



Perspective

Unlocking greater intelligence and innovation in OSS/BSS with a unified cloud, data and AI platform

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1. Executive summary

It is imperative that communications service providers (CSPs) accelerate their adoption of cloud, big data and AI as part of OSS/BSS modernization. Customer expectations are moving rapidly towards digitalized, real-time experiences, while 5G is contributing to the operational complexity of new use cases such as network slicing, B2B2X billing and edge-enabled services.

The path forward is to accelerate cloud migration, transform data intelligence and increase AI adoption. Migrating OSS/BSS to a cloud-native environment simplifies complexity, improves efficiency and unlocks new revenue streams. Cloud-native platforms also provide access to advanced toolsets, robust data pipelines and AI applications to enable more agile, intelligent and dynamic operations and greater innovation.

2. Recommendations

Establish a common cloud infrastructure across OSS and BSS applications. Migrating applications from legacy infrastructure to the cloud enables CSPs to achieve long-term agility and flexibility. Open standards also play a critical role in simplifying integration with third-party services and accelerating business and technology innovation across the ecosystem.

Build a robust data architecture as a pre-requisite for effective AI implementation. The creation of a unified cloud data platform with secure, scalable data pipelines will help CSPs to unify various data sources across network, IT and business domains for greater operational intelligence.

Accelerate AI innovation by integrating advanced cloud-native tools, frameworks and models. Leveraging hyperscale AI, generative AI (GenAI) and agentic applications can enhance intent-based operations and generate actionable insights for autonomous networking and competitive differentiation.

Prioritize process modernization and system rationalization for short-term operational efficiency gains and cost savings. Target high-impact, low-risk workloads for initial cloud migration to demonstrate value minimizing disruption to existing operations and services. These then serve as proof points to help refine broader cloud strategies before tackling more-complex transformations.

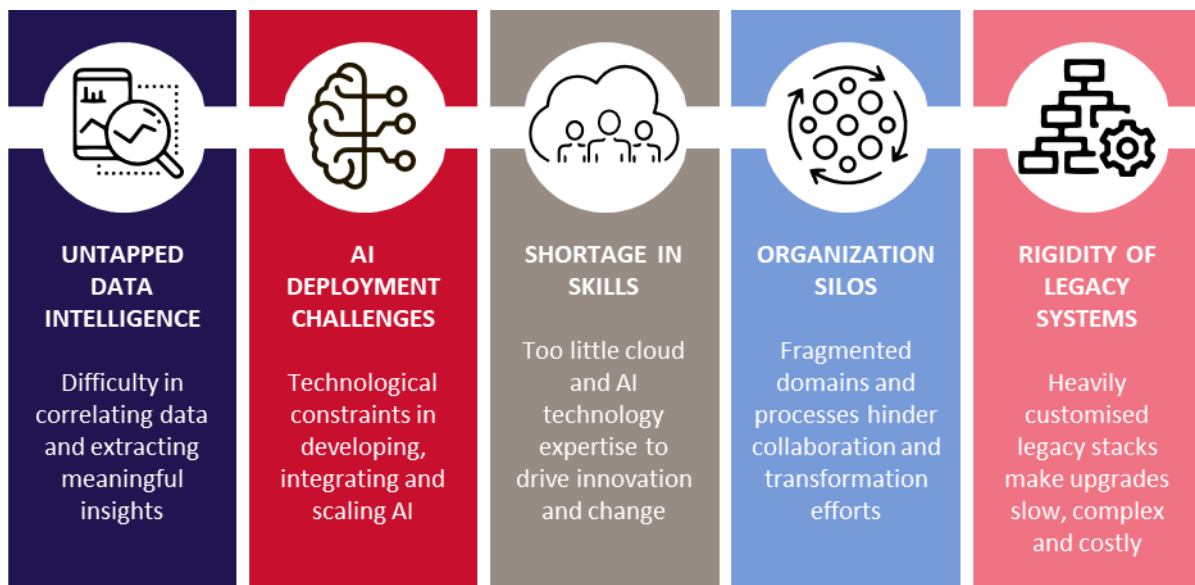
Adopt a phased approach to OSS/BSS modernization using cloud-native principles. Microservices, CI/CD pipelines, GitOps and Kubernetes enable CSPs to make modular upgrades, streamline integration, and scale dynamically without needing to completely overhaul their existing systems or operations.

