	39	276	888	1 761	214	212	2 187
31 December	**(10 688)**	**(1 393)**	**(3 708)**	**(15 789)**	**(11 325)**	**(1 471)**	**(4 072)**	**(16 868)**
Weighted average duration of the defined benefit obligation (in years)	9.1	10.3	10.1	9.5	7.7	8.8	10.6	8.5

(1) In 2024, the settlement relates to the transfer of a liability in the amount of EUR 178 million to insurer Aviva as part of a buy-out transaction in the UK. In 2023, the settlement related to the transfer of liabilities from formerly Nokia managed Provident Fund to Indian government managed Provident Fund platform (EPFO).
(2) Includes divestment related transfers.

Notes to the consolidated financial statements continued

Fair value of plan assets

	2024				2023			
EURm	United States pension	United States OPEB	Other pension	Total	United States pension	United States OPEB	Other pension	Total
1 January	**16 285**	**675**	**3 954**	**20 914**	**17 726**	**637**	**4 328**	**22 691**
Interest income	755	30	133	918	820	28	171	1 019
Administrative expenses and interest on asset ceiling	(18)	—	(5)	(23)	(17)	—	(4)	(21)
Settlements(1)	—	—	(183)	(183)	—	—	(494)	(494)
Total	737	30	(55)	712	803	28	(327)	504
Remeasurements:								
Return on plan assets, excluding amounts included in interest income	(576)	50	44	(482)	(186)	62	48	(76)
Total	(576)	50	44	(482)	(186)	62	48	(76)
Translation differences	990	41	41	1 072	(624)	(21)	28	(617)
Contributions:								
Employers	27	3	25	55	27	7	41	75
Plan participants	—	76	4	80	—	60	24	84
Benefits paid	(1 237)	(212)	(179)	(1 628)	(1 330)	(229)	(181)	(1 740)
Section 420 transfer(2)	(38)	38	—	—	(131)	131	—	—
Other	—	—	—	—	—	—	(7)	(7)
Total	(258)	(54)	(109)	(421)	(2 058)	(52)	(95)	(2 205)
31 December	**16 188**	**701**	**3 834**	**20 723**	**16 285**	**675**	**3 954**	**20 914**

(1) In 2024, the settlement primarily relates to transfer of assets in the amount of EUR 178 million to insurer Aviva as part of a buy-out transaction in the UK. In 2023, the settlement relates to the transfer of assets from formerly Nokia managed Provident Fund to Indian government managed Provident Fund platform (EPFO).
(2) Refer to the Future cash flows section below for description of Section 420 transfers.

The impact of the asset ceiling limitation

	2024				2023			
EURm	United States pension	United States OPEB	Other pension	Total	United States pension	United States OPEB	Other pension	Total
1 January	**—**	**—**	**(87)**	**(87)**	**—**	**—**	**(84)**	**(84)**
Interest expense	—	—	(1)	(1)	—	—	(2)	(2)
Remeasurements:								
Change in asset ceiling, excluding amounts included in interest expense	—	—	6	6	—	—	5	5
Translation differences	—	—	(3)	(3)	—	—	(6)	(6)
31 December	**—**	**—**	**(85)**	**(85)**	**—**	**—**	**(87)**	**(87)**

Net balances

	2024				2023			
EURm	United States pension	United States OPEB	Other pension	Total	United States pension	United States OPEB	Other pension	Total
31 December	**5 500**	**(692)**	**41**	**4 849**	**4 960**	**(796)**	**(205)**	**3 959**
Consisting of:								
Net pension assets	5 749	—	1 183	6 932	5 217	—	1 041	6 258
Net pension liabilities	(249)	(692)	(1 142)	(2 083)	(257)	(796)	(1 246)	(2 299)

Notes to the consolidated financial statements continued

Recognized in the income statement[1]

EURm	2024	2023	2022
Current service cost[2]	148	157	205
Past service cost[2]	5	6	(2)
Net interest[3]	(176)	(187)	(92)
Settlements[2]	5	(7)	(10)
Total	**(18)**	**(31)**	**101**

(1) Includes amounts related to both continuing and discontinued operations.
(2) Amounts related to continuing operations are presented in operating expenses within the income statement.
(3) Amounts related to continuing operations are presented in financial income within the income statement.

Recognized in other comprehensive income

EURm	2024	2023	2022
Return on plan assets, excluding amounts included in interest income	(482)	(76)	(4 646)
Gain/(loss) from change in demographic assumptions	163	55	(4)
(Loss)/gain from change in financial assumptions	613	(301)	4 534
Experience (loss)/gain	108	(26)	(320)
Change in asset ceiling, excluding amounts included in interest expense	6	5	12
Total	**408**	**(343)**	**(424)**

Actuarial assumptions and sensitivity analysis

Actuarial assumptions

The discount rates and mortality tables used for the significant plans:

	Discount rate		Mortality table
	2024	2023	2024
United States[1]	5.3%	4.7%	Pri-2012 w/MP-2020 Mortality projection scale
Germany	3.4%	3.2%	Heubeck 2018G
United Kingdom[2]	5.6%	4.5%	CMI 2023
Total weighted average for all countries	4.9%	4.4%	

(1) Mortality tables remain unchanged in the US. 2024 mortality assumption includes an adjustment based upon actual experience.
(2) Mortality tables have been updated from CMI 2021 in 2023 to CMI 2023 for United Kingdom and have been adjusted with 1.5% long-term rate of improvement.

Assumptions regarding future mortality are set based on actuarial advice in accordance with published statistics and experience in each country.

The principal actuarial weighted average assumptions used for determining the defined benefit obligation and sensitivity of the defined benefit obligation to changes in these assumptions:

	2024	2023	Change in assumption	Increase in assumption[1] EURm	Decrease in assumption[1] EURm
Discount rate for determining present values	4.9%	4.4%	1.0%	1 162	(1 358)
Pension growth rate	2.1%	3.3%	1.0%	(226)	175
Inflation rate	2.0%	2.3%	1.0%	(249)	219
Life expectancy	86-88 yrs	87-88 yrs	1 year	(589)	559

(1) Positive movement indicates a reduction in the defined benefit obligation; a negative movement indicates an increase in the defined benefit obligation.

Sensitivity analysis

When calculating the sensitivity of the defined benefit obligation to significant actuarial assumptions, the present value of the defined benefit obligation is calculated using the projected unit credit method. The sensitivity analyses are based on a change in an assumption while holding all other assumptions constant and may not be representative of the actual impact of changes. If more than one assumption is changed simultaneously, the combined impact of changes would not necessarily be the same as the sum of the individual changes. If the assumptions change to a different level compared with that presented, the effect on the defined benefit obligation may not be linear. Increases and decreases in the principal assumptions, which are used in determining the defined benefit obligation, do not have a symmetrical effect on the defined benefit obligation primarily due to the compound interest effect created when determining the net present value of the future benefit.

Key source of estimation uncertainty

The determination of pension and other post-employment benefit obligations and expenses for defined benefit plans is dependent on a number of estimates and assumptions, including the discount rate, future mortality rate, annual rate of increase in future compensation levels, and healthcare costs trend rates and usage of services in the United States where the majority of our post-employment healthcare plans are maintained. Changes in assumptions and actuarial estimates may materially affect the benefit obligation, future expense and future cash flow.

Notes to the consolidated financial statements continued

Investment strategies

The overall pension investment objective of Nokia is to preserve or enhance the defined benefit pension plans' funded status through the implementation of an investment strategy that maximizes return within the context of minimizing funded status risk. In formulating the asset allocation for the plans, multiple factors are considered, including, but not limited to, the long-term risk and return expectations for a variety of asset classes as well as current and multi-year projections of the defined benefit pension plans' demographics, benefit payments, contributions and funded status. Local trustee boards are responsible for conducting Asset-Liability Management (ALM) studies, when appropriate; overseeing the investment of plan assets; and monitoring and managing associated risks under company oversight and in accordance with local law. The results of the ALM framework are implemented on a plan level.

Nokia's pension investment managers may use derivative financial instruments including futures contracts, forward contracts, options and interest rate swaps to manage market risk. The performance and risk profile of investments is regularly monitored on a standalone basis as well as in the broader portfolio context. One risk is a decline in the plan's funded status as a result of the adverse performance of plan assets and/or defined benefit obligations. The application of the ALM study focuses on minimizing such risks.

United States plan assets

The majority of Nokia's United States pension plan assets are held in a master pension trust. The OPEB plan assets are held in two separate trusts. The Pension & Benefits Investment Committee formally approves the target asset allocation following the proposal by Nokia's OCIO provider. The overall United States pension plan asset portfolio, at 31 December 2024, reflects a balance of investments split of approximately 20/80 between equity, including alternative investments for this purpose, and fixed income securities.

Disaggregation of plan assets[1]

	2024				2023			
EURm	Quoted	Unquoted	Total	% of total assets	Quoted	Unquoted	Total	% of total assets
Equity securities	1 055	—	1 055	5%	1 249	—	1 249	6%
Fixed income securities	14 721	142	14 863	72%	14 750	140	14 890	71%
Insurance contracts	—	648	648	3%	—	807	807	4%
Real estate	—	860	860	4%	—	1 010	1 010	5%
Short-term investments	945	—	945	5%	689	—	689	3%
Private equity and other	103	2 249	2 352	11%	106	2 163	2 269	11%
Total	**16 824**	**3 899**	**20 723**	**100%**	**16 794**	**4 120**	**20 914**	**100%**

(1) Beginning in 2024, Nokia reports temporarily held cash positions associated with different asset classes as part of those asset classes. Previously these cash positions were included in short-term investments. Comparative asset balances have been recast accordingly.

Most short-term investments including cash, equities and fixed-income securities have quoted market prices in active markets. Equity securities represent investments in equity funds and direct investments, which have quoted market prices in an active market. Fixed income securities represent direct investments in government and corporate bonds, as well as investments in bond funds, which have quoted market prices in an active market. Insurance contracts are customary pension insurance contracts structured under domestic law in the respective countries. Real estate investments are investments in commercial properties or real estate funds, which invest in a diverse range of real estate properties. Private equity and other investments include investments in private equity limited partnerships and absolute return investments in hedge funds.

Short-term investments are liquid assets or cash, which are being held for a short period of time, with the primary purpose of controlling the tactical asset allocation. Private equity net asset values (NAVs) are determined by the asset managers based on inputs such as operating results, discounted future cash flows and market-based comparable data. Assets invested in alternative asset classes such as private equity, real estate and absolute return are measured using latest available valuations provided by the asset managers, reviewed by Nokia and adjusted for subsequent cash flows.

Notes to the consolidated financial statements continued

Future cash flows

Contributions

Group contributions to the pension and other post-employment benefit plans are made to facilitate future benefit payments to plan participants. The funding policy is to meet minimum funding requirements as set forth in the employee benefit and tax laws, as well as any such additional amounts as Nokia may determine appropriate. Contributions are made to benefit plans for the sole benefit of plan participants. Employer contributions expected to be paid in 2025 total EUR 55 million.

United States

Funding methods

Funding requirements for the two United States qualified defined benefit pension plans are determined by the applicable statutes, namely the Employee Retirement Income Security Act of 1974 (ERISA), the Internal Revenue Code of 1986, and regulations issued by the Internal Revenue Service (IRS). In determining funding requirements, ERISA allows assets to be either fair value or an average value over a period of time; and liabilities to be based on spot interest rates or average interest rates over a period of time. For the non-represented and formerly represented defined benefit pension plans, Nokia does not foresee any future funding requirement for regulatory funding purposes, given the plans' asset allocation and the level of assets compared to liabilities.

Post-employment healthcare benefits for both non-represented and formerly union represented retirees are capped for those who retired after 28 February 1990. The benefit obligation associated with this group of retirees is 99% of the total United States retiree healthcare obligation at 31 December 2024. The US government's Medicare program is the primary payer for those aged 65 and older.

Section 420 transfers

Section 420 of the U.S. Internal Revenue Code (Section 420) allows for the transfer of pension assets in excess of specified thresholds above the plan's funding obligation (excess pension assets) to a retiree health benefits account, a retiree life insurance account, or both, maintained within the pension plan and to use the assets in such accounts to pay for, or to reimburse the employer for the cost of providing applicable health or life insurance benefits, each as defined in Section 420, for retired employees, and with respect to health benefits, their spouses and dependents. Employers making such transfers are required to continue to provide healthcare benefits or life insurance coverage, as the case may be, for a certain period of time (cost maintenance period) at levels prescribed by regulations. Pursuant to Section 420, Nokia has transferred EUR 38 million during 2024 (EUR 131 million in 2023). Section 420 is currently set to expire on 31 December 2032.

Benefit payments

The following table summarizes expected benefit payments from the defined benefit pension plans and other post-employment benefit plans until 2034. Actual benefit payments may differ from expected benefit payments.

	US Pension			US OPEB		Other countries	Total
EURm	Management	Occupational	Supplemental plans	Formerly union represented	Non-union represented		
2025	1 053	214	27	60	61	261	1 676
2026	983	198	26	53	62	241	1 563
2027	919	184	25	49	62	240	1 479
2028	861	170	24	79	62	244	1 440
2029	810	157	23	72	63	269	1 394
2030–2034	3 343	609	101	273	309	1 346	5 981

Benefits are paid from plan assets where there is sufficient funding available to the plan to cover the benefit obligation. Any payments in excess of the plan assets are paid directly by Nokia. Direct benefit payments expected to be paid in 2025 total EUR 108 million.

Section 4

Operating assets and liabilities

This section provides detailed information on Nokia's assets and liabilities related to its operating activities, such as tangible and intangible fixed assets, leases, inventories, trade receivables and other customer related balances, and provisions.

4.1. Goodwill and intangible assets

Accounting policies

Intangible assets acquired separately are measured on initial recognition at cost. Internally generated intangibles, except for development costs that may be capitalized, are expensed as incurred. Development costs are capitalized only if Nokia has the technical feasibility to complete the asset; has an ability and intention to use or sell the asset; can demonstrate that the asset will generate future economic benefits; has resources available to complete the asset; and has the ability to measure reliably the expenditure during development.

The useful life of Nokia's intangible assets, other than goodwill, is finite. Following initial recognition, finite intangible assets are carried at cost less accumulated amortization and accumulated impairment losses. Intangible assets are amortized over their useful lives, generally three years to ten years, using the straight-line method, which is considered to best reflect the pattern in which the asset's future economic benefits are expected to be consumed. Depending on the nature of the intangible asset, the amortization charges for continuing operations are included in cost of sales, research and development expenses or selling, general and administrative expenses.

Goodwill is allocated to the cash-generating units or groups of cash-generating units that are expected to benefit from the synergies of the related business combination and that reflect the lowest level at which goodwill is monitored for internal management purposes. A cash-generating unit, as determined for the purposes of Nokia's goodwill impairment testing, is the smallest group of assets generating cash inflows that are largely independent of the cash inflows from other assets or groups of assets. The carrying value of a cash-generating unit includes its share of relevant corporate assets allocated to it on a reasonable and consistent basis. When the composition of one or more groups of cash-generating units to which goodwill has been allocated is changed, the goodwill is reallocated based on the relative fair value of the affected groups of cash-generating units.

Nokia tests the carrying value of goodwill for impairment annually. In addition, Nokia assesses the recoverability of the carrying value of goodwill and intangible assets if events or changes in circumstances indicate that the carrying value may be impaired. Factors that Nokia considers when it reviews indications of impairment include, but are not limited to, underperformance of the asset relative to its historical or projected future results, significant changes in the manner of using the asset or the strategy for the overall business, and significant negative industry or economic trends.

Nokia conducts its impairment testing by determining the recoverable amount for an asset, a cash-generating unit or groups of cash-generating units. The recoverable amount of an asset, a cash-generating unit or groups of cash-generating units is the higher of its fair value less costs of disposal and its value-in-use. The recoverable amount is compared to the asset's, cash-generating unit's or groups of cash-generating units' carrying value. If the recoverable amount for the asset, cash-generating unit or groups of cash-generating units is less than its carrying value, the asset is considered impaired and is written down to its recoverable amount. Impairment losses are presented in cost of sales, research and development expenses or selling, general and administrative expenses, except for impairment losses on goodwill, which are presented in other operating expenses.

Notes to the consolidated financial statements continued

EURm	Goodwill	Intangible assets	Total
2024			
Acquisition cost at 1 January	6 629	9 893	16 522
Additions	—	97	97
Acquisitions through business combinations	33	—	33
Assets held for sale	(38)	(170)	(208)
Disposals and retirements	(11)	(282)	(293)
Translation differences	260	255	515
Acquisition cost at 31 December	**6 873**	**9 793**	**16 666**
Accumulated amortization and impairment charges at 1 January	(1 125)	(8 807)	(9 932)
Amortization	—	(390)	(390)
Assets held for sale	—	165	165
Disposals and retirements	—	278	278
Translation differences	(12)	(237)	(249)
Accumulated amortization and impairment charges at 31 December	**(1 137)**	**(8 991)**	**(10 128)**
Net book value at 1 January	5 504	1 086	6 590
Net book value at 31 December	**5 736**	**802**	**6 538**
2023			
Acquisition cost at 1 January	6 799	9 778	16 577
Additions	—	299	299
Disposals, retirements and assets held for sale	(22)	(23)	(45)
Translation differences	(148)	(161)	(309)
Acquisition cost at 31 December	**6 629**	**9 893**	**16 522**
Accumulated amortization and impairment charges at 1 January	(1 132)	(8 515)	(9 647)
Amortization	—	(423)	(423)
Impairment	—	(26)	(26)
Disposals and retirements	—	17	17
Translation differences	7	140	147
Accumulated amortization and impairment charges at 31 December	**(1 125)**	**(8 807)**	**(9 932)**
Net book value at 1 January	5 667	1 263	6 930
Net book value at 31 December	**5 504**	**1 086**	**6 590**

Net book value of intangible assets by type of asset

EURm	2024	2023
Customer relationships	317	605
Patents and licenses	304	316
Technologies and IPR&D	12	31
Tradenames and other	51	60
Intangible assets under construction	118	74
Total	**802**	**1 086**

At 31 December 2024, the weighted average remaining amortization period is approximately one year for customer relationships, six years for patents and licenses, one year for technologies and IPR&D, and three years for tradenames and other.

Goodwill

Nokia has allocated goodwill to its operating segments corresponding to groups of cash-generating units (CGUs) that are expected to benefit from goodwill. Refer to Note 2.2. Segment information.

