

NOKIA

DELIVERING OPERATIONAL COST SAVINGS THROUGH AUTONOMOUS NETWORKS

SUMMARY

Communications service providers (CSPs) face daunting economic and operational challenges. On one hand, capital expense levels and management complexity tied to next-generation mobile core, radio access network, and backhaul deployment continue to be significant despite the introduction of disaggregated infrastructure and Open RAN systems. The sky-high cost of licensed spectrum used for data transmission and service support also adds to this burden. On the other hand, operator monetization beyond access remains an elusive endeavor because of legacy constraints, persistent security challenges, and friction tied to a historical lack of developer tools to facilitate fixed, mobile, and converged network programmability.

AI and automation combined have great potential to help CSPs unlock significant operational cost savings, new monetization opportunities, and delightful subscriber experiences—and drive returns on upfront capital infrastructure investment. However, equally important are the strong analytics support, prescriptive telco security measures, and network programmability that are necessary for architecting and delivering fully intelligent autonomous networks at scale. The bar is high, and few network infrastructure providers have the depth and breadth of capabilities to deliver what is needed today.

Moor Insights & Strategy believes that Nokia is well positioned to deliver on the promise of intent-based autonomous networks designed to lower operational costs and unlock new monetization opportunities. The company has formulated a complete, end-to-end vision to address this opportunity. Consequently, Nokia's approach to autonomous networks is supported by: significant investments in AI ops and generative AI as fundamental building blocks; a clear grasp of what is needed from an analytics perspective to refine operational controls; deep capabilities within its security portfolio to safeguard operators and end users; and the underlying orchestration required to facilitate developer innovation through network programmability.

AI'S CRITICAL ROLE IN AUTONOMY

Nokia's vision for autonomous networks pulls together *sensing* through unified data collection and observability, *thinking* through AI operations, and *acting* through intent-driven service orchestration and assurance and security. Sensing is instrumental to establish continual network posture and feed algorithmic models with high-quality, curated data. Thinking leverages the power of AI ops to apply higher degrees of automation through analytics to improve service efficiency and user experiences. Acting facilitates proactive—and predictive—remediation of connectivity issues and cyberthreats, reducing downtime.

Over the past several years, AI ops has allowed enterprises to realize improved service reliability, faster resolution of IT-related issues, reduced operational costs, and more. However, gen AI is now poised to supercharge network operations and transform both enterprise and consumer use cases. [Nokia is embracing both AI ops and gen AI to unlock higher degrees of automation.](#) Product use cases include dynamic slicing, threat prediction analysis, and digital experience monitoring. Productivity use cases include marketing collateral, test and coding, and customer care automation. These are noteworthy capabilities, and MI&S believes that Nokia is leveraging the power of both AI ops and gen AI to enable transformative AI use cases and applications while providing the necessary network scalability for next-generation AI workloads.

THE IMPORTANCE OF ANALYTICS

Deep analytics are a critical component of future autonomous networks, given their ability to facilitate actionable insights from data. Data scientists manage this task, but today they are challenged by process inefficiencies and the sheer volume and diversity of data types. Furthermore, like in cybersecurity, there is a shortage of skilled practitioners that is hampering the ability of CSPs to implement adequate data analytics. But automation can address many of these challenges, and [Nokia has significant depth in this regard through its AVA Data Suite.](#)

MI&S believes that the Nokia AVA Data Suite provides an essential foundation to unlock the real value of data to develop compelling AI use cases and accelerate the autonomous networks journey. The platform weaves together a data studio and intelligent engines that aim to reduce the friction in developing AI and machine learning applications; it also facilitates integration into a third-party ecosystem to spur innovation. Nokia AVA's success is evidenced by more than 350 AI ops analytics projects deployed globally to date.

TELCO SECURITY CONSIDERATIONS

Mission-critical networks create unique cybersecurity challenges, given the volume and variety of devices that connect to them. There are also unique infrastructure elements for disaggregated core, radio access network, and transport that thwart proper security controls. Furthermore, legacy protocols and country-specific regulatory considerations introduce higher levels of complexity for CSPs in maintaining consistent connectivity services, ensuring privacy, and reducing mobile subscriber churn.