Treat each 5G roll-out as a business case for OSS/BSS modernization. New 5G services demand advanced capabilities in billing, charging, partner management and customer experience. Aligning OSS/BSS upgrades with 5G Monetisation goals ensures measurable benefits for total cost of ownership (TCO) reduction and revenue uplift.

3. Tackle technical and organizational barriers in OSS/BSS modernization

The drive towards adopting cloud-native architectures in the telecoms sector is accelerating in response to a growing need to unify network and IT operations. There is an increasing demand for more programmable, model-driven automation to enable greater agility, as well as growing adoption of AI, GenAI and agentic applications to support autonomous networking. While many CSPs have started their OSS/BSS modernization journeys, they continuously face organizational and operational challenges that have hindered full-scale transformation.

Figure 3.1: Key OSS/BSS modernization challenges



Source: Analysys Mason

3.1 Insufficient data intelligence is a critical barrier to unlocking greater operational insights

CSPs possess vast amounts of data across disparate domains, but enabling intelligent automation requires real-time or near-real-time data ingestion and analysis, and machine learning (ML) models must be contextually adapted to each domain. CSPs often find it difficult to extract, normalize and analyse data across the different network domains, especially across legacy systems that run on proprietary protocols.

68% of CSPs cited democratized access to relevant data as one of the top three challenges in applying AI to their network operations. ¹

¹ Data from Analysys Mason's autonomous networking survey of vendors, August 2025.

3.2 AI implementations remain suspended in PoC due to integration challenges and technology constraints

Vendor challenges for wider AI adoption include data privacy and security (24%), trust in AI (20%), company culture (15%) and integration challenges (15%).²

While vendors are increasingly embedding AI into their OSS/BSS solutions, transitioning from proof-of-concepts (PoCs) to full-scale integration demands extensive custom engineering and testing of these newer technologies, as well as AI-driven tools to integrate with legacy systems.

While agentic AI adoption is gaining momentum, only 27% are in live deployment. 57% of vendors are currently running PoCs, and 17% are scaling across multiple deployments.³

AI models and toolsets are still at an early stage in the telecoms domain, and as AI systems begin to influence operational decision-making, the need for AI trustworthiness, model transparency and explainability becomes critical to ensure accurate output. Adapting models to reflect CSP-specific network architectures and policies requires extensive fine-tuning and domain expertise.

80% of CSPs cited that the accuracy of results from models was among the top two challenges that they face when applying GenAI technologies to the network domain. Model customization appeared among the top two challenges for 49% of CSPs.⁴