Allocation of goodwill

The following table presents the allocation of goodwill to groups of CGUs at 31 December:

EURm	2024	2023
Network Infrastructure	2 831	2 739
Mobile Networks	2 346	2 228
Cloud and Network Services	559	537

Recoverable amounts

The recoverable amounts of the groups of CGUs in 2024 were based on value-in-use that was determined using a discounted cash flow calculation. The cash flow projections approved by management were based on financial plans covering a forecast period of three years followed by a seven-year period that reflects management's expectations of recovery from the market-driven mid-term decrease in sales and market cyclicality, especially in the Mobile Networks group of CGUs, that then converge to the steady state cash flow projection modelled in the terminal year. The terminal growth rate assumptions do not exceed long-term average growth rates for the industries and economies in which the groups of CGUs operate.

The discount rates reflect current assessments of the time value of money and relevant market risk premiums considering risks and uncertainties for which the future cash flow estimates have not been adjusted. Discounted cash flow projections are based on post-tax cash flows and post-tax discount rates, which do not materially differ from the pre-tax basis discounted cash flow projections. Other key variables in future cash flow projections include assumptions on estimated sales growth, gross margin and operating margin.

Sales growth and gross margin assumptions reflect management expectations of addressable market growth, market share and competitive position, as well as Nokia's strategy and long-term business outlook. Gross margin and operating margin assumptions include the impact of the ongoing transformational and cost savings initiatives, which are expected to reduce cost base and increase operational efficiency especially within Mobile Networks.

Terminal growth rate and post-tax discount rate applied in the impairment test for the groups of CGUs:

	Terminal growth rate		Post-tax discount rate	
Key assumption %	2024	2023	2024	2023
Network Infrastructure	1.5%	1.0%	9.4%	9.3%
Mobile Networks	1.0%	1.0%	8.4%	8.3%
Cloud and Network Services	1.5%	1.0%	8.0%	7.7%

The results of the impairment testing indicate adequate headroom for each group of CGUs in 2024.

Notes to the consolidated financial statements continued

4.2. Property, plant and equipment

Accounting policies

Property, plant and equipment are stated at cost less accumulated depreciation and accumulated impairment losses. Depreciation is recorded on a straight-line basis over the expected useful lives of the assets as follows:

Buildings and constructions	
Buildings and constructions	20–33 years
Light buildings and constructions	3–20 years
Vessels[1]	
Cable-laying vessels	15–40 years
Cable-laying accessories	4–10 years
Machinery and equipment	
Production machinery and measuring and test equipment	1–5 years
Other machinery and equipment	3–10 years

(1) Vessels relate to Submarine Networks business which is presented as a discontinued operation. The assets of Submarine Networks business were classified as held for sale in June 2024. Refer to Note 2.6. Discontinued operations for more information.

Land and water areas are not depreciated.

Maintenance, repairs and renewals are generally expensed in the period in which they are incurred. However, major renovations are capitalized and included in the carrying amount of the asset when it is probable that future economic benefits in excess of the originally assessed standard of performance of the existing asset will flow to Nokia. Major renovations are depreciated over the remaining useful life of the related asset. Leasehold improvements are depreciated over the shorter of the lease term and the useful life. Gains and losses on the disposal of property, plant and equipment are included in other operating income or expenses.

EURm	Land, buildings, constructions and vessels	Machinery, equipment and other	Assets under construction	Total
2024				
Acquisition cost at 1 January	1 434	3 547	167	5 148
Additions	22	230	115	367
Reclassifications	50	55	(105)	—
Disposals and retirements	(51)	(199)	(4)	(254)
Assets held for sale	(548)	(306)	(50)	(904)
Translation differences	39	63	3	105
Acquisition cost at 31 December	**946**	**3 390**	**126**	**4 462**
Accumulated depreciation at 1 January	(569)	(2 628)	—	(3 197)
Depreciation	(80)	(321)	—	(401)
Impairment	(55)	—	—	(55)
Disposals and retirements	40	190	—	230
Assets held for sale	171	223	—	394
Translation differences	(25)	(46)	—	(71)
Accumulated depreciation at 31 December	**(518)**	**(2 582)**	**—**	**(3 100)**
Net book value at 1 January	865	919	167	1 951
Net book value at 31 December	**428**	**808**	**126**	**1 362**
2023				
Acquisition cost at 1 January	1 409	3 589	248	5 246
Additions	33	314	115	462
Reclassifications	107	85	(192)	—
Disposals and retirements	(88)	(374)	(1)	(463)
Translation differences	(27)	(67)	(3)	(97)
Acquisition cost at 31 December	**1 434**	**3 547**	**167**	**5 148**
Accumulated depreciation at 1 January	(575)	(2 656)	—	(3 231)
Depreciation	(90)	(358)	—	(448)
Disposals and retirements	79	333	—	412
Translation differences	17	53	—	70
Accumulated depreciation at 31 December	**(569)**	**(2 628)**	**—**	**(3 197)**
Net book value at 1 January	834	933	248	2 015
Net book value at 31 December	**865**	**919**	**167**	**1 951**

Notes to the consolidated financial statements continued

4.3. Leases

Accounting policies

In the majority of its lease agreements, Nokia is acting as a lessee. Nokia's leased assets relate mostly to commercial and industrial properties such as R&D, production and office facilities. Nokia also leases vehicles provided as employee benefits and service vehicles. There are only minor lease contracts, mainly concerning subleases of vacant leasehold or freehold facilities, where Nokia is acting as a lessor.

As a lessee, Nokia recognizes a right-of-use asset and a lease liability at the commencement date of the lease. Right-of-use assets are measured at cost less accumulated depreciation and impairment losses, and adjusted for any remeasurements of the lease liabilities. Right-of-use assets are depreciated on a straight-line basis over the lease term as follows:

Buildings	3–15 years
Other	3–5 years

Lease liabilities are initially measured at the present value of the lease payments made over the lease term. Nokia uses its incremental borrowing rate to calculate the present value as the interest rate implicit in the lease is not readily determinable. Subsequently, lease liabilities are measured on an amortized cost basis using the effective interest method. In addition, lease liabilities are remeasured if there is a lease modification, a change in the lease term or a change in the future lease payments. The interest component of the lease payments is recognized as interest expense in financial expenses.

Nokia applies practical expedients whereby the payments for short-term leases and leases of low-value assets are recognized as an operating expense on a straight-line basis over the lease term. In addition, Nokia does not separate certain non-lease components from lease components but instead accounts for each lease component and associated non-lease component as a single lease component.

Right-of-use assets

EURm	Buildings	Other	Total
2024			
Acquisition cost at 1 January	1 434	275	1 709
Additions(1)	36	95	131
Assets held for sale	(25)	(47)	(72)
Retirements	(48)	(38)	(86)
Translation differences	25	1	26
Acquisition cost at 31 December	**1 422**	**286**	**1 708**
Accumulated depreciation at 1 January	(677)	(126)	(803)
Depreciation	(135)	(88)	(223)
Impairment	(43)	—	(43)
Assets held for sale	4	40	44
Retirements	48	38	86
Translation differences	(10)	(1)	(11)
Accumulated depreciation at 31 December	**(813)**	**(137)**	**(950)**
Net book value at 1 January	757	149	906
Net book value at 31 December	**609**	**149**	**758**
2023			
Acquisition cost at 1 January	1 423	241	1 664
Additions(1)	74	129	203
Retirements	(39)	(96)	(135)
Translation differences	(24)	1	(23)
Acquisition cost at 31 December	**1 434**	**275**	**1 709**
Accumulated depreciation at 1 January	(589)	(146)	(735)
Depreciation	(140)	(76)	(216)
Impairment	2	—	2
Retirements	39	96	135
Translation differences	11	—	11
Accumulated depreciation at 31 December	**(677)**	**(126)**	**(803)**
Net book value at 1 January	834	95	929
Net book value at 31 December	**757**	**149**	**906**

(1) Additions comprise new lease contracts as well as modifications and remeasurements of existing lease contracts.

Amounts recognized in the income statement

EURm	2024	2023	2022
Depreciation of right-of-use assets(1)	(223)	(216)	(225)
Interest expense on lease liabilities(1)	(33)	(28)	(26)
Impairment charges, net of reversals	(43)	2	6
Total	**(299)**	**(242)**	**(245)**

(1) Includes amounts related to both continuing and discontinued operations.

Amounts recognized in the income statement presented above exclude expenses relating to short-term leases and leases of low-value assets, income from subleasing right-of-use assets and gains or losses arising from sale and leaseback transactions as these are immaterial.

Amounts reported in the statement of cash flows

EURm	2024	2023	2022
Payment of principal portion of lease liabilities(1)	(233)	(239)	(217)
Interest paid on lease liabilities(1)	(33)	(28)	(26)
Total	**(266)**	**(267)**	**(243)**

(1) Includes amounts related to both continuing and discontinued operations.

Amounts reported in the statement of cash flows exclude payments for short-term leases and leases of low-value assets.

The maturity analysis of lease liabilities is presented in Note 5.4. Financial risk management. Commitments related to future lease contracts are presented in Note 6.1. Commitments, contingencies and legal proceedings.

Notes to the consolidated financial statements continued

4.4. Inventories

Accounting policies

Inventories are measured at the lower of cost and net realizable value. Cost is determined using standard cost, which approximates actual cost on a first-in first-out (FIFO) basis. In addition to the cost of materials and direct labor, an appropriate proportion of production overheads is allocated to the cost of inventory. Net realizable value is the estimated selling price in the ordinary course of business less the estimated costs necessary to make the sale.

Contract work in progress comprises costs incurred to date for customer contracts where the contractual performance obligations are not yet satisfied. Contract work in progress will be recognized as cost of sales when the corresponding revenue is recognized.

EURm	2024	2023
Raw materials and semi-finished goods	708	1 156
Finished goods	930	980
Contract work in progress	525	583
Total	**2 163**	**2 719**

Inventories recognized as an expense during the year in respect of continuing operations was EUR 5 050 million in 2024 (EUR 7 115 million in 2023 and EUR 7 709 million in 2022).

During the year write-downs of inventories to net realizable value totaled EUR 259 million (EUR 287 million in 2023 and EUR 261 million in 2022) and reversals of previous inventory write-downs totaled EUR 54 million (EUR 88 million in 2023 and EUR 98 million in 2022). The write-downs and reversals of previous write-downs have been included in cost of sales. Previous write-downs have been reversed primarily as a result of changes in estimated customer demand.

The amount of inventories expected to be recovered after more than 12 months was EUR 464 million at 31 December 2024 (EUR 666 million in 2023).

4.5. Trade receivables and other customer-related balances

Accounting policies

Customer contracts

Nokia presents its customer contracts in the statement of financial position as either a contract asset or a contract liability, depending on the relationship between Nokia's performance and the customer's payment for each individual contract. On a net basis, a contract asset position represents where Nokia has performed by transferring goods or services to a customer before the customer has provided the associated consideration or before payment is due. Conversely, a contract liability position represents where a customer has paid consideration or payment is due, but Nokia has not yet transferred goods or services to the customer. Contract assets presented in the statement of financial position are current in nature while contract liabilities can be either current or non-current.

Invoices are generally issued as control transfers and/or as services are rendered. Invoiced receivables represent an unconditional right to receive the consideration and only the passage of time is required before the consideration is received. Invoiced receivables are presented separately from contract assets as trade receivables in the statement of financial position. Trade receivables may be converted to customer loan receivables in certain cases where extended payment terms are requested. From time to time Nokia may also extend loans to other third parties and these loans are accounted for similarly as customer loan receivables. Nokia sells trade receivables and customer loan receivables to various financial institutions primarily without recourse in the normal course of business, in order to manage credit risk and working capital cycle.

The business model for managing trade receivables and customer loan receivables is holding receivables to collect contractual cash flows and selling receivables. Trade receivables and customer loan receivables are initially recognized and subsequently remeasured at fair value using the discounted cash flow method.

The changes in fair value are recognized in the fair value reserve through other comprehensive income. Interest calculated using the effective interest method as well as foreign exchange gains and losses are recognized in financial income and expenses.

Discounts without performance obligations presented on the statement of financial position in other current liabilities relate to discounts given to customers which will be executable upon satisfying specific criteria. As these discounts become executable, they are netted against related trade receivables or customer loan receivables.

Expected Credit Losses

Loss allowance for expected credit losses (ECL) is recognized on financial assets measured at amortized cost and financial assets measured at fair value through other comprehensive income, as well as on financial guarantee contracts and loan commitments. Nokia continuously assesses its financial instruments on a forward-looking basis and accounts for the changes in ECL on a quarterly basis using the following method:

- ECL = PD x LGD x EAD
- Probability of Default (PD) is based on the credit rating profile of the counterparties as well as specific local circumstances as applicable, unless there are specific events that would indicate that the credit rating would not be an appropriate basis for estimating credit risk at the reporting date.
- For Loss Given Default (LGD), the recovery rate is based on the type of receivable, specific local circumstances as applicable and related collateral arrangements, if any.
- Exposure at Default (EAD) is normally the nominal value of the receivable.

Notes to the consolidated financial statements continued

Nokia applies a simplified approach to recognize a loss allowance based on lifetime ECL on trade receivables and contract assets without significant financing components. Based on quantitative and qualitative analysis, Nokia has determined that the credit risk exposure arising from its trade receivables is low risk. Quantitative analysis focuses on historical loss rates, historic and projected sales and the corresponding trade receivables, and overdue trade receivables including indicators of any deterioration in the recovery expectation. Qualitative analysis focuses on all relevant conditions, including customer and country credit rating, to improve the accuracy of estimating lifetime ECL.

For customer loan receivables, the ECL is calculated separately for each significant counterparty using the method described above, including the impact of any collateral arrangements or other credit enhancements to LGD. The estimate is based on 12-month ECL unless there has been a significant increase in credit risk for the specific counterparty since the initial recognition, in which case lifetime ECL is estimated. Breaches of contract, credit rating downgrades and other credit measures are typical indicators that Nokia takes into consideration when assessing whether the credit risk on a financial instrument has increased significantly since initial recognition. Nokia considers additional indicators to determine if a financial asset is credit-impaired including whether the counterparty is in significant financial difficulties and whether it is becoming probable that the customer will enter bankruptcy or financial reorganization. Typically customer loan credit risk is higher than credit risk of trade receivables and contract assets on average.

The change in the amount of ECL for trade receivables and contract assets is recognized in other operating expenses and for customer loan receivables in financial expenses. For customer loan receivables, the loss allowance is recorded as an adjustment in other comprehensive income instead of adjusting the carrying amount that has already been recorded at fair value. If trade receivables and customer loan receivables are sold, the impact of ECL is reversed and the difference between the carrying amount derecognized and the consideration received is recognized in financial expenses.

Customer-related balances

Nokia aims to ensure the highest possible quality in trade receivables and contract assets as well as customer loan receivables. The Credit Risk Management Standard Operating Procedure, approved by the CFO, lays out the framework for the management of business-related credit risks. The Credit Risk Management Standard Operating Procedure sets out that credit decisions are based on credit evaluation in each business, including credit rating and limits for larger exposures, according to defined principles. Group level limit approvals are required for material credit exposures. Credit risks are monitored in each business and, where appropriate, mitigated on a case-by-case basis with the use of letters of credit, collaterals, sponsor guarantees, credit insurance and sale of selected receivables.

Aging of trade receivables, contract assets, and customer financing-related loan receivables at 31 December

		Past due			
EURm	Current	1-30 days	31-180 days	> 180 days	Total
2024					
Trade receivables[1]	4 894	163	195	213	5 465
Contract assets	694	—	—	—	694
Customer financing-related loan receivables	70	—	—	—	70
Total gross receivables	**5 658**	**163**	**195**	**213**	**6 229**
Expected credit loss allowance	(78)	(9)	(31)	(108)	(226)
Total net receivables	**5 580**	**154**	**164**	**105**	**6 003**
2023					
Trade receivables[1]	4 404	157	279	430	5 270
Contract assets	1 136	—	—	—	1 136
Customer financing-related loan receivables	207	1	20	88	316
Total gross receivables	**5 747**	**158**	**299**	**518**	**6 722**
Expected credit loss allowance[2]	(207)	(8)	(80)	(302)	(597)
Total net receivables	**5 540**	**150**	**219**	**216**	**6 125**

(1) Nokia's payment terms are 89 (104 in 2023) days on average.
(2) In 2023, the decrease in the expected credit loss allowance includes EUR 29 million transferred to other provisions.

The reversal of ECL credited to the income statement was EUR 137 million and EUR 16 million in 2024 and 2023 respectively. In 2022, ECL charged to the income statement was EUR 160 million.

At 31 December 2024, the total ECL related to credit-impaired assets amounted to EUR 62 million (EUR 396 million in 2023 and EUR 379 million in 2022). In 2024, the reduction of ECL related to credit-impaired assets of EUR 334 million includes releases of EUR 233 million related to assets that were written off during the year and EUR 111 million related to assets for which payments were received.

The contractual amount outstanding on financial assets that were written off in 2024 and are still subject to enforcement activity is EUR 68 million (EUR 0 million in 2023)

Credit risk exposure by customer and country
Credit exposure is measured as the total of trade receivables, contract assets and loans outstanding from customers and committed credits. Trade receivables do not include any major concentrations of credit risk by customer.

Credit risk exposure by customer and country as % of total trade receivables and contract assets as well as loans and loan commitments to customers:

Customer	2024	2023
Customer 1	7.5%	12.2%
Customer 2	4.9%	3.6%
Customer 3	4.7%	3.4%
Total	**17.1%**	**19.2%**

Country	2024	2023
Country 1[(1)]	21.5%	19.0%
Country 2	10.6%	11.7%
Country 3	5.8%	6.1%
Total	**37.9%**	**36.8%**

(1) In 2024, Country 1 was the United States (India in 2023).

Contract assets and contract liabilities

Contract asset balances decrease upon reclassification to trade receivables when Nokia's right to payment becomes unconditional. Contract liability balances decrease when Nokia satisfies the related performance obligations and revenue is recognized. There were no material cumulative adjustments to revenue recognized arising from changes in transaction prices, changes in measures of progress or changes in estimated variable consideration.

During the year, Nokia recognized EUR 1.5 billion (EUR 1.4 billion in 2023) of revenue that was included in the current contract liability balance at the beginning of the period. The amount includes EUR 0.1 billion (EUR 0.2 billion in 2023) related to discontinued operations sold in 2024.