MI&S believes that Nokia's depth in telco security can address these areas at scale and serve as a critical aspect of autonomous networks. The company's encryption capabilities span IP/MPLS, optical transport, radio, and core infrastructure elements. Through its [NetGuard Cybersecurity Dome platform](#), Nokia also provides security services for cloud and software-defined networks, value-added gen AI functionality to help security operations professionals quickly analyze threats and automate remediation, and extended detection and response baseline functionality for endpoint protection and network assurance for telco workloads. Nokia's success in this area is attested by more than 500 security projects deployed globally.

EMPOWERING DEVELOPER INNOVATION

Manually operated networks are fraught with complexity and do not provide the inherent ability to enable network programmability. In contrast, autonomous networks can deliver immense value for developers by providing the underlying automation and orchestration for API exposure to function at scale. This creates new monetization opportunities for network operators, balancing significant investments in next-generation infrastructure and licensed spectrum.

To complement its autonomous network capabilities, Nokia offers its [Network Exposure Platform](#) (NEP) and [Network as Code](#) (NaC) solution. Both are designed to simplify and scale the process of network programmability and accelerate developer innovation with consolidated toolsets and resources made available through a developer portal.

CALL TO ACTION

Autonomous networks are poised to radically transform operational control, lower costs, dramatically improve productivity, and unlock new monetization opportunities for CSPs. This represents a sea change in providing value to users beyond access, but it is a complicated endeavor. To deliver a fully functional autonomous network, platforms must

effectively integrate both AI ops and gen AI, utilize data analytics to provide actionable insights, ensure the highest levels of security, and support rich network programmability that facilitates developer innovation. It is a high bar—one that only a handful of solution providers can meet.

MI&S believes that Nokia possesses the necessary capabilities to deliver on the promise of intent-based autonomous networks. This is evidenced by its investment in AI as a fundamental building block to enable autonomy. Furthermore, Nokia understands what is needed from an analytics perspective to refine operational controls with its AVA Data Suite. Given the proliferation of connected devices and an ever-expanding threat surface, the company's NetGuard Cybersecurity Dome provides a rich set of AI-infused tools to safeguard operators and users. Finally, Nokia is leveraging the power of autonomous networks to provide the necessary orchestration to enable developer innovation through API programmability with its NaC and NEP solutions. In aggregate, it is a powerful set of capabilities that have the potential to enable transformative network operational agility and dramatically reduce operational expense.

CONTRIBUTOR

[Will Townsend](#), Vice President & Principal Analyst, Networking & Security Practices

PUBLISHER

[Patrick Moorhead](#), Founder, President, & Chief Analyst at [Moor Insights & Strategy](#)

INQUIRIES

[Contact us](#) if you would like to discuss this report, and Moor Insights & Strategy will respond promptly.

CITATIONS

This paper can be cited by accredited press and analysts but must be cited in-context, displaying author's name, author's title, and "Moor Insights & Strategy". Non-press and non-analysts must receive prior written permission by Moor Insights & Strategy for any citations.

LICENSING

This document, including any supporting materials, is owned by Moor Insights & Strategy. This publication may not be reproduced, distributed, or shared in any form without Moor Insights & Strategy's prior written permission.

DISCLOSURES

This paper was commissioned by Nokia. Moor Insights & Strategy provides research, analysis, advising, and consulting to many high-tech companies mentioned in this paper. No employees at the firm hold any equity positions with any companies cited in this document.

DISCLAIMER

The information presented in this document is for informational purposes only and may contain technical inaccuracies, omissions, and typographical errors. Moor Insights & Strategy disclaims all warranties as to the accuracy, completeness, or adequacy of such information and shall have no liability for errors, omissions, or inadequacies in such information. This document consists of the opinions of Moor Insights & Strategy and should not be construed as statements of fact. The opinions expressed herein are subject to change without notice.

Moor Insights & Strategy provides forecasts and forward-looking statements as directional indicators and not as precise predictions of future events. While our forecasts and forward-looking statements represent our current judgment on what the future holds, they are subject to risks and uncertainties that could cause actual results to differ materially. You are cautioned not to place undue reliance on these forecasts and forward-looking statements, which reflect our opinions only as of the date of publication for this document. Please keep in mind that we are not obligating ourselves to revise or publicly release the results of any revision to these forecasts and forward-looking statements in light of new information or future events.

©2025 Moor Insights & Strategy. Company and product names are used for informational purposes only and may be trademarks of their respective owners.