3.3 Skill shortages remain a major obstacle in advancing innovation

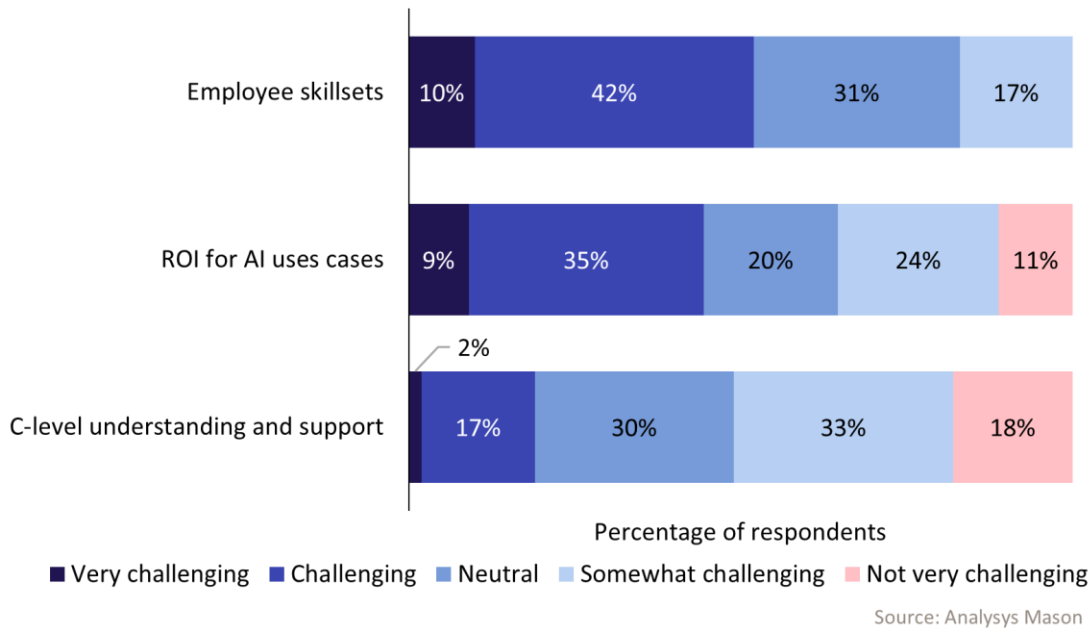
One of the most persistent challenges in OSS/BSS modernization is shortage of skilled professionals and expertise in both IT and network domains, which limits the ability for CSPs to deploy and scale new technologies effectively. Many CSPs also struggle to build compelling ROI cases for AI use cases that are part of many OSS/BSS modernization initiatives. In many cases, C-level executives lack visibility of, or a clear understanding about, where AI creates measurable business value, which makes it harder for them to secure investment budgets for modernization projects.

² Data from Analysys Mason's autonomous networking survey of vendors, August 2025.

³ Data from Analysys Mason's autonomous networking survey of vendors, August 2025.

⁴ Data from Analysys Mason's survey of CSPs about their use of generative AI in the network survey, March 2025.

Figure 3.2: How challenging are each of the following organizational aspects of applying generative AI technologies to the network domain?, March 2025



3.4 Organizational silos are fragmenting operational workflows and domains

Even with strong technology roadmaps, CSPs' IT and network teams have traditionally been siloed, which creates friction in the adoption of new technologies and duplicated workflows. This often results in higher operational costs and inefficiencies, especially when maintaining dual technology stacks. While CSPs depend on vendors and other partners to bring more technical expertise, it is often difficult to co-ordinate activities among multiple stakeholders and across business units due to conflicting priorities.

3.5 Rigid legacy systems are driving up costs and complexity

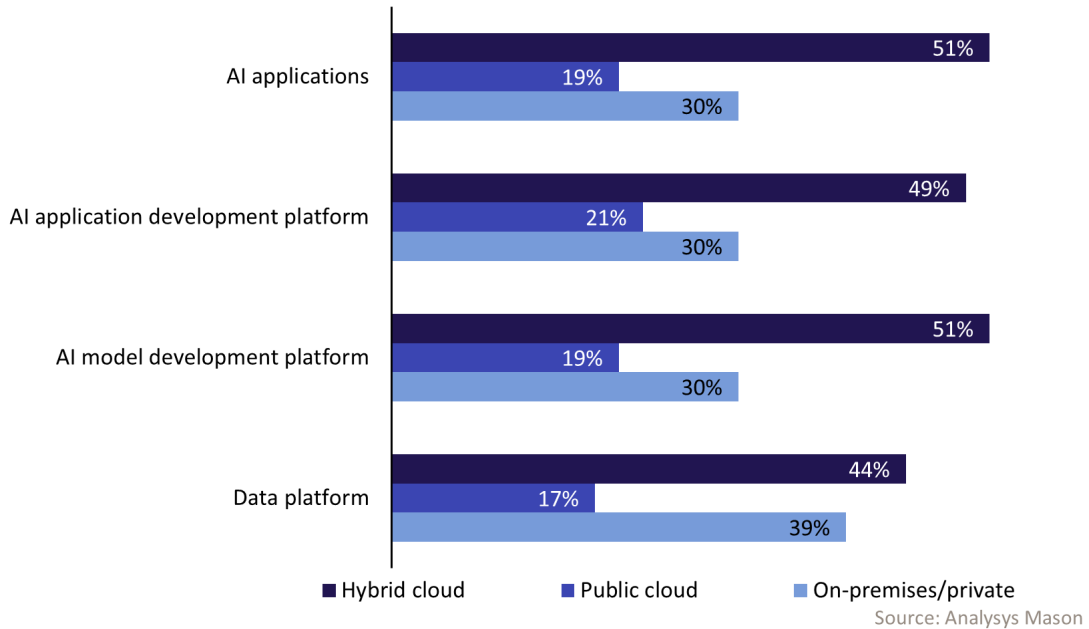
Legacy OSS/BSS systems are often highly customized to CSPs' network environments, making it difficult to integrate newer AI technologies without extensive replacement or significant operational overhead. Scaling OSS/BSS in legacy environments to support new use cases often results in high costs associated with developing, deploying, operating and maintaining these systems.