4.6. Other receivables and liabilities

Other non-current receivables

EURm	2024	2023
R&D tax credits	144	127
Indirect tax receivables	27	45
Other	39	41
Total	**210**	**213**

Other current receivables

EURm	2024	2023
VAT and other indirect tax receivables	300	302
Prepayments related to contract manufacturing	126	128
IT-related prepaid expenses	47	59
R&D tax credits and grant receivables	43	46
Divestment-related receivables	23	28
Other	228	201
Total	**767**	**764**

Other non-current liabilities

EURm	2024	2023
Salaries, wages and social charges	30	42
Other	87	69
Total	**117**	**111**

Other current liabilities

EURm	2024	2023
Salaries, wages and social charges	1 531	1 176
Accrued expenses related to customer projects[(1)]	245	442
Discounts without performance obligations	380	404
VAT and other indirect tax payables	314	323
Other[(2)]	413	479
Total	**2 883**	**2 824**

(1) The comparative amount for 2023 includes EUR 169 million related to discontinued operations.
(2) Includes accrued logistics, R&D and IT expenses.

Notes to the consolidated financial statements continued

4.7. Provisions

Accounting policies

Provision is recognized when Nokia has a present legal or constructive obligation as a result of past events, it is probable that an outflow of resources will be required to settle the obligation and a reliable estimate of the amount can be made. Management judgment may be required in determining whether it is probable that an outflow of economic benefits will be required to settle the obligation. The amount recognized as a provision is based on the best estimate of unavoidable costs required to settle the obligation at the end of the reporting period.

When estimating the amount of unavoidable costs, management may be required to consider a range of possible outcomes and their associated probabilities, risks and uncertainties surrounding the events and circumstances, as well as making assumptions about the timing of payment. Changes in estimates of timing or amounts of costs required to settle the obligation may become necessary as time passes and/or more accurate information becomes available. Nokia assesses the adequacy of its existing provisions and adjusts the amounts as necessary based on actual experience and changes in facts and circumstances at each reporting date.

EURm	Restructuring	Litigation and environmental[(1)]	Warranty	Material liability	Other	Total
1 January 2024	**255**	**251**	**200**	**136**	**420**	**1 262**
Charged to income statement						
Additions	397	69	214	144	68	892
Reversals	(9)	(23)	(19)	(82)	(56)	(189)
Total charged/(credited) to income statement	388	46	195	62	12	703
Utilized during year[(2)]	(424)	(64)	(128)	(53)	(34)	(703)
Translation differences and other	—	9	(37)	—	(6)	(34)
31 December 2024	**219**	**242**	**230**	**145**	**392**	**1 228**
Non-current	89	151	19	—	220	479
Current	130	91	211	145	172	749

(1) Environmental provision was EUR 152 million at 31 December 2024 (EUR 154 million at 31 December 2023).
(2) The utilization of restructuring provision includes items transferred to accrued expenses, of which EUR 67 million remained in accrued expenses at 31 December 2024.

Restructuring provision

Nokia provides for the estimated cost to restructure when a detailed formal plan of restructuring has been completed, approved by management, and announced. Restructuring costs consist primarily of personnel restructuring charges. The other main components are costs associated with exiting real estate locations, and costs of terminating certain other contracts directly linked to the restructuring. At 31 December 2024, the restructuring provision consists primarily of amounts related to the announcements made by Nokia on 16 March 2021 and 19 October 2023. The majority of the restructuring cash outflows is expected to occur over the next two years.

Litigation and environmental provisions

Nokia provides for the estimated future settlements related to legal proceedings based on the probable outcome of the claims. Nokia also provides for environmental remediation when Nokia becomes obliged, legally or constructively, to rectify environmental damage relating to soil, groundwater, surface water or sediment contamination. Cash outflows related to the litigation and environmental liabilities are inherently uncertain and generally occur over several periods. For a presentation of legal matters potentially affecting Nokia, refer to Note 6.1. Commitments, contingencies and legal proceedings.

Warranty provision

Nokia provides for the estimated liability to repair or replace products under standard warranty at the time revenue is recognized. The provision estimate is based on historical experience of the level of repairs and replacements. Cash outflows related to the warranty provision are generally expected to occur in the next 18 months.

Material liability provision

Nokia recognizes the estimated liability for non-cancellable purchase commitments for inventory in excess of forecasted requirements at each reporting date. Cash outflows related to the material liability provision are expected to occur over the next 12 months.

Other provisions

Nokia provides for various legal and constructive obligations such as project losses, indirect tax provisions, divestment-related provisions, certain other employee-related provisions than restructuring provisions and asset retirement obligations. Cash outflows related to other provisions are generally expected to occur over the next two years.

Notes to the consolidated financial statements continued

Section 5

Capital and financial instruments

This section provides information on shareholders' equity, shareholders' remuneration and Nokia's capital management objectives. Furthermore, this section comprises the policies and disclosures related to Nokia's financial assets and liabilities and hedge accounting as well as information on Nokia's financial risks and financial risk management principles and objectives.

5.1. Equity

Shares and share capital

Share capital

Nokia Corporation has one class of shares. Each share entitles the holder to one vote at general meetings. The shares have no par value nor is there a minimum or maximum share capital or number of shares under the Articles of Association of Nokia Corporation. The share capital amounted to EUR 245 896 461.96 at 31 December 2024 and 2023, and consisted of 5 605 850 345 (5 613 496 565 in 2023) issued and fully paid shares.

In 2024, Nokia Corporation issued in a directed share issue 150 000 000 (59 500 000 in 2023) new shares to itself without consideration and canceled 157 646 220 (78 301 011 in 2023 related to the second phase of the 2022 program) shares it had repurchased during the year under its share buyback program announced in January 2024.

Share premium

Share premium reserve consists of the share premium account of the Parent Company. In addition, the equity impact corresponding to the employee services received related to the equity-settled share-based compensation plans is recorded in the share premium reserve.

Treasury shares

At 31 December 2024, the number of Nokia shares held by the Group companies was 232 700 997 (87 895 712 in 2023) representing 4.2% (1.6% in 2023) of the share capital and total voting rights.

In 2024, Nokia repurchased 176 832 266 shares under the share buyback programs announced in January and November 2024 (78 301 011 in 2023 under the second phase of the 2022 program). The shares repurchased under the January 2024 program were canceled in December 2024. In addition, Nokia Corporation transferred without consideration 24 380 761 (16 885 827 in 2023) shares held by the Company to employees, including certain members of the Group Leadership Team, as settlement of the Group's equity-based incentive plans and the employee share purchase plan.

Number of shares outstanding at the beginning and at the end of the period

Number of shares 000s	2024	2023	2022
1 January	**5 525 601**	**5 587 016**	**5 634 993**
Settlement of share-based payments	24 380	16 886	15 986
Acquisition of treasury shares	(176 832)	(78 301)	(63 963)
31 December	**5 373 149**	**5 525 601**	**5 587 016**

On 28 February 2025, Nokia completed the acquisition of Infinera Corporation. Refer to Note 6.5. Subsequent events for more information. The aggregated consideration transferred included 127 434 986 Nokia shares in the form of American Depository Shares. The shares transferred were treasury shares held by Nokia Corporation. Considering all share issuances and repurchases of shares under the on-going share buyback program during 1 January – 28 February 2025, the number of shares outstanding has increased by 85 959 508 shares.

Nature and purpose of other equity reserves

Translation differences

Translation differences consist of foreign exchange differences arising from translation of foreign operations into euro, the presentation currency of the consolidated financial statements, as well as gains and losses related to hedging of net investments in foreign operations.

Fair value and other reserves

Pension remeasurements

Pension remeasurements reserve includes actuarial gains and losses as well as return on plan assets and changes in the effect of the asset ceiling, excluding amounts recognized in net interest, related to Nokia's defined benefit plans.

Hedging reserve

Hedging reserve includes the change in fair value that reflects the change in spot exchange rates for certain foreign exchange forward contracts and foreign exchange options, as well as the part of cross-currency swaps that is designated as a cash flow hedge to the extent that the hedges are effective.

Cost of hedging reserve

Cost of hedging reserve includes the forward element of foreign exchange forward contracts and the time value of foreign exchange options related to cash flow hedging of forecast foreign currency sale and purchase transactions.

Notes to the consolidated financial statements continued

Additionally, cost of hedging reserve includes the difference between the change in fair value of the forward element of foreign exchange forward contracts and the time value of option contracts and the amortization of the forward element of foreign exchange forward contracts and time value of option contracts related to net investment hedging. Cost of hedging reserve also includes changes in fair value from foreign currency basis spread related to fair value hedging of foreign currency denominated bonds.

Fair value reserve
Fair value reserve includes the changes in fair value of financial instruments that are managed in a portfolio with a business model of holding financial instruments to collect contractual cash flows including principal and interest, as well as selling financial instruments. The fair value changes recorded in fair value reserve for these instruments are reduced by amounts of loss allowances.

Reserve for invested unrestricted equity
The reserve for invested unrestricted equity includes that part of the subscription price of issued shares that according to the share issue decision is not to be recorded to the share capital as well as other equity inputs that are not recorded to some other reserve. The amount received for treasury shares is recorded to the reserve for invested unrestricted equity, unless it is provided in the share issue decision that it is to be recorded in full or in part to the share capital. The Nokia shares repurchased under the ongoing share buyback program are funded using funds in the reserve for invested unrestricted equity.

Other equity

Retained earnings
Retained earnings is the net total of previous years' profits and losses less dividends paid to the shareholders.

Non-controlling interests
Non-controlling interests represent the share of net assets of certain subsidiaries attributable to their minority shareholders. For more information on the contractual arrangement related to the ownership interests in the Nokia Shanghai Bell Group, refer to Note 6.3. Significant partly-owned subsidiaries.

Changes in other comprehensive income by component of equity

			Fair value and other reserves		
EURm	Translation differences[(1)]	Pension remeasurements	Hedging reserve	Cost of hedging reserve	Fair value reserve
1 January 2022	**(396)**	**4 242**	**(7)**	**(1)**	**(15)**
Foreign exchange translation differences	697	—	—	—	—
Net investment hedging losses	(147)	—	—	—	—
Remeasurements of defined benefit plans	—	(349)	—	—	—
Net fair value gains/(losses)	—	—	24	(27)	(208)
Transfer to income statement	14	—	61	10	175
Movement attributable to non-controlling interests	1	—	—	—	—
31 December 2022	**169**	**3 893**	**78**	**(18)**	**(48)**
Foreign exchange translation differences	(547)	—	—	—	—
Net investment hedging gains	105	—	—	3	—
Remeasurements of defined benefit plans	—	(261)	—	—	—
Net fair value gains/(losses)	—	—	2	(25)	(87)
Transfer to income statement	19	—	(66)	38	96
Movement attributable to non-controlling interests	5	—	—	—	—
31 December 2023	**(249)**	**3 632**	**14**	**(2)**	**(39)**
Foreign exchange translation differences	623	—	—	—	—
Net investment hedging losses	(31)	—	—	(1)	—
Remeasurements of defined benefit plans	—	326	—	—	—
Net fair value gains/(losses)	—	—	20	(1)	66
Transfer to income statement	(78)	—	(19)	19	(52)
Movement attributable to non-controlling interests	(2)	—	—	—	—
31 December 2024	**263**	**3 958**	**15**	**15**	**(25)**

(1) At 31 December 2024, translation differences include a EUR 154 million gain related to net investment hedging (EUR 186 million gain in 2023 and EUR 80 million gain in 2022).

Capital management

For capital management purposes Nokia defines capital as total equity and interest-bearing liabilities less cash and cash equivalents, current interest-bearing financial investments and non-current interest-bearing financial investments.

The main objectives of Nokia's capital management are to maintain a solid overall financial position and to ensure sufficient financial flexibility to execute Nokia's long-term business strategy and to provide returns to shareholders. From a cash perspective, Nokia aims to maintain the balance of its cash and cash equivalents and interest-bearing financial investments less interest-bearing liabilities at 10-15% of annual net sales over time. To support these objectives, Nokia aims to maintain investment grade credit ratings. At 31 December 2024, Nokia's long-term credit ratings are BBB- (stable) by Fitch, Ba1 (stable) by Moody's, and BBB- (stable) by S&P Global.

With regards to shareholder remuneration, Nokia targets 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. Nokia may also use share repurchases as a tool to manage its capital structure through the reduction of capital and distribute excess cash to the shareholders.

Distribution of funds

Nokia distributes funds to its shareholders in two ways: a) as dividends from retained earnings and/or as assets from the reserve for invested unrestricted equity, and b) by repurchasing shares using funds in the unrestricted equity. The amount of any distribution is limited to the Parent Company's distributable funds and subject to its solvency, and may not exceed the amount proposed by the Board of Directors.

Dividend and/or assets from the reserve for unrestricted invested equity

For the financial year 2024

Nokia's Board of Directors proposes to the Annual General Meeting 2025 that no dividend is distributed by a resolution of the AGM for the financial year ended on 31 December 2024. Instead, the Board proposes to be authorized to decide, in its discretion, on the distribution of an aggregate maximum of EUR 0.14 per share as dividend from the retained earnings and/or as assets from the reserve for invested unrestricted equity. The authorization would be used to distribute dividend and/or assets from the reserve for invested unrestricted equity in four installments during the period of validity of the authorization unless the Board decides otherwise for a justified reason. Distributions of dividend and/or assets from the reserve for invested unrestricted equity are recognized as a reduction of equity and a liability when the Board has decided on the distribution. On the date of issuing the financial statements for 2024, the total number of Nokia shares is 5 605 850 345 and, consequently, the total amount of distribution would be EUR 785 million. The total number of shares includes the shares held by the Parent Company which are not entitled to a distribution.

For the financial year 2023

The AGM in 2024 resolved to authorize the Board of Directors to decide on the distribution of an aggregate maximum of EUR 0.13 per share as dividend and/or as assets from the reserve of invested unrestricted equity for the financial year 2023. The authorization was used to distribute a dividend in four installments. During 2024, three installments of dividend were distributed amounting to EUR 0.10 per share and EUR 548 million in total. The fourth installment of EUR 0.03 per share and EUR 161 million in total was paid in February 2025. The total amount of dividend paid for the financial year 2023 was EUR 709 million.

For the financial year 2022

For the financial year 2022, a total dividend of EUR 665 million, corresponding to EUR 0.12 per share, was paid.

Share buyback programs

November 2024 program

In November 2024, Nokia launched a share buyback program to offset the dilutive effect of the acquisition of Infinera Corporation announced on 27 June 2024. The program targets to repurchase 150 million shares for an aggregate purchase price not exceeding EUR 900 million. The repurchases commenced on 25 November 2024 and will end latest by 31 December 2025. By 31 December 2024, Nokia has repurchased 19 186 046 shares under the program for an average price per share of EUR 4.14.

The repurchases will be funded using funds in the reserve for invested unrestricted equity in accordance with the authorization given to the Board of Directors by the AGM, and hence the repurchases will reduce Nokia's total unrestricted equity. The repurchased shares will be canceled.

January 2024 program

In January 2024, Nokia's Board of Directors initiated a share buyback program targeting to return up to EUR 600 million of cash to shareholders in tranches over a period of two years.

The purchases under the first phase of the program commenced on 20 March 2024. In July 2024, Nokia announced it had decided to accelerate the repurchases in a way that the whole share buyback program would be completed by the end of 2024. During the program, which ended on 21 November 2024, Nokia repurchased 157 646 220 shares. The aggregate purchase price of all shares acquired was EUR 600 million, and the average price per share was EUR 3.81.

The repurchases were funded using funds in the reserve for invested unrestricted equity, and hence the repurchases reduced Nokia's total unrestricted equity. The repurchased shares were canceled in December 2024.

The 2022 program
In February 2022, Nokia's Board of Directors initiated a share buyback program targeting to return up to EUR 600 million of cash to shareholders in tranches over a period of two years.

In the first phase of the program, which was launched on 11 February 2022 and which ended on 11 November 2022, Nokia repurchased 63 963 583 shares. The aggregate purchase price of all shares acquired in the first phase was EUR 300 million and the average price per share was EUR 4.69. The repurchased shares were canceled in December 2022.

In the second phase of the program, which was launched on 2 January 2023 and which ended on 10 November 2023, Nokia repurchased 78 301 011 shares. The aggregate purchase price of all shares acquired under the second phase of the program was EUR 300 million, and the average price per share was EUR 3.83. The repurchased shares were canceled in November 2023.

The repurchases were funded using funds in the reserve for invested unrestricted equity, and hence the repurchases reduced Nokia's total unrestricted equity.

Authorizations given to the Board of Directors

The following authorizations related to the issue and repurchase of shares were given to the Board of Directors at the AGM held on 3 April 2024.

Authorization to issue shares and special rights entitling to shares
The shareholders authorized the Board to issue a maximum of 530 million shares, corresponding to less than 10% of the total number of Nokia's shares, through issuance of shares or special rights entitling to shares in one or more issues during the effective period of the authorization. The Board is authorized to issue either new shares or shares held by Nokia. Shares and special rights entitling to shares may be issued in deviation from the shareholders' pre-emptive rights within the limits set by law. The authorization may be used to develop Nokia's capital structure, diversify the shareholder base, finance or carry out acquisitions or other arrangements, settle Nokia's equity-based incentive plans or for other purposes resolved by the Board of Directors.

The authorization is effective until 2 October 2025, and it terminated the previous authorizations to issue shares and special rights entitling to shares.

Authorization to repurchase shares
The shareholders authorized the Board to repurchase a maximum of 530 million shares, corresponding to less than 10% of the total number of Nokia's shares, using funds in the unrestricted equity, which means that the repurchases will reduce Nokia's distributable funds. The price paid for the shares under the authorization shall be based on the market price of Nokia shares on the securities markets on the date of the repurchase or a price otherwise formed in a competitive process. Shares may be repurchased to be cancelled, held to be reissued, transferred further or for other purposes resolved by the Board of Directors. The Company may enter into derivative, share lending or other arrangements customary in capital market practice. The shares may be repurchased otherwise than in proportion to the shares held by the shareholders. The Board shall resolve on all other matters related to the repurchase of Nokia shares.

The authorization is effective until 2 October 2025, and it terminated the previous authorization to repurchase shares to the extent that the Board has not previously resolved to repurchase shares based on such authorization.

Notes to the consolidated financial statements continued

5.2. Financial assets and liabilities

Accounting policies

Fair value

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Financial assets and liabilities measured at fair value are categorized based on the availability of observable inputs used to measure their fair value. Three hierarchical levels are based on an increasing amount of judgment associated with the inputs used to derive fair valuation for these assets and liabilities, Level 1 being market values for exchange traded products, Level 2 being primarily based on publicly available market information and Level 3 requiring most management judgment.

The fair value of an asset or a liability is measured using the assumptions that market participants would use when pricing the asset or liability, assuming that market participants act in their economic best interest, by using quoted market rates, discounted cash flow analyses and other appropriate valuation models. Nokia uses valuation techniques that are appropriate in the circumstances and for which sufficient data is available to measure fair value, maximizing the use of relevant observable inputs and minimizing the use of unobservable inputs. At the end of each reporting period, all financial assets and liabilities, that are either measured at fair value on a recurring basis or for which fair values are disclosed in the financial statements, are categorized within the fair value hierarchy based on the lowest level input that is significant to the fair value measurement as a whole.

Classification and measurement

Financial assets

Nokia classifies its financial assets that are debt instruments in the following three categories: financial assets measured at amortized cost, financial assets measured at fair value through other comprehensive income, and financial assets measured at fair value through profit and loss. The selection of the appropriate category is made based on both Nokia's business model for managing the financial asset and on the contractual cash flow characteristics of the asset. Equity instruments and derivative financial assets are measured at fair value through profit and loss.

Nokia's business model for managing financial assets is defined on a portfolio level. The business model must be observable on a practical level by the way the business is managed. The cash flows of financial assets measured at amortized cost are solely payments of principal and interest. These assets are held within a business model that has an objective to hold assets to collect contractual cash flows. Financial assets measured at fair value through other comprehensive income have cash flows that are solely payments of principal and interest, and these assets are held within a business model that has an objective that is achieved both by holding financial assets to collect contractual cash flows and selling financial assets. For these categories, a loss allowance is calculated on a quarterly basis based on a review of collectability (probability of default) and available collateral (loss given default) for the asset, recorded as an adjustment to the carrying amount of the asset and recognized in other financial expenses in the income statement.

Financial assets measured at fair value through profit and loss are assets that do not fall in either of the categories in the paragraph above. Additionally, the accounting for financial assets depends on whether the financial asset is part of a hedging relationship (refer to Note 5.3. Derivative and firm commitment assets and liabilities).

All purchases and sales of financial assets are recorded on the trade date, i.e. when Nokia commits to purchase or sell the asset. All financial assets are initially measured at fair value and subsequently remeasured according to their classification. Subsequently, instruments classified as fair value through profit or loss and instruments classified as fair value through other comprehensive income are remeasured at fair value, while instruments classified as amortized cost are remeasured using the effective interest rate method. For instruments classified as fair value through profit or loss, the fair value adjustments and foreign exchange gains and losses are recognized in the income statement either in other operating income and expenses or financial income and expenses as determined by the purpose of the instruments. For instruments classified as fair value through other comprehensive income, changes in fair value are recognized in the fair value reserve through other comprehensive income (refer to Note 5.1. Equity).

For instruments classified as amortized cost, interest calculated using the effective interest method, as well as foreign exchange gains and losses, are recognized in financial income and expenses in the income statement.

A financial asset is derecognized when substantially all the risks and rewards related to the financial asset have been transferred to a third party that assumes control of the asset. On derecognition of a financial asset, the difference between the carrying amount and the consideration received is recognized in the income statement either in other operating income and expenses or financial income and expenses as determined by the purpose of the instrument. The FIFO method is used to determine the cost basis of financial assets at amortized cost that are disposed of.

Financial liabilities

Nokia classifies its financial liabilities as financial liabilities measured at amortized cost except for derivative liabilities and the conditional obligation related to Nokia Shanghai Bell, which are classified as financial liabilities at fair value through profit and loss.

All financial liabilities are initially recognized at fair value and, in the case of borrowings and payables, net of transaction costs. Financial liabilities are subsequently remeasured according to their classification.

For financial liabilities measured at amortized cost, interest calculated using the effective interest method, as well as foreign exchange gains and losses, are recognized in financial income and expenses in the income statement.

Financial liabilities are derecognized when the related obligation is discharged, canceled or expired. Additionally, a substantial modification of the terms of an existing financial liability is accounted for as a derecognition of the original financial liability and the recognition of a new financial liability. On derecognition of a financial liability, the difference between the carrying amount extinguished and the consideration paid is recognized in financial income or expenses in the income statement.

Notes to the consolidated financial statements continued

Fair value of financial instruments

	2024							2023						
	Carrying amounts						Fair value[1]	Carrying amounts						Fair value[1]
		Fair value through profit or loss			Fair value through other comprehensive income[2]				Fair value through profit or loss			Fair value through other comprehensive income[2]		
EURm	Amortized cost	Level 1	Level 2	Level 3	Level 2	Total	Total	Amortized cost	Level 1	Level 2	Level 3	Level 2	Total	Total
Non-current interest-bearing financial investments	457	—	—	—	—	457	466	715	—	—	—	—	715	717
Investments in venture funds	—	—	—	865	—	865	865	—	5	—	779	—	784	784
Other non-current financial assets	179	—	97	—	40	316	316	161	—	96	—	59	316	316
Other current financial assets	315	92	—	—	25	432	432	263	—	—	—	22	285	285
Derivative assets[3]	—	—	197	—	—	197	197	—	—	134	—	—	134	134
Trade receivables[4]	—	—	—	—	5 248	5 248	5 248	—	—	—	—	4 921	4 921	4 921
Current interest-bearing financial investments	486	—	1 175	—	—	1 661	1 661	874	—	691	—	—	1 565	1 565
Cash and cash equivalents	5 251	—	1 372	—	—	6 623	6 623	4 791	—	1 443	—	—	6 234	6 234
Total financial assets	**6 688**	**92**	**2 841**	**865**	**5 313**	**15 799**	**15 808**	**6 804**	**5**	**2 364**	**779**	**5 002**	**14 954**	**14 956**
Long-term interest-bearing liabilities	2 918	—	—	—	—	2 918	2 986	3 637	—	—	—	—	3 637	3 614
Other long-term financial liabilities	33	—	—	45	—	78	78	33	—	—	28	—	61	61
Short-term interest-bearing liabilities	969	—	—	—	—	969	969	554	—	—	—	—	554	555
Other short-term financial liabilities	883	—	—	488	—	1 371	1 371	65	—	—	471	—	536	536
Derivative liabilities[3]	—	—	299	—	—	299	299	—	—	286	—	—	286	286
Discounts without performance obligations[4]	380	—	—	—	—	380	380	404	—	—	—	—	404	404
Trade payables	3 213	—	—	—	—	3 213	3 213	3 423	—	—	—	—	3 423	3 423
Total financial liabilities	**8 396**	**—**	**299**	**533**	**—**	**9 228**	**9 296**	**8 116**	**—**	**286**	**499**	**—**	**8 901**	**8 879**

(1) The following fair value measurement methods are used for items not carried at fair value: The fair values of long-term interest-bearing liabilities, including current portion, are primarily based on publicly available market information (level 2). The fair values of other assets and liabilities, including loan receivables and loans payable, are primarily based on discounted cash flow analysis (level 2). The fair value is estimated to equal the carrying amount for short-term financial assets and financial liabilities due to limited credit risk and short time to maturity.
(2) No financial instruments measured at fair value through other comprehensive income are categorized in fair value hierarchy level 1 or level 3.
(3) For further information on derivative assets and liabilities, refer to Note 5.3. Derivative and firm commitment assets and liabilities.
(4) For further information on trade receivables and discounts without performance obligation, refer to Note 4.5. Trade receivables and other customer-related balances.

Financial assets

Interest-bearing financial investments

Nokia invests a portion of the corporate cash needed to cover the projected cash outflows of its ongoing business operations in highly liquid, interest-bearing investments. Interest-bearing financial investments may include investments measured at amortized cost and investments measured at fair value through profit and loss.

Non-current interest-bearing financial investments are investments in highly liquid corporate bonds that are long-term in nature based on their initial maturity and are measured at amortized cost using the effective interest method.

Current interest-bearing financial investments in bank deposits, as well as fixed income and money market securities with an initial maturity or put feature longer than three months, that have characteristics of solely payments of principal and interest and are not part of structured investments, are managed in a portfolio with a business model of holding investments to collect principal and interest and are measured at amortized cost using the effective interest method. These investments are executed with the main purpose of collecting contractual cash flows and principal repayments. However, investments are sold from time to time for liquidity management and market risk mitigation purposes.

Current interest-bearing financial investments may also include money market funds that do not qualify as cash equivalents, investments acquired for trading purposes, investment structures consisting of securities traded in combination with derivatives with complementing and typically offsetting risk factors and other investments that have cash flows not being solely payments of principal and interest. These investments are executed for capital appreciation and other investment returns and can be sold at any time. These investments are classified as fair value through profit or loss, with fair value adjustments, foreign exchange gains and losses and realized gains and losses recognized in financial income and expenses in the income statement. The fair values of these investments are based on publicly available market information.

Corporate cash investments in bank deposits used as collateral for derivative transactions are measured at amortized cost using the effective interest method.

Other financial assets

Other non-current financial assets include unlisted private equity and unlisted venture fund investments, including investments managed by NGP Capital which specializes in growth-stage investing. These investments do not fulfill the criteria of being solely payments of principal and interest and they are classified as investments at fair value through profit and loss. The fair value of these level 3 investments is determined using one or more valuation techniques where the use of the market approach generally consists of using comparable market transactions, while the use of the income approach generally consists of calculating the net present value of expected future cash flows.

For unlisted funds, the selection of appropriate valuation techniques by the fund managing partner may depend on the availability and reliability of relevant inputs. In some cases, one valuation technique may provide the best indication of fair value while in other circumstances multiple valuation techniques may be appropriate.

Inputs generally considered include the original transaction price, recent transactions in the same or similar instruments, completed or pending third-party transactions in the underlying investment or comparable issuers, subsequent rounds of financing, recapitalizations or other transactions undertaken by the issuer, offerings in the equity or debt capital markets, and changes in financial ratios or cash flows, adjusted as appropriate for liquidity, credit, market and/or other risk factors. The fair value may be adjusted to reflect illiquidity and/or non-transferability, with the amount of such discount estimated by the managing partner in the absence of market information.

Level 3 investments are remeasured at each reporting date taking into consideration any changes in estimates, projections and assumptions, as well as any changes in economic and other relevant conditions. These investments include approximately 50 separate venture funds investing in hundreds of individual companies in various sectors and geographies, focusing on 5G, digital health, software and enterprise sectors.

Hence, specific estimates and assumptions used by managing partners in the absence of observable inputs do impact the fair value of individual investments, but no individual input has a significant impact on the aggregated fair value of level 3 investments.

Fair value adjustments, foreign exchange gains and losses, and realized gains and losses from the disposal of these investments are recognized in other operating income and expenses in the income statement.

From time to time Nokia may have investments in listed equity shares classified as level 1 investments. These are exchange traded products with quoted prices readily and regularly available from an exchange representing actual and regularly occurring market transactions on an arm's-length basis.

Other non-current financial assets also include restricted assets and other receivables, customer financing-related loan receivables (refer to note 4.5. Trade receivables and other customer-related balances) and certain other financial assets of a long-term nature.

Restricted assets and other receivables include restricted bank deposits primarily related to employee benefits as well as other loan receivables measured at amortized cost using the effective interest method.

The cash flows of certain other financial assets of a long-term nature do not fulfill the criteria of being solely payments of principal and interest. These investments are measured at fair value using quoted market rates, discounted cash flow models or other appropriate valuation methods as of the reporting date. Fair value adjustments, foreign exchange gains and losses, and realized gains and losses from the disposal of these investments are mainly recognized in financial income and expenses in the income statement.

Other current financial assets include the current part of other non-current financial assets as well as short-term loan receivables measured at amortized cost using the effective interest method.

Cash and cash equivalents

Cash and cash equivalents include cash at bank and in hand as well as highly liquid, fixed income and money market investments that are readily convertible to known amounts of cash with maturities at acquisition of three months or less, as well as bank deposits with maturities or contractual call periods at acquisition of three months or less. Due to the high credit quality and short-term nature of these investments, there is an insignificant risk of change in value. Investments in money market funds that have a risk profile consistent with the aforementioned criteria are also classified as cash equivalents.

Notes to the consolidated financial statements continued

Investments that have cash flows that are solely payments of principal and interest are measured at amortized cost using the effective interest method whereas all other investments are classified as fair value through profit and loss, with fair value adjustments and foreign exchange gains and losses recognized in financial income and expenses in the income statement. The fair values of these investments are based on publicly available market information.

Financial liabilities

Interest-bearing liabilities
Long-term and short-term interest-bearing liabilities are measured at amortized cost using the effective interest method. Long-term and short-term interest-bearing liabilities include issued bonds and other borrowings. Short-term interest-bearing liabilities also include the current portion of long-term interest-bearing liabilities and collaterals for derivative transactions.

Other financial liabilities
Other financial liabilities include a liability related to Nokia's share buyback program reflecting Nokia's commitment under the agreement with a third-party broker conducting the share repurchases on Nokia's behalf.

Other financial liabilities also include a liability for acquiring China Huaxin's ownership interest in Nokia Shanghai Bell. This financial liability is measured based on the expected future cash settlement with any changes recorded in financial income and expenses in the income statement. The measurement of this level 3 financial liability involves estimation of the acquisition price and the distribution of excess cash balances. Unobservable valuation inputs include certain financial performance metrics of Nokia Shanghai Bell. No individual input has a significant impact on the total fair value.

Trade payables
Trade payables are carried at invoiced amount in the statement of financial position. Trade payables include balances payable to suppliers under reverse factoring arrangements with financial institutions. These balances are classified as trade payables and the related payments as cash flows from operating activities (refer to Note 5.4. Financial risk management).

Interest-bearing loans and other borrowings

All borrowings presented in the table below are senior unsecured and have no financial covenants.

					Carrying amount EURm[1]	
Issuer/borrower	**Instrument**	**Currency**	**Nominal (million)**	**Final maturity**	**2024**	**2023**
Nokia Corporation	2.00% Senior Notes	EUR	378	3/2024	—	375
Nokia Corporation	EIB R&D Loan	EUR	500	2/2025	500	500
Nokia Corporation	NIB R&D Loan	EUR	83	5/2025	83	167
Nokia Corporation	2.375% Senior Notes	EUR	292	5/2025	292	289
Nokia Corporation	2.00% Senior Notes	EUR	630	3/2026	624	614
Nokia Corporation	4.375% Senior Notes	USD	500	6/2027	458	430
Nokia of America Corporation	6.50% Senior Notes	USD	74	1/2028	71	67
Nokia Corporation	3.125% Senior Notes	EUR	500	5/2028	487	479
Nokia of America Corporation	6.45% Senior Notes	USD	206	3/2029	199	187
Nokia Corporation	4.375% Sustainability-linked Senior Notes[2]	EUR	500	8/2031	513	510
Nokia Corporation	NIB R&D Loan[3]	EUR	100	10/2032	100	—
Nokia Corporation	6.625% Senior Notes	USD	500	5/2039	455	463
Nokia Corporation and various subsidiaries	Other borrowings				105	110
Total					**3 887**	**4 191**

(1) Carrying amount includes EUR 46 million of fair value losses (EUR 31 million in 2023) related to fair value hedge accounting relationships, including EUR 137 million of fair value gains (EUR 156 million in 2023) related to discontinued fair value hedge accounting relationships that are amortized over the life of the respective senior notes.
(2) The bond has a one-time redemption premium at maturity of EUR 4 million in case Nokia does not meet its commitment to reduce its greenhouse gas (GHG) emissions (in tCO_2e) across its value chain (Scope 1, 2, and 3) by 50% between 2019 and 2030. This target is one of Nokia's key sustainability targets and has been selected to be the Sustainability Performance Target in Nokia's Sustainable Finance Framework that enables the issuance of sustainability-linked financing instruments.
(3) In October 2024, Nokia signed a loan facility agreement of EUR 250 million with the Nordic Investment Bank (NIB) for financing research and development of 5G and 6G technology. As of 31 December 2024, EUR 100 million has been drawn from the facility and is repayable in two equal installments in 2031 and 2032. The availability period of the remaining loan facility of EUR 150 million ends in April 2025.

Changes in level 3 financial assets and liabilities measured at fair value for continuing operations

	2024		2023	
EURm	**Financial assets**	**Financial liabilities**	**Financial assets**	**Financial liabilities**
1 January	**779**	**(499)**	**823**	**(550)**
Net gains/(losses) in income statement	40	(25)	(76)	31
Additions[1]	96	(13)	56	—
Deductions[1]	(45)	16	(24)	19
Transfers out of level 3	(5)	—	—	—
Other movements	—	(12)	—	1
31 December	**865**	**(533)**	**779**	**(499)**

(1) For level 3 financial assets, additions mainly include capital contributions to venture funds and deductions mainly include distributions from venture funds.

A net gain of EUR 17 million (net loss of EUR 42 million in 2023) related to level 3 financial instruments held at 31 December was included in the profit and loss during 2024.

Notes to the consolidated financial statements continued

5.3. Derivative and firm commitment assets and liabilities

Accounting policies

Fair value
All derivatives are recognized initially at fair value on the date a derivative contract is entered into and subsequently remeasured at fair value. The method of recognizing the resulting gain or loss varies according to whether the derivatives are designated and qualify under hedge accounting.

Foreign exchange forward contracts are valued at market-forward exchange rates. Changes in fair value are measured by comparing these rates with the original contract-forward rate. Currency options are valued at each reporting date by using the Garman & Kohlhagen option valuation model. Interest rate swaps and cross-currency swaps are valued using the discounted cash flow method.

Hedge accounting
Nokia applies hedge accounting on certain foreign exchange forward contracts, options or option strategies, and interest rate derivatives. Qualifying options and option strategies have zero net premium, or a net premium paid. For option structures, the critical terms of the purchased and written options are the same and the notional amount of the written option component is not greater than that of the purchased option.

In the fair valuation of foreign exchange forward contracts, Nokia separates the forward element and considers it to be the cost of hedging for foreign exchange forward contracts. In the fair valuation of foreign exchange option contracts, Nokia separates the time value and considers it to be the cost of hedging for foreign exchange option contracts. In the fair valuation of cross-currency swaps, Nokia separates the foreign currency basis spread and considers it to be the cost of hedging for cross-currency swaps.