4. Explore cloud-native transformation strategies for intelligent OSS/BSS

CSPs are exploring various strategies to modernize their OSS/BSS with more advanced AI and data-driven solutions to unlock greater agility, efficiency and scalability. This transformation requires more than just deciding where to deploy applications. CSPs are evaluating where to deploy AI application development platforms, model training environments and data platforms. Assessing each deployment model's capacity to meet the specific performance, latency and data handling requirements of AI-enabled applications is essential

for maintaining optimal system performance and for ensuring compliance with evolving AI and data governance regulations.

Figure 4.1: Which components of your AI/generative AI stack for the network domain are deployed on-premises/in a private cloud, and which components are deployed in the public cloud?, March 2025



4.1 Cloud transformation is a central focus for CSPs seeking agility and scalability

Cloud transformation remains a requirement for CSPs aiming to boost agility and scalability, but the path forward is still being shaped. Many CSPs are implementing cloud-native architectures to modernize OSS/BSS, testing different deployment models (such as public, private and hybrid) to find the right balance between scalability, sovereignty and regulatory compliance. Beyond deployment, there is also growing interest in adopting cloud-agnostic platforms to gain flexibility and avoid locking into a single vendor ecosystem.

At the application layer, CSPs are trialing multiple modernization strategies to identify which pathways deliver the least disruption. Some are lifting and shifting workloads to virtual machines for quick wins, while others are exploring managed cloud services to reduce operational overhead. More advanced efforts include refactoring monolithic systems into microservices and piloting SaaS replacements for legacy platforms.

4.2 Managing cloud-native OSS/BSS complexity demands tightly integrated AI capabilities

CSPs are increasingly adopting AIOps to address the growing complexity associated with managing their IT and network environments, especially as they evolve these environments to become cloud native. AIOps also requires MLOps capabilities, which enable CSPs to quickly develop and deploy AI models in their AIOps platforms and to prevent the degradation in performance of AIOps solutions. MLOps also allow CSPs to automate model training, validation and roll-outs using real-time data from unified lakes and fabrics.

Some CSPs are now extending this trial of AIOps with MLOps to include LLMOps for fine-tuning large language models (LLMs) for domain-specific tasks. Together, MLOps and LLMOps ensure that AIOps remain

context-aware, explainable and trustworthy, and are continuously optimized for autonomous decision-making across cloud-native OSS/BSS systems.