Hedge effectiveness is assessed at inception and subsequently on a quarterly basis during the hedge relationship to ensure that an economic relationship exists. As Nokia only enters in hedge relationships where the critical terms match, the assessment of effectiveness is done on a qualitative basis with no significant ineffectiveness expected.

Presentation in the statement of cash flows
The cash flows of a hedge are classified as cash flows from operating activities in cases where the underlying hedged items relate to Nokia's operating activities. When a derivative contract is accounted for as a hedge of an identifiable position relating to financing or investing activities, the cash flows of the contract are classified in the same way as the cash flows of the position being hedged. Cash flows of derivatives used in hedging the foreign exchange risk of Nokia's cash position are presented in cash flows from investing activities.

Cash flow hedges: hedging of forecast foreign currency denominated sales and purchases
Nokia applies cash flow hedge accounting primarily to foreign exchange exposure that arises from highly probable forecast operative business transactions. The risk management strategy is to hedge material net exposures (identified standard net sales exposure minus identified standard costs exposure) by using foreign exchange forwards and foreign exchange options in a layered hedging style that follows defined hedging level ranges and hedge maturities in quarterly time buckets. The hedged item must be highly probable and present an exposure to variations in cash flows that could ultimately affect profit or loss.

For qualifying foreign exchange forwards and foreign exchange options, the change in fair value that reflects the change in spot exchange rates on a discounted basis is recognized in hedging reserve through other comprehensive income (refer to Note 5.1. Equity). The changes in the forward element of the foreign exchange forwards and the time value of the options that relate to hedged items are deferred in the cost of hedging reserve through other comprehensive income (refer to Note 5.1. Equity) and are subsequently accounted for in the same way as the spot element or intrinsic value.

In each quarter, Nokia evaluates whether the forecast sales and purchases are still expected to occur. If a portion of the hedged cash flow is no longer expected to occur, the hedge accounting criteria are no longer met and all related deferred gains or losses are derecognized from fair value and other reserves and recognized in other operating income and expenses in the income statement.

If the hedged cash flow ceases to be highly probable, but is still expected to occur, accumulated gains and losses remain in fair value and other reserves until the hedged cash flow affects profit or loss.

Nokia's risk management objective is to hedge forecast cash flows until the related revenue has been recognized. Each hedge relationship is discontinued during the quarter when the hedge matures, which is also the quarter that it had been designated to hedge. At this point, the accumulated gain or loss of cash flow hedges is reclassified to other operating income and expenses in the income statement. In cases where the forecast amount of revenue is not recognized during a quarter, the full accumulated gain or loss of cash flow hedges designated for said quarter is still reclassified and the portion related to forecast revenue that was not recognized is disclosed as hedge ineffectiveness.

As cash flow hedges primarily mature in the same quarter as the hedged item, there is no significant ineffectiveness resulting from the time value of money. Nokia will validate the magnitude of the impact of discounting related to the amount of gain or loss recognized in fair value and other reserves on a quarterly basis.

Cash flow and fair value hedges: hedging of foreign exchange risk of future interest cash flows
Nokia also applies cash flow hedging to future interest cash flows in foreign currency related to issued bonds. These future interest cash flows are hedged with cross-currency swaps that have been bifurcated and designated partly as fair value hedges (see Fair value hedges: hedging of interest rate exposure below) to hedge both the foreign exchange and interest rate benchmark risk component of the issued bond, and partly as cash flow hedges to hedge the foreign exchange risk related to the remaining portion of interest cash flows on the issued bond. The accumulated gain or loss for the part of these cross-currency swaps designated as cash flow hedges is initially recorded in hedging reserve through other comprehensive income and reclassified to profit or loss at the time when the related interest cash flows are settled.

Notes to the consolidated financial statements continued

Fair value hedges: hedging of interest rate exposure
Nokia applies fair value hedge accounting to reduce exposure to fair value fluctuations of interest-bearing liabilities due to changes in interest rates and foreign exchange rates. Nokia uses interest rate swaps and cross-currency swaps aligned with the hedged items to hedge interest rate risk and associated foreign exchange risk.

Nokia has entered into long-term borrowings mainly at fixed rates and has swapped most of them into floating rates in line with a defined target interest profile. Nokia aims to mitigate the adverse impacts from interest rate fluctuations by continuously managing net interest exposure resulting from financial assets and liabilities by setting appropriate risk management benchmarks and risk limits. The hedged item is identified as a proportion of the outstanding loans up to the notional amount of the swaps as appropriate to achieve the risk management objective. Nokia enters into interest rate swaps that have similar critical terms to the hedged item, such as reference rate, reset dates, payment dates, maturities and notional amount and hence Nokia expects that there will be no significant ineffectiveness. Nokia has not entered into interest rate swaps where it would be paying fixed rates.

Nokia's borrowings are carried at amortized cost. Changes in the fair value of derivatives designated and qualifying as fair value hedges, together with any changes in the fair value of hedged liabilities attributable to the hedged risk, are recorded in financial income and expenses in the income statement. Nokia separates the foreign currency basis spread from cross-currency swaps and excludes it from the hedged risk as cost of hedging that is initially recognized and subsequently measured at fair value and recorded in the cost of hedging reserve through other comprehensive income. If a hedge relationship no longer meets the criteria for hedge accounting, hedge accounting ceases, the cost of hedging recorded in the cost of hedging reserve is immediately expensed and any fair value adjustments made to the carrying amount of the hedged item while the hedge was effective are recognized in financial income and expenses in the income statement based on the effective interest method.

Fair value hedges: hedging of foreign exchange exposure
In certain cases, related to long-term construction projects within the Submarine Networks business which is presented as discontinued operations, Nokia applied fair value hedge accounting for foreign exchange risk with the objective to reduce the exposure to fluctuations in the fair value of firm commitments due to changes in foreign exchange rates. The change in fair value that reflect the change in spot exchange rates of the foreign exchange forwards designated and qualifying as fair value hedges, together with any changes in the fair value of the hedged firm commitments attributable to the hedged risk, were recorded in financial income and expenses in discontinued operations.

At the end of the hedge relationship, the accumulated changes in the spot element of qualifying fair value hedges were recorded as adjustments to net sales or cost of sales in discontinued operations according to the hedge designation. The changes in the forward element of the foreign exchange forwards that relate to hedged items were deferred in the cost of hedging reserve through other comprehensive income and reclassified to other operating income and expenses in discontinued operations at the end of the hedge relationship.

Hedges of net investments in foreign operations
Nokia applies hedge accounting for its foreign currency hedging of selected net investments. The hedged item can be an amount equal to or less than the carrying amount of the net assets of the foreign operation in the statement of financial position. The risk management strategy is to protect the euro counter value of the portion of this exposure expected to materialize as non-euro cash repatriation in the foreseeable future.

For qualifying foreign exchange forwards, foreign exchange options and option strategies, the change in fair value that reflects the change in spot exchange rates is recognized in translation differences in shareholders' equity (refer to Note 5.1. Equity). The changes in the forward element of foreign exchange forwards as well as the changes in the time value of options (collectively known as the "cost of hedging") is recognized in the cost of hedging reserve through other comprehensive income. The cost of hedging at the date of designation of the foreign exchange forward or option contract as a hedging instrument is amortized to financial income and expenses in the income statement over the duration of the contract. Hence, in each reporting period, the change in fair value of the forward element of the foreign exchange forward contract or the time value of the option contract is recorded in the cost of hedging reserve through other comprehensive income, while the amortization amount is reclassified from the cost of hedging reserve to profit or loss.

The cumulative amount or proportionate share of changes in the fair value of qualifying hedges deferred in translation differences is recognized as gain or loss on disposal of all or part of a foreign subsidiary.

Derivatives not designated in hedge accounting relationships carried at fair value through profit and loss
For derivatives not designated under hedge accounting, but hedging identifiable forecast exposures such as anticipated foreign currency denominated sales and purchases, the gains and losses are recognized in other operating income and expenses in the income statement. The gains and losses on all other derivatives not designated under hedge accounting are recognized in financial income and expenses.

Embedded derivatives included in contracts are identified and monitored by Nokia. For host contracts that are not financial assets containing embedded derivatives that are not closely related, the embedded derivatives are separated and measured at fair value at each reporting date with changes in fair value recognized in financial income and expenses in the income statement. For host contracts that are financial assets containing embedded derivatives, the whole contract is measured at fair value at each reporting date with changes in fair value recognized in financial income and expenses in the income statement.

Notes to the consolidated financial statements continued

Derivatives and firm commitments

	2024				2023			
	Assets		Liabilities		Assets		Liabilities	
EURm	Fair value[1]	Notional[2]	Fair value[1]	Notional[2]	Fair value[1]	Notional[2]	Fair value[1]	Notional[2]
Cash flow hedges								
Foreign exchange forward contracts	7	381	(19)	733	26	1 206	(19)	1 039
Currency options bought	—	90	—	—	3	466	—	—
Currency options sold	—	—	—	—	—	—	—	23
Fuel hedges	—	—	—	—	—	—	(1)	50
Cash flow and fair value hedges[3]								
Cross-currency swaps	15	241	(97)	722	—	—	(144)	905
Fair value hedges								
Interest rate swaps	28	1 130	(10)	792	24	1 195	(28)	1 105
Foreign exchange forward contracts	—	—	—	—	14	627	(59)	1 337
Firm commitments	—	—	—	—	22	1 788	(9)	434
Hedges on net investment in foreign subsidiaries								
Foreign exchange forward contracts	3	527	(8)	971	6	1 111	—	81
Derivatives not designated in hedge accounting relationships carried at fair value through profit and loss								
Foreign exchange forward contracts	110	7 129	(165)	6 124	58	6 889	(35)	6 012
Currency options bought	15	770	—	—	—	10	—	—
Embedded derivatives[4]	19	996	—	—	3	620	—	—
Other derivatives	—	—	—	—	—	12	—	—
Total	**197**	**11 264**	**(299)**	**9 342**	**156**	**13 924**	**(295)**	**10 986**

(1) Included in other current financial and firm commitment assets and other financial and firm commitment liabilities in the statement of financial position.
(2) Includes the gross amount of all notional values for contracts that have not yet been settled or canceled. The amount of notional value outstanding is not necessarily a measure or indication of market risk as the exposure of certain contracts may be offset by that of other contracts.
(3) Cross-currency swaps have been designated partly as fair value hedges and partly as cash flow hedges.
(4) Embedded derivatives are related to customer contracts.

To manage interest rate and foreign exchange risks related to Nokia's interest-bearing liabilities, Nokia has designated the following cross-currency swaps as hedges under both fair value hedge accounting and cash flow hedge accounting, and interest rate swaps as hedges under fair value hedge accounting at 31 December:

				Notional (million in currency)		Fair value EURm	
Entity	Instrument	Currency	Maturity	2024	2023	2024	2023
Nokia Corporation	Interest rate swaps	EUR	3/2024	—	378	—	2
Nokia Corporation	Interest rate swaps	EUR	5/2025	292	292	3	—
Nokia Corporation	Interest rate swaps	EUR	3/2026	630	630	(1)	(13)
Nokia Corporation	Cross-currency swaps	USD	6/2027	500	500	9	(28)
Nokia Corporation	Interest rate swaps	EUR	5/2028	500	500	(7)	(13)
Nokia Corporation	Interest rate swaps	EUR	8/2031	500	500	22	20
Nokia Corporation	Cross-currency swaps	USD	5/2039	500	500	(92)	(116)
Total						**(66)**	**(148)**

5.4. Financial risk management

General risk management principles

Nokia has a systematic and structured approach to risk management. Key risks and opportunities are primarily identified against business targets either in business operations or as an integral part of strategy and financial planning. Risk management covers strategic, operational, financial, compliance and reputational risks. Key risks and opportunities are analyzed, managed and monitored as part of business performance management. The principles documented in the Nokia Enterprise Risk Management Policy, which is approved by the Audit Committee of the Board, require risk management and its elements to be integrated into key processes. One of the core principles is that the business or function head is also the risk owner, although all employees are responsible for identifying, analyzing and managing risks, as appropriate, given their roles and duties. Nokia's overall risk management concept is based on managing the key risks that would prevent Nokia from meeting its objectives, rather than focusing on eliminating risks. In addition to the principles defined in the Nokia Enterprise Risk Management Policy, other key policies and operating procedures reflect the implementation of specific aspects of risk management, including financial risk management.

Financial risks

The objective for treasury activities is to guarantee sufficient funding at all times and to identify, evaluate and manage financial risks. Treasury activities support this aim by mitigating the adverse effects on the profitability of the underlying business caused by fluctuations in the financial markets, and by managing the capital structure by balancing the levels of liquid assets and financial borrowings. Treasury activities are governed by the Nokia Treasury Policy approved by the President and CEO, which provides principles for overall financial risk management and determines the allocation of responsibilities for financial risk management activities. Operating procedures approved by the Chief Financial Officer (CFO) cover specific areas such as foreign exchange risk, interest rate risk, credit risk and liquidity risk, as well as the use of derivative financial instruments in managing these risks. Nokia is risk averse in its treasury activities.

Financial risks are divided into market risk covering foreign exchange risk and interest rate risk, financial credit risk, and liquidity risk.

Market risk

Foreign exchange risk

Nokia operates globally and is exposed to transaction and translation foreign exchange risks. The objective of foreign exchange risk management is to mitigate adverse impacts from foreign exchange fluctuations on Nokia's profitability and cash flows. Treasury applies a global portfolio approach to manage foreign exchange risks within approved guidelines and limits.

Transaction risk arises from foreign currency denominated assets and liabilities together with foreign currency denominated future cash flows. Transaction exposures are managed in the context of various functional currencies of Group companies. Material transactional foreign exchange exposures are hedged, unless hedging would be uneconomical due to market liquidity and/or hedging cost. Exposures are defined using transaction nominal values. Exposures are mainly hedged with derivative financial instruments, such as foreign exchange forward contracts and foreign exchange options with most of the hedging instruments having a duration of less than a year.

A layered hedging approach is typically used for hedging of highly probable forecast foreign currency denominated cash flows with quarterly hedged items defined based on set hedge ratio ranges for each successive quarter. Hedged items defined for successive quarters are hedged with foreign exchange forward contracts and foreign exchange options with a hedge ratio of 1:1. Hedging level ranges are adjusted on a monthly basis including hedging instrument designation and documentation as appropriate. In cases where hedges exceed the hedge ratio range for any specific quarter, the hedge portfolio for that specific quarter is adjusted accordingly.

In certain cases, mainly related to long-term construction projects within Submarine Networks business which is presented as a discontinued operation, Nokia applies fair value hedge accounting for foreign exchange risk with the objective to reduce the exposure to fluctuations in the fair value of the related firm commitments due to changes in foreign exchange rates. Exposures are mainly hedged with foreign exchange forward contracts with most of the hedging instruments matching the duration of the underlying projects. Nokia continuously manages the portfolio of hedging instruments to ensure appropriate alignment with the portfolio of hedged items at a hedging ratio of 1:1.

As Nokia has entities where the functional currency is other than the euro, the shareholders' equity is exposed to fluctuations in foreign exchange rates. Changes in shareholders' equity caused by movements in foreign exchange rates are shown as currency translation differences in the consolidated financial statements. The risk management strategy is to protect the euro counter value of the portion of this exposure expected to materialize as foreign currency repatriation cash flows in the foreseeable future. Exposures are mainly hedged with derivative financial instruments, such as foreign exchange forward contracts and foreign exchange options with most of the hedging instruments having a duration of less than a year. Hedged items are defined based on conservative expectations of repatriation cash flows based on a range of considerations. Net investment exposures are reviewed, hedged items designated, and hedging levels adjusted at minimum on a quarterly basis with a hedge ratio of 1:1. Additionally, hedging levels are adjusted whenever there are significant events impacting expected repatriation cash flows.

The foreign exchange risk arising from foreign currency denominated interest-bearing liabilities is primarily hedged using cross-currency swaps that are also used to manage Nokia's interest rate profile (refer to the interest rate risk section below).

Notes to the consolidated financial statements continued

Notional amounts in currencies that represent a significant portion of the currency mix in outstanding financial instruments and other hedged items at 31 December:

EURm	USD	CNY	INR	GBP
2024				
Foreign exchange exposure designated as hedged item for cash flow hedging, net[1]	450	(220)	(175)	222
Foreign exchange exposure designated as hedged item for net investment hedging[3]	135	783	208	152
Foreign exchange exposure from interest-bearing liabilities[4]	(786)	—	—	—
Foreign exchange exposure from items on the statement of financial position, excluding interest-bearing liabilities, net	961	(822)	(718)	(100)
Other foreign exchange derivatives, carried at fair value through profit and loss, net[5]	735	813	200	83
2023				
Foreign exchange exposure designated as hedged item for cash flow hedging, net[1]	606	(232)	(153)	36
Foreign exchange exposure designated as hedged item for fair value hedging for FX risk, net[2]	1 354	—	—	—
Foreign exchange exposure designated as hedged item for net investment hedging[3]	—	788	184	106
Foreign exchange exposure from interest-bearing liabilities[4]	(750)	—	—	—
Foreign exchange exposure from items on the statement of financial position, excluding interest-bearing liabilities, net	2 475	(804)	(346)	(52)
Other foreign exchange derivatives, carried at fair value through profit and loss, net[5]	(205)	720	(38)	108

(1) Includes foreign exchange exposure from forecast cash flows related to sales and purchases. In some currencies, especially the US dollar, Nokia has substantial foreign exchange exposures in both estimated cash inflows and outflows. These underlying exposures have been hedged.
(2) Includes foreign exchange exposure from contractual firm commitments. These underlying exposures have been substantially hedged.
(3) Includes net investment exposures in foreign operations. These underlying exposures have been hedged.
(4) Includes interest-bearing liabilities that have been hedged with cross-currency swaps and foreign exchange forwards. Refer to Note 5.3. Derivative and firm commitment assets and liabilities.
(5) Items on the statement of financial position are hedged by a portion of foreign exchange derivatives not designated in a hedge relationship and carried at fair value through profit and loss. Embedded derivatives are included in this line item.