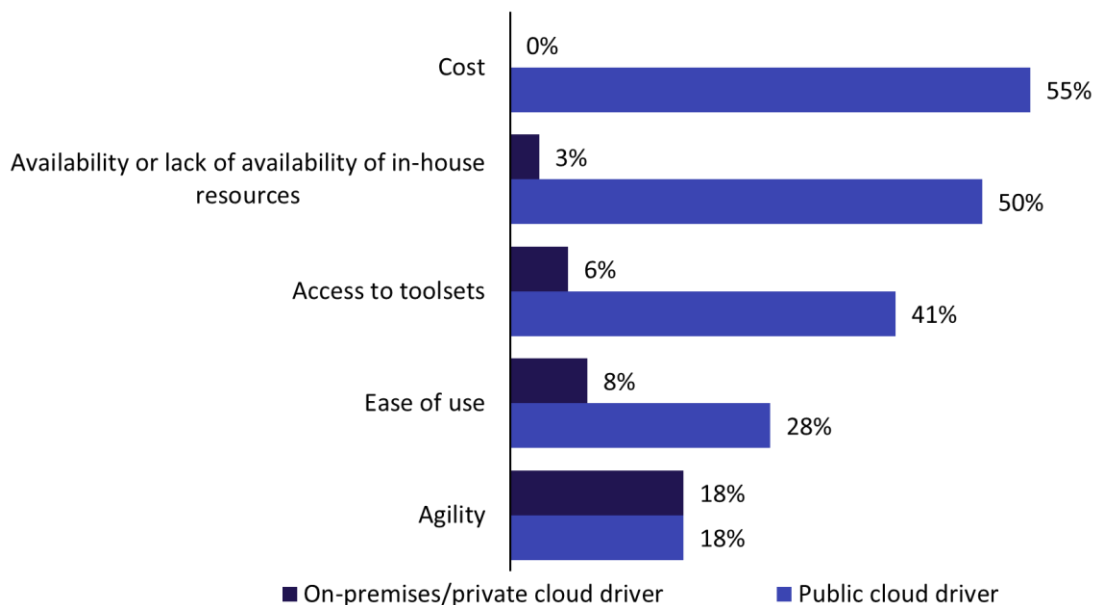
4.3 Advanced analytics and AI-driven operations depend on a unified data platform

CSPs are deploying unified data platforms to allow ML models to be trained on knowledge bases with network-aware datasets. Many CSPs are testing ways to consolidate data from various sources (OSS/BSS, IT systems, RAN and core) into a unified platform and experimenting with data pipelines that span network, IT and business domains. DataOps platforms are being piloted to facilitate dynamic integration and to unlock use cases such as predictive maintenance and customer experience personalization. The industry is also exploring how to improve data quality and contextual understanding to support more effective ML model training.

5. Public cloud deployments of OSS/BSS provide enhanced functionalities that accelerate AI innovation and improve scalability and efficiencies

Migrating OSS/BSS to public cloud environments delivers tangible benefits in business and operational efficiency, agility, flexibility and innovation. The public cloud provides the on-demand compute, storage, observability and ecosystem integration required to operationalize autonomous networking with advanced AIOps and GenAI at scale.

Figure 5.1: What are the top two drivers for why you have/would want to deploy components of your AI/GenAI stack on-premises/in the private cloud versus in the public cloud?, March 2025



Source: Analysys Mason

5.1 Scale flexibly and dynamically to enable emerging 5G use cases

One of the most immediate benefits of cloud-native OSS/BSS is the ability to decouple from rigid legacy systems. Cloud-native OSS/BSS provide modular, microservices-based and containerized components, which allow CSPs to gradually retire legacy systems and to flexibly scale resources for OSS/BSS workloads. This allows CSPs to reduce capex by improving resource optimisation and supports rapid service deployment. DevOps and CI/CD pipelines further enhance this agility by streamlining development, testing and roll-out cycles to enable faster integration and continuous upgrades. GitOps is increasingly being adopted by CSPs as a method for maintaining consistent configuration and version control across environments.

Odido successfully migrated more than 5 million subscribers from its legacy billing systems on to a cloud-native Ericsson Billing environment hosted on AWS over a single weekend with zero service disruption. This enabled faster roll-out of new 5G services, including the launch of 5G fixed-wireless access (FWA) across the Netherlands.

5.2 Advance autonomous operations by adopting cloud-native AI applications and tools

Cloud-native automation principles will enable CSPs to quickly achieve the benefits of declarative, intent-driven operations. OSS/BSS platforms can now be enhanced with ready-to-use AI and GenAI applications and toolsets that support real-time decision-making and proactive issue resolution.

A Tier 1 CSP in the USA deployed Ericsson's cloud-based AI solution that predicts order fallouts 30 minutes in advance, resulting in a 95% reduction in failures and a 60% decrease in mean time to repair (MTTR).

5.3 Enhance observability and intelligence with a unified data platform

Public cloud provides a centralized data platform such that observability concerns can be overcome by consolidating data from various sources with unified control and orchestration. Public cloud platforms offer advanced DataOps tools that CSPs can use to enhance predictive analytics and to tap into actionable insights across customer experience, network performance and service operations.

giffgaff migrated Ericsson's Mediation solution from on-premises infrastructure to AWS as part of its digital-first strategy. This helped to enhance data ingestion and processing, and to maintain compliance with data protection regulations through AWS's built-in security.

5.4 Accelerate AI innovation with advanced developer tools and open collaboration

Public cloud environments offer high-performance compute, storage and scalability functions to support advanced AI workloads across OSS/BSS systems. These platforms provide integrated MLOps and LLMOps frameworks that help CSPs to operationalize AI at scale, as well as ready-to-use AI applications that can be quickly deployed. Worker agents and copilots also help to build new AI application agents.

Hyperscale cloud platforms also offer access to rich knowledge bases, pretrained foundational models and sophisticated toolsets so that CSPs can tailor AI solutions to telecoms-specific use cases; and offers support for explainable AI to ensure that CSPs can understand and validate the decisions that are made by autonomous systems. This helps to increase the levels of trust and confidence that CSPs gain when working with agentic applications and handing over decision-making to them.

Grameenphone created an agentic AI solution as part of Ericsson and AWS Gen-AI Lab, using Amazon Bedrock and AWS to automate product catalog migration to introduce automation and transform previously manual processes.

6. Summary

The telecoms industry must rethink its OSS/BSS modernization strategies to accelerate digital transformation journeys and to keep pace with rising customer expectations and operational complexity.

Migrating OSS/BSS to the cloud provides CSPs with access to advanced toolsets, AI, GenAI and agentic applications, alongside robust data platforms and pipelines to correlate insights and orchestrate intelligent automation across network, service, IT and business layers.

Integrating data, cloud and AI architectures with cloud-native OSS/BSS will allow CSPs to drive greater operational efficiency while also providing improved flexibility and agility for scaling AI use cases and for facilitating a faster time to market for new services.

- **Progress your cloud journeys.** Migrating OSS/BSS to a cloud-native environment provides greater agility to deploy new services more quickly, to scale dynamically and to integrate diverse applications with network, IT, service and business operations.
- **Make data more useful.** Unify data across various domains to feed intelligence into OSS/BSS and AI to support predictive analytics and generate actionable insights.
- **Deploy AI.** Accelerate the adoption of AI, GenAI and agentic applications and embed them into end-to-end processes to solve real business problems.

7. Appendix

Ericsson and AWS are collaborating to modernize OSS/BSS spanning across core commerce, monetization, orchestration, data analytics and AI domains. Ericsson is using cloud-native transformation and AI, GenAI and agentic AI integration tools for automating complex workflows to transform core OSS/BSS products into cloud-native applications, with AWS providing the scalable infrastructure for deployment.

Ericsson's Telco DataOps platform unifies data collection, processing, management and governance to make data more useful and to fuel effective AI to help CSPs run their business and operations more smoothly.

Ericsson is accelerating AI integration and industrialization in OSS/BSS through its Telco IT AI Apps, Telco IT AI Engine and Telco Agentic AI studio, using services such as Amazon Bedrock, Amazon Q and Amazon SageMaker.