Effects of hedge accounting on the financial position and performance

Nokia is using several types of hedge accounting programs to manage its foreign exchange and interest rate risk exposures; refer to Note 5.3. Derivative and firm commitment assets and liabilities. The effect of these programs on Nokia's financial position and performance at 31 December:

EURm	Cash flow hedges[1]	Net investment hedges[1]	Fair value hedges for FX risk[1]	Fair value and cash flow hedges[1]
2024				
Carrying amount of hedging instruments	(12)	(5)	—	(88)
Notional amount of hedging instruments	(1 043)	(1 498)	—	2 885
Notional amount of hedged items	1 043	1 498	—	(2 885)
Change in intrinsic value of hedging instruments since 1 January	(3)	(39)	—	10
Change in value of hedged items used to determine hedge effectiveness	6	39	—	(13)
2023				
Carrying amount of hedging instruments	2	5	(45)	(174)
Notional amount of hedging instruments	(968)	(1 166)	(1 354)	3 205
Notional amount of hedged items	968	1 166	1 354	(3 205)
Change in intrinsic value of hedging instruments since 1 January	22	132	40	89
Change in value of hedged items used to determine hedge effectiveness	(15)	(132)	(42)	(93)

(1) No significant ineffectiveness has been recorded during the periods presented and economic relationships have been fully effective.

Notes to the consolidated financial statements continued

The methodology for assessing foreign exchange risk exposures: Value-at-Risk

Nokia uses the Value-at-Risk (VaR) methodology to assess exposures to foreign exchange risks. The VaR-based methodology provides estimates of potential fair value losses in market risk-sensitive instruments as a result of adverse changes in specified market factors, at a specified confidence level over a defined holding period. Nokia calculates the foreign exchange VaR using the Monte Carlo method, which simulates random values for exchange rates in which Nokia has exposures and takes the non-linear price function of certain derivative instruments into account. The VaR is determined using volatilities and correlations of rates and prices estimated from a sample of historical market data, at a 95% confidence level, using a one-month holding period. To put more weight on recent market conditions, an exponentially weighted moving average is performed on the data with an appropriate decay factor. This model implies that, within a one-month period, the potential loss will not exceed the VaR estimate in 95% of possible outcomes.

In the remaining 5% of possible outcomes, the potential loss will be at minimum equal to the VaR figure and, on average, substantially higher. The VaR methodology relies on a number of assumptions, which include the following: risks are measured under average market conditions, changes in market risk factors follow normal distributions, future movements in market risk factors are in line with estimated parameters and the assessed exposures do not change during the holding period. Thus, it is possible that, for any given month, the potential losses at a 95% confidence level are different and could be substantially higher than the estimated VaR.

The VaR calculation includes foreign currency denominated monetary financial instruments, such as current financial investments, loans and trade receivables, cash, and loans and trade payables; foreign exchange derivatives carried at fair value through profit and loss that are not in a hedge relationship and are mostly used to hedge the statement of financial position foreign exchange exposure, as well as embedded derivatives; and foreign exchange derivatives designated as forecast cash flow hedges, fair value hedges and net investment hedges as well as the exposures designated, as hedged items for these hedge relationships.

The VaR risk measures for Nokia's sensitivity to foreign exchange risks are presented in the Total VaR column and the simulated impact to financial statements is presented in the profit, other comprehensive income (OCI) and cumulative translation adjustment (CTA) columns in the table below.

	2024				2023			
		Simulated impact on financial statements				Simulated impact on financial statements		
EURm	Total VaR	Profit	OCI	CTA	Total VaR	Profit	OCI	CTA
31 December	36	40	23	—	72	67	18	—
Average for the year	19	15	21	—	32	25	23	—
Range for the year	8-36	9-40	11-25	0-0	19-72	12-67	9-40	0-0

The most significant foreign exchange hedging instruments under cash flow, net investment and fair value hedge accounting at 31 December:

				Maturity breakdown of notional amounts (EURm)[1]				
	Currency	Fair value (EURm)	Weighted average hedged rate	Total	Within 3 months	Between 3 and 12 months	Between 1 and 3 years	Beyond 3 years
2024								
Cash flow hedge accounting	GBP	(5)	0.8423	(222)	(69)	(153)	—	—
	USD	(11)	1.0670	(459)	(170)	(289)	—	—
Net investment hedge accounting	CNY	(6)	7.6474	(783)	(783)	—	—	—
	INR	—	88.8518	(208)	(186)	(22)	—	—
2023								
Cash flow hedge accounting	GBP	(1)	0.8640	(219)	(63)	(156)	—	—
	USD	5	1.0881	(860)	(231)	(629)	—	—
	USD	(2)	1.0832	257	—	119	131	7
Net investment hedge accounting	CNY	4	7.8152	(788)	(788)	—	—	—
Fair value hedge accounting for FX risk	USD	(45)	1.1196	(1 354)	(427)	(301)	(616)	(10)

(1) Negative notional amounts indicate that hedges sell currency, and positive notional amounts indicate that hedges buy currency.

Notes to the consolidated financial statements continued

Interest rate risk

Nokia is exposed to interest rate risk either through market value fluctuations of items on the statement of financial position (price risk) or through changes in interest income or expenses (refinancing or reinvestment risk). Interest rate risk mainly arises through interest-bearing liabilities and assets. Estimated future changes in cash flows and the structure of the statement of financial position also expose Nokia to interest rate risk.

The objective of interest rate risk management is to mitigate adverse impacts arising from interest rate fluctuations on the income statement, cash flow and financial assets and liabilities while taking into consideration Nokia's target capital structure and the resulting net interest rate exposure. Nokia has entered into long-term borrowings mainly at fixed rates and swapped most of them into floating rates, in line with a defined target interest profile. Nokia has not entered into interest rate swaps where it would be paying fixed rates. Nokia aims to mitigate the adverse impacts from interest rate fluctuations by continuously managing net interest rate exposure arising from financial assets and liabilities, by setting appropriate risk management benchmarks and risk limits.

Treasury monitors and manages interest rate exposure centrally. Nokia uses selective sensitivity analyses to assess and measure interest rate exposure arising from interest-bearing assets, interest-bearing liabilities and related derivatives. Sensitivity analysis determines an estimate of potential fair value changes in market risk-sensitive instruments by varying interest rates in currencies in which Nokia has material amounts of financial assets and liabilities while keeping all other variables constant.

Sensitivities to credit spreads are not reflected in the sensitivity analysis.

Interest rate profile of items under interest rate risk management at 31 December:

	2024		2023	
EURm	Fixed rate	Floating rate[1]	Fixed rate	Floating rate[1]
Non-current interest-bearing financial investments	457	—	715	—
Current interest-bearing financial investments	133	1 528	510	1 055
Cash and cash equivalents	54	6 569	55	6 179
Interest-bearing liabilities	(3 150)	(737)	(3 483)	(708)
Financial assets and liabilities before derivatives	**(2 506)**	**7 360**	**(2 203)**	**6 526**
Interest rate derivatives	2 820	(2 820)	3 057	(3 057)
Financial assets and liabilities after derivatives	**314**	**4 540**	**854**	**3 469**

(1) All cash equivalents and derivative transaction-related collaterals with initial maturity of three months or less are considered floating rate for the purposes of interest rate risk management.

Nokia's sensitivity to interest rate exposure in the investment and debt portfolios is presented in the fair value column in the table below with simulated impact to the financial statements presented in the profit and other comprehensive income (OCI) columns.

	2024			2023		
EURm	Impact on fair value	Impact on profit	Impact on OCI	Impact on fair value	Impact on profit	Impact on OCI
Interest rates - increase by 100 basis points	3	4	—	(6)	3	1
Interest rates - decrease by 100 basis points	(2)	(5)	—	8	(4)	(1)

Notes to the consolidated financial statements continued

Credit risk

Credit risk refers to the risk that a counterparty will default on its contractual obligations resulting in financial loss to Nokia. Credit risk arises from credit exposures to customers, including outstanding receivables, financial guarantees and committed transactions, as well as financial institutions, including bank and cash, fixed income and money market investments, and derivative financial instruments. Credit risk is managed separately for business-related and financial credit exposures.

Financial instruments contain an element of risk resulting from changes in the market price due to counterparties becoming less creditworthy or risk of loss due to counterparties being unable to meet their obligations. Financial credit risk is measured and monitored centrally by Treasury. Financial credit risk is managed actively by limiting counterparties to a sufficient number of major banks and financial institutions, and by monitoring the creditworthiness and the size of exposures continuously. Additionally, Nokia enters into netting arrangements with all major counterparties, which give the right to offset in the event that the counterparty would not be able to fulfill its obligations. Nokia enters into collateral agreements with most counterparties, which require counterparties to post collateral against derivative receivables.

Investment decisions are based on strict creditworthiness and maturity criteria as defined in the Treasury-related policies and procedures. As a result of this investment policy approach and active management of outstanding investment exposures, Nokia has not been subject to any material credit losses in its financial investments in the years presented. Due to the high credit quality of Nokia's financial investments, the expected credit loss for these investments is deemed insignificant based on 12 months' expected credit losses at 31 December 2024. For information on expected credit losses for customer-related balances, refer to Note 4.5. Trade receivables and other customer-related balances.

Nokia has restricted bank deposits primarily related to employee benefits of EUR 114 million (EUR 119 million in 2023) that are presented in other non-current financial assets. Nokia has assessed the counterparty credit risk for these financial assets and concluded that expected credit losses are not significant.

Outstanding non-current and current interest-bearing financial investments, cash equivalents and cash classified by credit rating grades ranked in line with S&P Global Ratings categories at 31 December:

			Cash equivalents and interest-bearing financial investments					
EURm	Rating[1]	Cash	Due within 3 months	Due between 3 and 12 months	Due between 1 and 3 years	Due between 3 and 5 years	Due beyond 5 years	Total[2][3]
2024	AAA	—	1 496	—	8	—	—	1 504
	AA+ – AA-	720	727	12	27	6	—	1 492
	A+ – A-	2 004	2 346	380	241	157	102	5 230
	BBB+ – BBB-	48	244	15	63	26	—	396
	Other	117	2	—	—	—	—	119
Total		**2 889**	**4 815**	**407**	**339**	**189**	**102**	**8 741**
2023	AAA	—	1 443	25	—	—	—	1 468
	AA+ – AA-	1 042	149	74	—	8	—	1 273
	A+ – A-	2 183	1 340	301	255	245	23	4 347
	BBB+ – BBB-	456	242	134	230	227	—	1 289
	Other	133	4	—	—	—	—	137
Total		**3 814**	**3 178**	**534**	**485**	**480**	**23**	**8 514**

(1) Bank Parent Company ratings are used here for bank groups. Actual bank subsidiary ratings may differ from the Bank Parent Company rating.
(2) Non-current and current interest-bearing financial investments and cash equivalents include bank deposits, structured deposits, investments in money market funds and investments in fixed income instruments.
(3) Instruments that include a call feature have been presented at their final maturities. Instruments that are contractually due beyond three months include EUR 306 million (EUR 332 million in 2023) of instruments that have a call period of less than three months.

The following table sets out financial assets and liabilities subject to offsetting under enforceable master netting agreements and similar arrangements at 31 December. To reconcile the items presented to the statement of financial position, items that are not subject to offsetting would need to be included, refer to Note 5.3. Derivative and firm commitment assets and liabilities.

		Related amounts not set off in the statement of financial position		
EURm	Net amounts of financial assets/ (liabilities) presented in the statement of financial position	Financial instruments assets/(liabilities)	Cash collateral (received)/pledged	Net amount
2024				
Derivative assets	178	(143)	(33)	2
Derivative liabilities	(296)	143	147	(6)
Total	**(118)**	**—**	**114**	**(4)**
2023				
Derivative assets	131	(115)	(15)	1
Derivative liabilities	(285)	115	164	(6)
Total	**(154)**	**—**	**149**	**(5)**

The financial instruments subject to enforceable master netting agreements and similar arrangements are not offset in the statement of financial position as there is no intention to settle net or realize the asset and settle the liability simultaneously.

Notes to the consolidated financial statements continued

Liquidity risk

Liquidity risk is defined as financial distress or extraordinarily high financing costs arising from a shortage of liquid funds in a situation where outstanding debt needs to be refinanced or where business conditions unexpectedly deteriorate and require financing. Transactional liquidity risk is defined as the risk of executing a financial transaction below fair market value or not being able to execute the transaction at all within a specific period of time. The objective of liquidity risk management is to maintain sufficient liquidity, and to ensure that it is readily available without endangering its value in order to avoid uncertainty related to financial distress at all times.

Nokia aims to secure sufficient liquidity at all times through efficient cash management and by investing primarily in highly liquid money market investments. Depending on its overall liquidity position, Nokia may pre-finance or refinance upcoming debt maturities before contractual maturity dates. The transactional liquidity risk is minimized by entering into transactions where proper two-way quotes can be obtained from the market. Nokia aims to ensure flexibility in funding by maintaining committed and uncommitted credit lines.

Nokia's trade payables include balances payable to suppliers under reverse factoring arrangements with financial institutions. These balances are classified as trade payables since the payments are made to the banks on very similar terms as to suppliers. Possible extensions to payment terms beyond the due dates agreed with suppliers are insignificant and there are no special guarantees securing the payments to be made. These arrangements do not result in a significant liquidity risk given the limited amount of liabilities subject to supplier finance arrangements and Nokia's access to other sources of finance.

Liabilities under supplier finance arrangements at 31 December:

Carrying amount of liabilities (EURm)	2024
Presented within trade and other payables	564
Of which suppliers have received payment	250

Range of payment due dates after invoice date (days)	2024
Liabilities that are part of the arrangements	60-90
Comparable trade payables that are not part of an arrangement	30-120

Nokia's significant credit facilities and funding programs at 31 December:

Committed/uncommitted	Financing arrangement	Currency	Nominal (million)	Utilized (million) 2024	Utilized (million) 2023
Committed	Revolving Credit Facility[(1)]	EUR	1 412	—	—
Committed	NIB Loan Facility[(2)]	EUR	250	100	—
Uncommitted	Finnish Commercial Paper Programme	EUR	750	—	—
Uncommitted	Euro-Commercial Paper Programme	EUR	1 500	—	—
Uncommitted	Euro Medium Term Note Programme[(3)]	EUR	5 000	1 922	2 300
Total				**2 022**	**2 300**

(1) The facility has its maturity in June 2026.
(2) The availability period of the remaining loan facility of EUR 150 million ends in April 2025.
(3) All euro-denominated bonds have been issued under the Euro Medium Term Note Programme.

Certain changes in financial liabilities do not have a direct impact on Nokia's liquidity position. A disaggregation of cash and non-cash changes in lease liabilities, interest-bearing liabilities and associated derivatives arising from financing activities has been presented in the table below.

EURm	Long-term interest-bearing liabilities	Short-term interest-bearing liabilities	Derivatives held to hedge long-term borrowings[(1)]	Lease liabilities[(2)]	Total
1 January 2024	**3 637**	**554**	**174**	**997**	**5 362**
Cash flows	(361)	(6)	—	(225)	(592)
Non-cash changes:					
Changes in foreign exchange rates	64	2	(49)	15	32
Changes in fair value	(5)	—	(37)	—	(42)
Reclassification between long-term and short-term	(417)	417	—	—	—
Liabilities associated with assets held for sale	—	—	—	(30)	(30)
Additions[(3)]	—	—	—	117	117
Other	—	2	—	(11)	(9)
31 December 2024	**2 918**	**969**	**88**	**863**	**4 838**
1 January 2023	**4 249**	**228**	**246**	**1 042**	**5 765**
Cash flows	(283)	(40)	(19)	(239)	(581)
Non-cash changes:					
Changes in foreign exchange rates	(34)	(3)	25	(12)	(24)
Changes in fair value	83	—	(79)	—	4
Reclassification between long-term and short-term	(374)	374	—	—	—
Additions[(3)]	—	—	—	206	206
Other	(4)	(5)	1	—	(8)
31 December 2023	**3 637**	**554**	**174**	**997**	**5 362**

(1) Includes derivatives designated in fair value and cash flow hedge accounting relationships as well as derivatives not designated in hedge accounting relationship but hedging identifiable long-term borrowing exposure.
(2) Includes non-current and current lease liabilities. In 2024. cash flows exclude Submarine Networks' cash flows after it was classified as held for sale and a discontinued operation.
(3) Includes new lease contracts as well as modifications and remeasurements of existing lease contracts.

Notes to the consolidated financial statements continued

The following table presents an undiscounted, contractual cash flow analysis for lease liabilities, financial liabilities and financial assets presented on the statement of financial position as well as loan commitments given and obtained. The line-by-line analysis does not directly reconcile with the statement of financial position.