Ericsson and AWS have also launched Gen-AI Lab, a structured, outcome-driven approach that uses Ericsson's expertise in OSS/BSS and AWS AI capabilities and cloud services, to empower CSPs to solve OSS/BSS challenges and to turn ideas into reality at unprecedented speeds.

7.1 Customer case studies

Odido: modernizing billing systems to support 5G service delivery

Odido successfully migrated more than 5 million subscribers to Ericsson's cloud-native billing solution hosted on AWS to support next-generation 5G services. The modernized billing system now enables Odido to quickly launch and monetize innovative 5G offerings, such as its Klik&Klaar FWA product, while also supporting hybrid bundles and converged offerings.

giffgaff: migrating mediation to the public cloud for increased efficiency

giffgaff transitioned Ericsson Mediation from on-premises infrastructure to AWS as part of its digital-first strategy. This migration enhanced scalability, performance and cost efficiency while confirming that Ericsson's mediation platform is cloud-native and optimized for public cloud environments. The move improves data ingestion and processing, supporting more accurate and responsive billing operations for over 4 million customers.

Grameenphone: deploying GenAI and agentic AI to automate product catalog migration

Grameenphone used the Ericsson and AWS Generative AI Lab to develop an agentic AI based solution to automate the process of migration from its legacy product catalog to Ericsson Catalog Manager. The solution leverages Ericsson's telecoms expertise and AWS's foundation models on Amazon Bedrock. This initiative helped the CSP to explore how advanced AI can automate processes and enable faster, more contextual product development.

Tier 1 CSP in the USA: predicting and preventing service order fallouts.

The CSP deployed Ericsson's AI-powered order fallout detection and prediction model running on cloud infrastructure. The solution supported proactive identification of performance issues in the CRM, order management, charging, provisioning and middleware applications to accelerate root-cause analysis and MTTR for order-management-related incidents.

7.2 More information

- [*How Ericsson and AWS are accelerating digital transformation and AI innovation in OSS/BSS*](#)
- [*Ericsson and AWS Transform and Modernize OSS/BSS*](#)
- [*Ericsson accelerates AI innovation and industrialization for OSS/BSS*](#)
- [*Maximize OSS/BSS impact with AI and GenAI*](#)
- [*Odido streamlines operations with cloud-native billing transformation on AWS*](#)
- [*Manage business intent with agentic AI for enabling autonomous networks*](#)
- [*OSS/BSS evolution for successful 5G monetization*](#)

8. About the authors



Justin van der Lande (Research Director) leads the Operational Applications practice. He specialises in business intelligence and analytics tools, which are used in all telecoms business processes and systems. In addition, Justin provides technical expertise for Analysys Mason in consultancy and bespoke large-scale custom research projects. He has more than 20 years' experience in the communications industry in software development, marketing and research. He has held senior positions at NCR/AT&T, Micromuse (IBM), Granite Systems (Telcordia) and at the TM Forum. Justin holds a BSc in Management Science and Computer Studies from the University of Wales.



Dennisa Nichiforov (Principal Analyst) leads Analysys Mason's Automated Assurance and Customer Engagement research programmes, which are part of the Operational Applications practice. Her research focuses on how advanced technologies and intelligent AI/ML-driven systems are transforming network and service assurance by enabling real-time, end-to-end visibility and control across highly dynamic and complex 5G architectures to enable autonomous operations. She also investigates the critical intersection of these advances with customer engagement systems, and assesses how they enable new service monetisation and enhanced customer experience. Her work identifies opportunities and threats for the service providers and the vendor ecosystem in this evolving technology landscape.



Michelle Lam (Senior Analyst) is a member of the Operational Applications practice. She leads the Network Automation and Orchestration programme. Her research focuses on competitive and strategic challenges in the evolution to next-generation networks that are highly autonomous and orchestrated by software-defined networking and network virtualisation principles. In addition, her research provides critical insights into the prospects for established and emerging network management, automation and orchestration products and related professional services. She holds a BSc in physics and an MSc in quantum technologies from University College London.

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