	2024						2023					
	Due						Due					
EURm	within 3 months	between 3 and 12 months	between 1 and 3 years	between 3 and 5 years	beyond 5 years	Total	within 3 months	between 3 and 12 months	between 1 and 3 years	between 3 and 5 years	beyond 5 years	Total
Non-current financial assets												
Non-current interest-bearing financial investments	3	5	359	129	—	**496**	—	—	394	385	—	**779**
Other non-current financial assets[1]	—	—	57	8	48	**113**	—	—	60	8	46	**114**
Current financial assets												
Other current financial assets excluding derivatives[1]	318	99	—	—	—	**417**	216	31	—	—	—	**247**
Current interest-bearing financial investments[2]	1 390	279	—	—	—	**1 669**	998	595	—	—	—	**1 593**
Cash and cash equivalents[2]	6 351	114	80	83	25	**6 653**	6 017	52	30	138	26	**6 263**
Cash flows related to derivative financial assets net settled:												
Derivative contracts – receipts	(6)	3	(1)	(1)	4	**(1)**	(7)	(2)	(11)	(12)	(10)	**(42)**
Cash flows related to derivative financial assets gross settled:												
Derivative contracts – receipts	5 492	2 471	1 081	114	—	**9 158**	8 407	1 582	358	6	—	**10 353**
Derivative contracts – payments	(5 428)	(2 416)	(1 017)	(106)	—	**(8 967)**	(8 349)	(1 560)	(353)	(6)	—	**(10 268)**
Trade receivables	4 529	933	39	—	—	**5 501**	3 834	1 316	184	—	—	**5 334**
Non-current financial and lease liabilities												
Long-term interest-bearing liabilities	(21)	(103)	(1 345)	(926)	(1 441)	**(3 836)**	(33)	(115)	(1 766)	(1 200)	(1 528)	**(4 642)**
Long-term lease liabilities	—	—	(294)	(172)	(266)	**(732)**	—	—	(353)	(199)	(304)	**(856)**
Other non-current financial liabilities	(12)	—	(23)	(10)	—	**(45)**	—	—	(11)	(11)	(11)	**(33)**
Current financial and lease liabilities												
Short-term interest-bearing liabilities	(603)	(386)	—	—	—	**(989)**	(473)	(98)	—	—	—	**(571)**
Short-term lease liabilities	(64)	(175)	—	—	—	**(239)**	(44)	(179)	—	—	—	**(223)**
Other financial liabilities excluding derivatives[3]	(490)	(2)	—	—	—	**(492)**	(458)	(24)	—	—	—	**(482)**
Cash flows related to derivative financial liabilities net settled:												
Derivative contracts – payments	(2)	(14)	(10)	3	—	**(23)**	(4)	(29)	(41)	(12)	—	**(86)**
Cash flows related to derivative financial liabilities gross settled:												
Derivative contracts – receipts	5 517	1 400	965	160	784	**8 826**	6 475	1 322	735	541	767	**9 840**
Derivative contracts – payments	(5 635)	(1 458)	(1 013)	(174)	(777)	**(9 057)**	(6 553)	(1 353)	(806)	(551)	(858)	**(10 121)**
Discounts without performance obligations	(222)	(149)	(6)	(3)	—	**(380)**	(151)	(212)	(40)	(1)	—	**(404)**
Trade payables	(3 049)	(126)	(25)	(12)	(1)	**(3 213)**	(3 154)	(204)	(64)	—	(1)	**(3 423)**
Commitments given and obtained												
Loan commitments given undrawn[4]	(5)	(6)	—	—	—	**(11)**	(1)	(4)	—	—	—	**(5)**
Loan commitments obtained undrawn[5]	(1)	148	1 410	—	—	**1 557**	(1)	86	1 408	—	—	**1 493**
Venture fund commitments undrawn[6]	306	—	—	—	—	**306**	381	—	—	—	—	**381**

(1) Other non-current financial assets and other current financial assets excluding derivatives mainly include financial receivables from customers and suppliers.
(2) Instruments that include a call feature have been presented at their final maturities. Instruments that are contractually due beyond three months include EUR 306 million (EUR 332 million in 2023) of instruments that have a call period of less than three months.
(3) Other financial liabilities excluding derivatives include a conditional obligation to China Huaxin presented in the earliest period as the exercise period is open.
(4) Loan commitments given undrawn have been included in the earliest period in which they could be drawn or called.
(5) Loan commitments obtained undrawn have been included based on the period in which they expire. These amounts include related commitment fees.
(6) The timing of draw downs for these commitments are dependent on investment decisions of various venture funds and these are typically spread over a time period of several years. For further information on venture fund commitments, refer to Note 6.1. Commitments, contingencies and legal proceedings.

Section 6

Other information

This section contains information on Nokia's off-balance sheet commitments and contingencies, Group structure and related party transactions, as well as post reporting date events.

6.1. Commitments, contingencies and legal proceedings

Contractual obligations

EURm	Within 1 year	1-5 years	More than 5 years
2024			
Purchase obligations	2 538	697	3
Lease commitments(1)	9	86	573
2023			
Purchase obligations	3 630	767	14
Lease commitments(1)	—	54	570

(1) Relates to lease contracts that had not yet commenced as at the reporting date.

At 31 December 2024, Nokia has potential undiscounted future lease payments of EUR 812 million (EUR 838 million in 2023) relating to extension options not expected to be exercised and EUR 58 million (EUR 33 million in 2023) relating to termination options expected to be exercised that are not included in the lease liability.

Guarantees and financing commitments

The contingent liabilities in the table below represent the maximum principal amount of guarantees and financing commitments, and do not reflect management's expected outcomes.

EURm	2024	2023
Guarantees on behalf of Group companies		
Guarantees issued by financial institutions		
Commercial guarantees(1)	964	1 477
Non-commercial guarantees	498	615
Corporate guarantees(2)		
Commercial guarantees(1)	263	325
Non-commercial guarantees	33	35
Financing commitments		
Customer finance commitments(3)	11	5
Venture fund commitments(4)	306	381

(1) Commercial guarantees are guarantees that are issued in the normal course of business to Nokia's customers for the performance of Nokia's obligations under supply agreements; these include tender bonds, performance bonds and warranty bonds.
(2) Corporate guarantees are guarantees with a primary obligation that are issued to Nokia's customers and other third parties.
(3) Customer finance commitments are available under customer loan facilities. Availability of the facility depends on the borrower's continuing compliance with the agreed financial and operational covenants, and other administrative terms of the facility. The loan facilities are primarily available to fund purchases of network infrastructure equipment and services. Refer to Note 4.5. Trade receivables and other customer-related balances.
(4) As a limited partner in NGP Capital and certain other funds making technology-related investments, Nokia is committed to capital contributions and entitled to cash distributions according to the respective partnership agreements and underlying fund activities.

Legal matters

Accounting policies

Nokia discloses ongoing legal matters that relate to possible obligations whose existence will be confirmed by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of Nokia. These matters are assessed continually to determine whether an outflow of resources embodying economic benefits has become probable so as to recognize a provision.

Nokia is and will likely continue to be subject to various legal proceedings that arise from time to time, including proceedings related to intellectual property, antitrust, commercial disputes, product liability, environmental issues, tax, health and safety, employment and wrongful discharge, sales and marketing practices, international trade, securities, privacy matters and compliance. While management does not expect any of the legal proceedings it is currently aware of to have a material adverse effect on Nokia's financial position, litigation is inherently unpredictable, and Nokia may in the future receive judgments or enter into settlements that could have a material adverse effect on its results or cash flows.

Litigation and proceedings

Mass labor litigation in Brazil

Nokia is defending against a number of labor claims in various Brazilian labor courts. Plaintiffs are former employees whose contracts were terminated after Nokia exited from certain managed services contracts. The claims mainly relate to payments made under, or in connection with, the terminated labor contracts. Nokia has closed the majority of the court cases through settlement or judgment.

Asbestos litigation in the United States

Nokia is defending approximately 300 asbestos-related matters, at various stages of litigation. The claims are based on premises liability, products liability, and contractor liability. The claims also involve plaintiffs allegedly diagnosed with various diseases, including but not limited to asbestosis, lung cancer, and mesothelioma.

Intellectual property rights litigation

Amazon

In 2023, Nokia commenced patent infringement proceedings against Amazon in several countries. The patents in suit cover video-related technologies implemented in Amazon's services and devices. Amazon filed patent infringement proceedings in relation to its patents against Nokia in the US and counterclaims to Nokia's actions, including a UK rate setting action. Amazon's appeals against the preliminary injunction awarded to Nokia in a regional court in Brazil were denied. In September 2024, a regional court in Germany ruled that Amazon was infringing one of Nokia's patents and issued an injunction.

Litigations concluded during the year

During 2024, Nokia has concluded separate multi-year patent license agreements with OPPO, vivo, Verifone and HP, thereby resolving all pending patent litigations between the parties in all jurisdictions. In addition, in 2024, Continental withdrew the breach of contract and FRAND (fair, reasonable and non-discriminatory terms) -related claims it had brought against Nokia, thus ending the on-going dispute between the parties.

6.2. Principal Group companies

Principal Group companies at 31 December 2024:

Company name	Country of incorporation	Parent holding %	Group ownership interest %
Nokia Solutions and Networks Oy	Finland	100.0	100.0
Nokia of America Corporation	United States	—	100.0
Nokia Solutions and Networks B.V.	Netherlands	—	100.0
Nokia Technologies Oy	Finland	100.0	100.0
Nokia Participations	France	—	100.0
Alcatel Lucent	France	—	100.0
Nokia Networks France	France	—	100.0
Nokia Solutions and Networks India Private Limited	India	—	100.0
Nokia Shanghai Bell Co., Ltd.[1]	China	—	50.0
Nokia Solutions and Networks Japan G.K.	Japan	—	100.0
Nokia Solutions and Networks Branch Operations Oy	Finland	—	100.0
Nokia Arabia Limited	Saudi Arabia	—	100.0
Nokia Solutions and Networks do Brasil Telecomunicações Ltda.	Brazil	—	100.0
Nokia Solutions and Networks Taiwan Co., Ltd.	Taiwan	—	100.0
Nokia Spain, S.A.	Spain	—	100.0
Nokia UK Limited	United Kingdom	—	100.0
Nokia Canada Inc.	Canada	—	100.0
Nokia Solutions and Networks Italia S.p.A.	Italy	—	100.0
Nokia Solutions and Networks Australia Pty Ltd	Australia	—	100.0

(1) Nokia Group owns 50% plus 1 share of Nokia Shanghai Bell Co., Ltd. with China Huaxin, an entity controlled by the Chinese government, holding the remaining ownership interests. Nokia Shanghai Bell Co., Ltd. is the parent company of the Nokia Shanghai Bell Group (NSB Group). Refer to Note 6.3. Significant partly-owned subsidiaries.

Notes to the consolidated financial statements continued

6.3. Significant partly-owned subsidiaries

Nokia holds an ownership interest of 50% plus one share in Nokia Shanghai Bell's parent company, Nokia Shanghai Bell Co., Ltd. (NSB), with China Huaxin Post & Telecommunication Economy Development Center (China Huaxin) holding the remaining ownership interests. Nokia applied judgment to conclude that it is able to control NSB based on an assessment of various factors including the ability to nominate key management personnel, decision-making related to the management of NSB operations and Nokia's exposure to variable returns from NSB.

In 2017, Nokia entered into a contractual arrangement providing China Huaxin with the right to fully transfer its ownership interest in NSB to Nokia and Nokia with the right to purchase China Huaxin's ownership interest in NSB in exchange for a future cash settlement. To reflect this, Nokia derecognized the non-controlling interest balance related to NSB and recognized a financial liability based on the estimated future cash settlement to acquire China Huaxin's ownership interest.

In 2024, Nokia and China Huaxin have been together reviewing the future ownership structure of NSB. Following those discussions, Nokia exercised its call option, outlined in NSB's shareholders' agreement, to initiate the process to become the sole shareholder by purchasing China Huaxin's approximately 50% share in NSB. The execution of the call option is subject to completing required steps under NSB's shareholders' agreement.

The measurement of the financial liability is complex as it involves estimation of the expected future cash settlement and the distribution of excess cash balances. In 2024, Nokia recognized a EUR 5 million loss (EUR 2 million loss in 2023) in financial income and expenses to reflect a change in the estimated future cash settlement. At 31 December 2024, the expected future cash settlement amounted to EUR 487 million (EUR 455 million in 2023).

Financial information for the Nokia Shanghai Bell Group

Financial information below is presented after elimination of intercompany transactions between entities within the Nokia Shanghai Bell Group but before elimination of intercompany transactions with the rest of the Nokia Group.

EURm	2024	2023
Summarized income statement		
Net sales[1]	760	979
Operating profit/(loss)	46	(6)
Profit/(loss) for the year	11	(26)
Profit/(loss) for the year attributable to:		
Equity holders of the parent	11	(26)
Non-controlling interests[2]	—	—
Summarized statement of financial position		
Non-current assets	353	400
Non-current liabilities	(59)	(100)
Non-current net assets	**294**	**300**
Current assets[3]	1 622	1 642
Current liabilities	(854)	(900)
Current net assets	**768**	**742**
Net assets[4]	**1 062**	**1 042**
Non-controlling interests[2]	—	—
Summarized statement of cash flows		
Net cash flows from operating activities	204	51
Net cash flows (used in)/from investing activities	(2)	2
Net cash flows used in financing activities	(85)	(41)
Translation differences	26	(38)
Net increase/(decrease) in cash and cash equivalents	**143**	**(26)**

(1) Includes EUR 11 million (EUR 19 million in 2023) net sales to other Nokia Group entities.
(2) Based on the contractual arrangement with China Huaxin, Nokia does not recognize any non-controlling interest in NSB.
(3) Includes a total of EUR 843 million (EUR 700 million in 2023) of cash and cash equivalents.
(4) The distribution of the profits of NSB requires the passing of a special resolution by more than two-thirds of its shareholders, subject to a requirement that at least 50% of the after-tax distributable profits are distributed as dividends each year.

Notes to the consolidated financial statements continued

6.4. Related party transactions

Nokia has related party transactions with its subsidiaries, associated companies, joint ventures and pension funds as well as the management and the Board of Directors. Transactions and balances between group companies are eliminated on consolidation. For more information on principles of consolidation and principal Group companies, refer to Note 1.2. General accounting policies, and Note 6.2. Principal Group companies, respectively.

Transactions and balances with associated companies and joint ventures

EURm	2024	2023	2022
Sales	36	46	74
Purchases	(147)	(141)	(127)
Trade and other receivables	73	18	36
Trade and other payables	(35)	(31)	(26)

Investments in associated companies and joint ventures are individually immaterial. The aggregate carrying amount for the investments in associated companies and joint venture was EUR 124 million in 2024 (EUR 88 million in 2023).

On December 2024, Nokia completed the sale of Alcatel Submarine Networks (ASN) to the French State. Nokia retained a 20% shareholding with board representation to ensure a smooth transition until targeted exit, at which point it is planned for the French State to acquire Nokia's remaining interest. The retained interest is accounted for as an investment in an associate. Refer to Note 2.6. Discontinued operations for more information on disposal of the Submarine Networks business.

Nokia holds a 51% ownership interest in TD Tech Holding Limited ("TD Tech HK"), a Hong Kong based joint venture holding company which Nokia has accounted for as an investment in associated companies and joint ventures. In 2024, TD Tech HK completed the divestment of the entire business of the joint venture through the sale of its operating subsidiaries to a consortium consisting of Huawei Technologies, Chengdu High-tech Investment Group and other buyers. Following the divestment, Nokia is in the process of exiting from its shareholding in the parent company TD Tech HK. Nokia considered the transactions as a sale of associated companies and joint ventures, recorded a gain of EUR 191 million related to the sale and received a cash consideration of EUR 248 million from the sale in 2024.

In 2016, Nokia entered into a strategic agreement with HMD Global Oy (HMD) granting HMD an exclusive global license to create Nokia branded mobile phones and tablets for 10 years. Under the agreement, Nokia receives royalty payments from HMD for sales of Nokia branded mobile phones and tablets, covering both brand and patent licensing. In August 2023, Nokia and HMD amended the licensing agreement so that HMD's exclusive license to create Nokia branded devices will expire by March 2026. Nokia has held an ownership interest in HMD since 2020 which it has accounted for as an investment in associate. In 2023, Nokia recorded an impairment loss of EUR 28 million related to its investment in HMD in the share of result of associates and joint ventures.

Transactions with pension funds

Nokia has borrowings of EUR 35 million (EUR 37 million in 2023) from Nokia's German pension fund, a separate legal entity. The indefinite loan bears 6% annual interest and can be terminated by either party with a 90-day notice. The loan is included in short-term interest-bearing liabilities in the statement of financial position. For more information on Nokia's post-employment benefit plans, refer to Note 3.4. Pensions and other post-employment benefits.

Transactions with the Group Leadership Team and the Board of Directors

No loans were granted to the members of the Group Leadership Team and the Board of Directors in 2024, 2023 or 2022. For information on remuneration of Nokia's key management personnel, refer to Note 3.2. Remuneration of key management.

6.5. Subsequent events

Non-adjusting events after the reporting period

Change of President and CEO

On 10 February 2025, Nokia announced its President and CEO, Pekka Lundmark, will step down effective 31 March 2025. The Board of Directors has appointed Justin Hotard as the next President and CEO. He will start in his new role on 1 April 2025. Mr. Lundmark will stay on as an advisor to Mr. Hotard until the end of the year to ensure a smooth transition.

Mr. Hotard joins Nokia with more than 25 years of experience with global technology companies, driving innovation and technology leadership as well as delivering revenue growth. He currently leads the Data Center & AI Group at Intel. Prior to this role, he held several leadership roles at large technology companies, including Hewlett Packard Enterprise and NCR Corporation.

Infinera acquisition

On 28 February 2025, Nokia completed the acquisition of Infinera Corporation (Infinera), pursuant to the definitive agreement announced on 27 June 2024. Infinera, the San Jose based global supplier of innovative open optical networking solutions and advanced optical semiconductors, has become part of the Nokia group effective as of the closing with Nokia holding 100% of its equity and voting rights. The acquisition will significantly improve Nokia's scale and profitability in optical networks, and accelerate Nokia's growth strategy in data centers and strengthen its presence both in North America and with webscale customers.

The aggregated consideration transferred of EUR 1.7 billion is a combination of cash of EUR 1.1 billion and Nokia shares in the form of American Depository Shares of EUR 0.6 billion, corresponding to 127 434 986 shares. Additionally, the acquisition resulted in a make whole conversion for Infinera's convertible senior notes in line with relevant bond indentures. Following the ongoing conversion and subsequent observation period for Nokia stock price, any surrendered notes are expected to be settled in cash during the second quarter of 2025.

Nokia will report the acquired business as part of its Network Infrastructure segment. The acquisition will be accounted for as a business combination using the acquisition method. Nokia is currently in the process of determining the initial purchase accounting for this transaction. Considering the timing of the acquisition and the issuance of consolidated financial statements for the year ended 31 December 2024, Nokia determined it to be impracticable to disclose a preliminary purchase price allocation at this time.

Report of independent registered public accounting firm

To the shareholders and the Board of Directors of Nokia Corporation.

Opinion on the Financial Statements

We have audited the accompanying consolidated statements of financial position of Nokia Corporation and subsidiaries (the "Company") as of December 31, 2024 and 2023, and the related consolidated income statements, consolidated statements of comprehensive income, consolidated statements of changes in shareholders' equity and consolidated statements of cash flows for each of the three years in the period ended December 31, 2024, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2024 and 2023, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2024, in conformity with IFRS Accounting Standards as issued by the International Accounting Standards Board (IASB) and as adopted by the European Union.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2024, based on criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated March 13, 2025, expressed an unqualified opinion on the Company's internal control over financial reporting.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current-period audit of the financial statements that were communicated or required to be communicated to the audit committee and that (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Revenue recognition - Accounting for significant and complex contracts — Refer to Note 2.1 to the financial statements

Critical Audit Matter Description

The Company recognises revenue in accordance with International Financial Reporting Standard 15 Revenue from Contracts with Customers. Certain contracts that the Company enters into are particularly significant in value and contain highly complex terms and conditions which impact revenue recognition. Such complexities include the determination of the standalone selling price, combination of contracts assessments, accounting for contractual discounts, subsequent modifications and promised goods or services not yet transferred at the date of such modification, or other factors occurring during the contract period that may impact revenue recognition.

Given the level of complexity and management judgement involved in the accounting for significant and complex contracts, performing audit procedures to evaluate the reasonableness of these accounting judgements required a high degree of auditor judgement, and there was significant audit effort in obtaining sufficient audit evidence.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the determination of the appropriateness of the accounting for significant and complex contracts included the following, among others:

- We assessed management's accounting policy in relation to the areas of complexity identified in all significant and complex contracts and assessed whether management's conclusions, including determination of standalone selling price, were in compliance with IFRS 15;
- We tested the effectiveness of controls over revenue recognition of significant and complex contracts, specifically focusing on controls relating to the areas of accounting complexity;
- We utilised data analytics to identify contracts that were significant in value and contained complexities to identify the relevant testing population;
- We analyzed the terms and conditions of significant and complex contracts entered into or modified during the current-period, to identify all performance obligations and tested the allocation of the transaction price to each distinct performance obligation.

Reports of independent registered public accounting firm continued

Valuation of Goodwill — Mobile Networks Group of Cash Generating Units — Refer to Note 4.1 to the financial statements

Critical Audit Matter Description

Nokia's evaluation of goodwill for impairment involves the comparison of the recoverable amount of each applicable cash generating unit ("CGU"), or group of CGUs, to its carrying value on at least an annual basis, in line with International Accounting Standard 36 Impairment of Assets. The total carrying amount of the goodwill balance is EUR 5,736 million as of 31 December 2024, of which EUR 2,346 million is allocated to Mobile Networks ("MN"). We identified the valuation of MN's goodwill as a critical audit matter due to recent volatility in the market in which MN operates as well as significant estimates and assumptions made by management in the value in use discounted cash flow calculation related to sales growth and operating margin.

Management's discounted cash flow model for the MN group of CGUs consists of cash flow projections based on financial plans covering a forecast period of three years, followed by a seven-year period that reflects management's expectations of recovery from the market-driven decrease in sales and market cyclicality, leading to a steady state cash flow projection modelled in the terminal year.

Auditing the significant judgements and assumptions management made to estimate the recoverable amount of MN required a high degree of auditor judgement and increased audit effort, including the need to involve our valuation specialists.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the determination of the appropriateness of management assumptions in relation to sales growth and operating margin in the MN cashflows utilised in impairment testing included the following, among others:

- We tested the effectiveness of the Company's controls over goodwill impairment evaluation, specifically focusing on controls related to the determination of the recoverable amount, as well as controls over forecasting;
- We held discussions with key members of management to understand how the Board approved MN forecasts, including key assumptions around sales growth and operating margin were derived;
- We utilised our valuation specialists to evaluate the appropriateness of the valuation methodology and mathematical accuracy of management's discounted cash flow model as well as reasonableness of other underlying assumptions including the discount rate and terminal growth rate;
- We challenged sale growth and operating margin assumptions by comparing to (1) historical and forecasted peer company data, (2) historical actual results, and (3) prior period internal forecasts;
- We read analyst reports to identify supporting or contradictory information in relation to management's sales growth and operating margin assumptions.

/s/ Deloitte Oy

Helsinki, Finland
March 13, 2025

We have served as the Company's auditor since 2020.

Report of independent registered public accounting firm

To the shareholders and the Board of Directors of Nokia Corporation.

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Nokia Corporation and subsidiaries (the "Company") as of December 31, 2024, based on criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2024, based on criteria established in Internal Control — Integrated Framework (2013) issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended 31 December 2024, of the Company and our report dated March 13, 2025, expressed an unqualified opinion on those financial statements.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's annual report on internal control over financial reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ Deloitte Oy

Helsinki, Finland

March 13, 2025

Other information

Exhibits

1	Articles of Association of Nokia Corporation (English Translation of the Finnish original).
8	Refer to Note 6.2. Principal Group companies, in our consolidated financial statements for more information on our significant subsidiaries.
11.1	Code of Ethics.
11.2	Insider Trading Policy.
12.1	Certification of Pekka Lundmark, President and Chief Executive Officer of Nokia Corporation, pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
12.2	Certification of Marco Wirén, Group Chief Financial Officer of Nokia Corporation, pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
13	Certification, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
15.1	Consent of Deloitte Oy.
97.1	Executive Officer Clawback Policy (incorporated by reference to Exhibit 97.1 of our Annual Report on Form 20-F filed with the Securities and Exchange Commission on 29 February 2024 (File No. 001-13202)).
101	Interactive Data Files (Inline XBRL – Related Documents).
104	Cover Page Interactive Data File (formatted as inline XBRL and contained in Exhibit 101).

Glossary

2G (Second Generation Mobile Communications): Also known as GSM (Global System for Mobile Communications): A digital system for mobile communications that is based on a widely-accepted standard and typically operates in the 900 MHz, 1800 MHz and 1900 MHz frequency bands.

3G (Third Generation Mobile Communications): The third generation of mobile communications standards designed for carrying both voice and data generally using WCDMA or close variants. See also WCDMA.

3GPP (The Third Generation Partnership Project): A consortium comprising several standards organizations which develop protocols for mobile telecommunications. The initial goal was to develop a global technical specification for a 3G mobile phone system. Since then, the operations have been extended and today the main focus is on 5G networks.

4G (Fourth Generation Mobile Communications): The fourth generation of mobile communications standards based on LTE, offering IP data connections only and providing true broadband internet access for mobile devices. See also LTE.

5G (Fifth Generation Mobile Communications): The next major phase of mobile telecommunications standards. 5G is a complete redesign of network architecture with the flexibility and agility to support upcoming service opportunities. It delivers higher speeds, higher capacity, extremely low latency and greater reliability.

6G (Sixth Generation Mobile Communications): The cellular industry introduces a new generation about every ten years. The next generation of technology is expected to be introduced by 2030 and is generally referred to as 6G.

Access network: A telecommunications network between a local exchange and the subscriber station.

AirScale Radio Access: A 5G-ready complete radio access generation that helps operators address the increasing demands of today and tomorrow. The solution comprises: Nokia AirScale Base Station with multiband radio frequency elements and system modules; Nokia AirScale Active Antennas; Cloud RAN with Nokia AirScale Cloud Base Station Server and the cloud-based AirScale RNC (Radio Network Controller) for 3G; Nokia AirScale Wi-Fi; common software; and services which use intelligent analytics and extreme automation to maximize the performance of hybrid networks.

Alcatel-Lucent: Alcatel-Lucent Group, that has been part of the Nokia Group since 2016.

Artificial Intelligence (AI): Autonomous and adaptive intelligence of machines, where machines have the ability to perform tasks in complex environments without constant guidance by a user and have the ability to improve performance by learning from experience.

Bandwidth: The width of a communication channel, which affects transmission speeds over that channel.

Base station: A network element in a mobile network responsible for radio transmission and reception to or from the mobile station.

Broadband: The delivery of higher bandwidth by using transmission channels capable of supporting data rates greater than the primary rate of 9.6 Kbps.

Churn: A measure of the number of customers or subscribers who leave their service provider, e.g., a mobile operator, during a given time period.

Cloud: Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort.

Cloud and Network Services: Our Cloud and Network Services business group enables CSPs and enterprises to deploy and monetize 5G, cloud-native software and as-a-Service delivery models.

Cloud RAN: Cloud RAN refers to all or some of the baseband functions being run on a commercial off-the-shelf (COTS) computing platform rather than purpose-built hardware.

Convergence: The coming together of two or more disparate disciplines or technologies. Convergence types are, for example, IP convergence, fixed-mobile convergence and device convergence.

Core network: A combination of exchanges and the basic transmission equipment that together form the basis for network services.

CSPs: Communications service providers. One of Nokia's customer segments.

Digital: A signaling technique in which a signal is encoded into digits for transmission.

Discontinued operations: Submarine Networks business, which was previously reported as part of Network Infrastructure operating segment, was sold in 2024 and is presented as a discontinued operation.

Drones-as-a-Service (DaaS): A service model where drones are provided on-demand or via subscription, including all necessary components (e.g., drones, docking stations, control stations and software). The model is used for tasks like emergency response, infrastructure inspection, and surveillance, with drones operated remotely or autonomously, including Beyond Visual Line of Sight (BVLOS) operations.

Ecosystem: An industry term to describe the increasingly large communities of mutually beneficial partnerships that participants such as hardware manufacturers, software providers, developers, publishers, entertainment providers, advertisers and ecommerce specialists form in order to bring their offerings to market. At the heart of the major ecosystems in the mobile devices and related services industry is the operating system and the development platform upon which services are built.

Enterprise verticals: One of Nokia's customer segments. An enterprise vertical represents a grouping of companies by an industry (like energy or transportation) that offers products and services that meet specific needs of that industry. Within the enterprise verticals segments, we primarily focus on transportation, energy, manufacturing, logistics and the public sector.

ETSI (European Telecommunications Standards Institute): Standards produced by the ETSI contain technical specifications laying down the characteristics required for a telecommunications product.

Event-Driven Automation platform (EDA): A modern infrastructure automation platform that combines speed with reliability and simplicity. It makes data center network automation more trustable and easier to use, from small edge clouds to the largest AI fabrics.

Fixed Wireless Access (FWA): Uses wireless networks to connect fixed locations such as homes and businesses with broadband services.

Glossary continued

Future X: A network architecture – a massively distributed, cognitive, continuously adaptive, learning and optimizing network connecting humans, senses, things, systems, infrastructure and processes.

Greenfield networks: A new network built without any legacy infrastructure, systems, or constraints from previous deployments. Without the need for backward compatibility, it allows for the adoption of the latest technologies and architectures.

GSM (Global System for Mobile Communications): A digital system for mobile communications that is based on a widely accepted standard and typically operates in the 900 MHz, 1800 MHz and 1900 MHz frequency bands. See also 2G.

Hexa-X: European Commission's flagship 6G initiative for research into the next generation of wireless networks. The initiative began in January 2021 with Nokia as project lead, working closely with a strong consortium of European partners.

Hyperscalers: One of Nokia's customer segments. Hyperscaler refers to companies like Alphabet (Google), Amazon (Amazon Web Services), Microsoft and Meta Platforms (Facebook) that provide cloud solutions at a global scale leveraging massive connected data centers.

Industry 4.0 (the fourth industrial revolution): Enables enterprises, governments and public sector agencies to use innovative digital technologies, smart automation and advanced analytics to transform their operating processes. This blending of technologies creates a convergence of the physical and digital worlds, enabling an era of massive industry improvements and positive impacts for societies.

Industry 5.0 (the fifth industrial revolution): Enables enterprises, governments, and public sector agencies to modernize their operational processes through the integration of digital technologies, smart automation, and human-machine collaboration. This blending of technologies creates a convergence of human creativity, decision-making, and machine efficiency, enabling an era of highly personalized and sustainable manufacturing with a focus on human-centered improvements and positive impacts for societies.

Infinera: Infinera Corporation, a global supplier of innovative open optical networking solutions and advanced optical semiconductors. In 2024, Nokia announced its plans to acquire the company and the acquisition of Infinera was closed in February 2025.

Internet of Things (IoT): All things such as cars, the clothes we wear, household appliances and machines in factories connected to the internet and able to automatically learn and organize themselves.

IP (Internet Protocol): A network layer protocol that offers a connectionless internet work service and forms part of the (Transmission Control Protocol) TCP/IP protocol.

IP (Intellectual Property): Intellectual property results from original creative thought, covering items such as patents, copyright material and trademarks, as well as business models and plans.

IPR (Intellectual Property Rights): Legal rights protecting the economic exploitation of intellectual property, a generic term used to describe products of human intellect, for example patents, that have an economic value.

IPR licensing: Generally, an agreement or an arrangement where a company allows another company to use its intellectual property (such as patents, trademarks or copyrights) under certain terms.

IVAS codec (Immersive Voice and Audio Services Codec): An extension of the EVS codec that enables spatial audio in mobile communication. It features advanced technologies, such as the metadata-assisted spatial audio (MASA) format, allowing smartphones and other devices with multiple microphones to capture spatial audio without specialized equipment. It also supports head-tracking, enhancing the spatial audio experience based on the listener's movement.

LTE (Long-Term Evolution): 3GPP radio technology evolution architecture and a standard for wireless communication of high-speed data. Also referred to as 4G.

Massive MIMO (Multiple Input Multiple Output) radios: Advanced technology, which extends the MIMO concept by using a large array of transmit and receive antennas. Nokia provides an extensive portfolio of Massive MIMO radios to deliver high-performance 5G with optimized capacity, coverage and energy efficiency.

Mission-critical networks/communications: One of the key elements of 5G. Mission-critical communications meets the needs of emergency responders such as emergency operations centers, fire departments, emergency vehicles, police, and search and rescue services, replacing traditional radio with new communications capabilities available to smartphone users.

Mobile broadband: Refers to high-speed wireless internet connections and services designed to be used from multiple locations.

Mobile Networks: Our Mobile Networks business group offers products and services for radio access networks covering technologies from 2G to 5G, and microwave radio links for transport networks.

Network Infrastructure: Our Network Infrastructure business group provides fiber, copper, fixed wireless access technologies, IP routing, data center, subsea and terrestrial optical networks – along with related services – to customers including communications service providers, webscales (including hyperscalers), digital industries and governments.

Nokia Bell Labs: Our research arm engaged in discovering and developing the technological shifts needed for the next phase of human existence as well as exploring and solving complex problems to radically redefine networks.

Nokia Technologies: Our Nokia Technologies business group is responsible for managing Nokia's patent portfolio and monetizing Nokia's intellectual property, including patents, technologies and the Nokia brand.

Operating System (OS): Software that controls the basic operation of a computer or a mobile device, such as managing the processor and memory. The term is also often used to refer more generally to the software within a device, for example, the user interface.

O-RAN: The term O-RAN refers to interfaces and architecture elements as specified by the O-RAN alliance. O-RAN Alliance is a specification group defining next-generation RAN infrastructures, empowered by principles of intelligence and openness.

Platform: Software platform is a term used to refer to an operating system or programming environment, or a combination of the two.

PON (Passive Optical Network): A fiber access architecture in which unpowered fiber optic splitters are used to enable a single optical fiber to serve multiple endpoints without having to provide individual fibers between the hub and customer.

Private wireless network: Private wireless is a standalone network focused on industrial operational assets and users. A private wireless network provides broadband connectivity, similar to a public wireless network, but is owned and controlled by the organization that built or purchased it.

Glossary continued

RAN (Radio Access Network): A mobile telecommunications system consisting of radio base stations and transmission equipment.

SEP (Standard-Essential Patent): Generally, patents needed to produce products which work on a standard which companies declare as essential and agree to license on Fair, Reasonable and Non-Discriminatory (FRAND) terms. Can also be referred to as essential patent.

Standalone (SA): Network architecture that allows independent operation of a 5G service without interaction with an existing 4G core and 4G radio network.

Submarine Networks: In 2024, Nokia sold its wholly owned subsidiary, Alcatel Submarine Networks (ASN), a global submarine communication networks leader, to the French State. The business unit was previously reported as part of Nokia's Network Infrastructure business groups segment and is now presented as a discontinued operation.

Technology licensing: Generally, refers to an agreement or arrangement where under certain terms a company provides another company with its technology and possibly know-how, whether protected by intellectual property or not, for use in products or services offered by the other company.

Telco cloud: Applying cloud computing, SDN and NFV principles in telecommunications environment, for example separating application software from underlying hardware with automated, programmable interfaces while still retaining telecommunications requirements such as high availability and low latency.

Transmission: The action of conveying signals from one point to one or more other points.

Virtual Reality (VR): The simulation of a three-dimensional image or environment that can be interacted with in a seemingly real or physical way by a person using special electronic equipment, such as a helmet with a screen inside or gloves fitted with sensors.

WAN (Wide Area Network): A geographically distributed private telecommunications network that interconnects multiple local area networks.

WCDMA (Wideband Code Division Multiple Access): A third-generation mobile wireless technology that offers high data speeds to mobile and portable wireless devices. Also referred to as 3G.

Webscale companies: Companies which are investing in cloud technology and network infrastructure on an increasing scale to fulfill their needs for massive, mission-critical networks.

XGS-PON (10Gbps Symmetrical Passive Optical Network): A high-speed optical network technology that enables both upstream and downstream gigabit and multigigabit services. Its adoption is accelerating, helping operators improve competitiveness, revenue, and network efficiency, while meeting the growing demand for bandwidth from video, online gaming, and emerging applications like virtual reality.

Investor information

Information on the internet

www.nokia.com

Available on the internet: financial reports, information on members of the Group Leadership Team, other investor-related materials and information on events, and press releases as well as environmental and social information, Code of Conduct, Corporate Governance Statement and Remuneration Statement.

SEC maintains an internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC (http://www.sec.gov).

Investor Relations contacts

investor.relations@nokia.com

Annual General Meeting

Date: 29 April 2025

Place: Helsinki, Finland

Dividend

The Board proposes to the Annual General Meeting 2025 to be authorized to decide, in its discretion, on the distribution of an aggregate maximum of EUR 0.14 per share as dividend from the retained earnings and/or as assets from the reserve for invested unrestricted equity.

Financial reporting

Our interim reports in 2025 are planned to be published on 24 April 2025, 24 July 2025 and 23 October 2025. The full-year 2025 results are planned to be published in January 2026.

Information published in 2024

All our global press releases and statements published in 2024 are available on the internet at www.nokia.com/en_int/news/releases.

Stock exchanges

The Nokia Corporation share is quoted on the following stock exchanges:

	Symbol	Trading currency
Nasdaq Helsinki (since 1915)	NOKIA	EUR
New York Stock Exchange (since 1994)	NOK	USD
Euronext Paris (since 2015)	NOKIA	EUR

Documents on display

The documents referred to in this Annual Report on Form 20-F can be read at the Securities and Exchange Commission's internet site at http://www.sec.gov.

Contact information

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Signatures

Signatures
The registrant hereby certifies that it meets all of the requirements for filing on Form 20-F and that it has duly caused and authorized the undersigned to sign this Annual Report on Form 20-F on its behalf.

Nokia Corporation

By: **/S/ STEPHAN PROSI**
Name: Stephan Prosi
Title: Vice President, Corporate Controlling and Accounting

By: **/S/ JOHANNA MANDELIN**
Name: Johanna Mandelin
Title: Vice President, Corporate Legal

13 March 2025

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