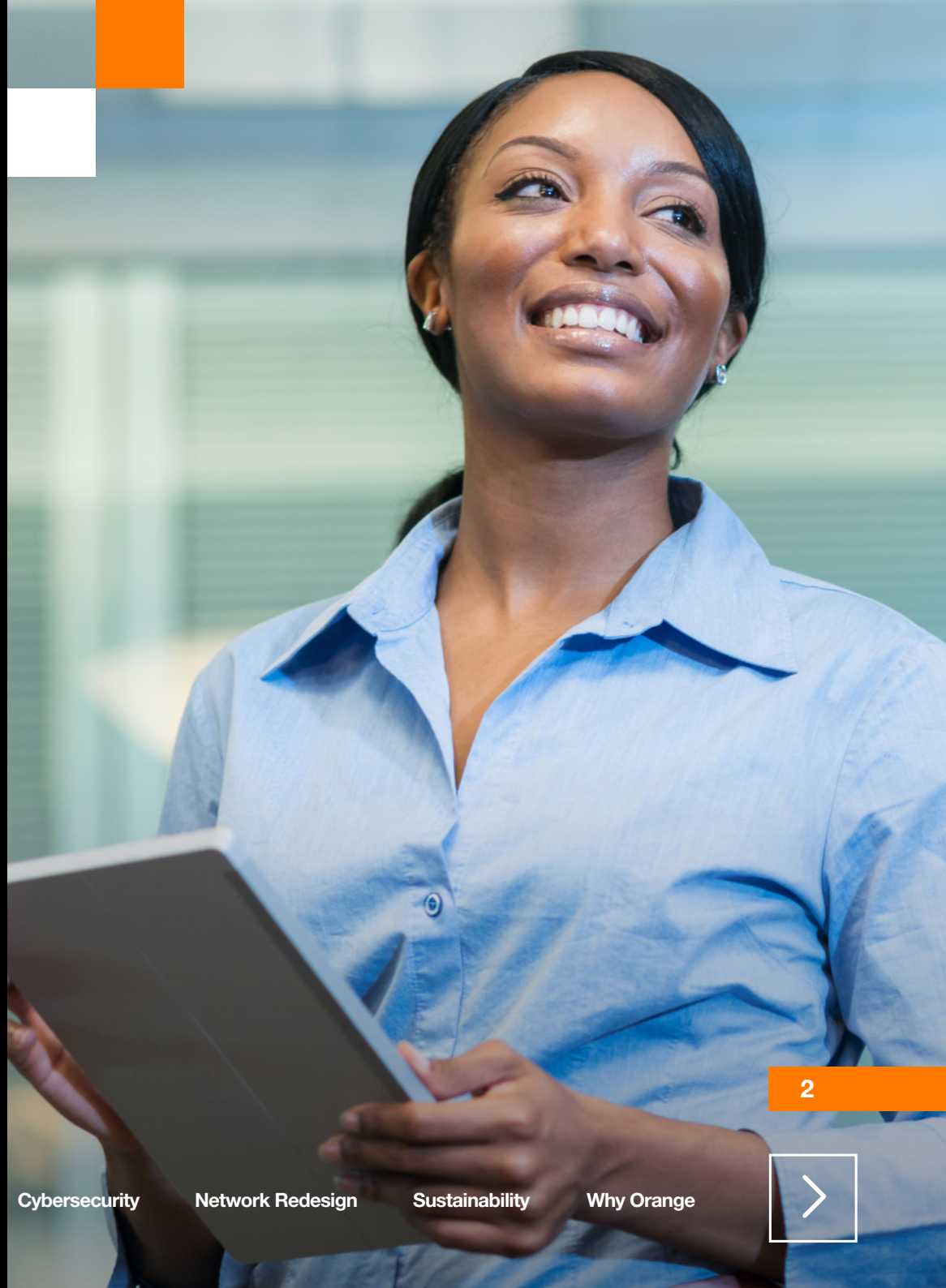

Feeling submerged by the AI wave?
Discover how Orange Business is designing networks to support your AI innovation
orange
Business
Artificial Intelligence.
Real Wisdom.

Contents



Executive summary

Network innovation through AI

As AI enhances network performance, reliable and intelligent networks are becoming essential for the effective deployment of AI solutions, creating a powerful relationship that drives innovation and growth.

With organizations' rapid integration of AI across various sectors, the demand for optimized infrastructure has never been more critical. AI's insatiable appetite for data, sourced from both internal live feeds and external streams, requires networks that are not only highly secure but also flexible and resilient. This is where the true magic happens: integrating AI into networks enhances their performance and paves the way for broader AI adoption across businesses.

30% of enterprise will automate half of their network activities by 2026[1]

Integrating AI into network management is essential for enhancing performance and optimizing operations. While the combination of automation and AI in networks is not new, we have observed that significant investments and technical complexities have hindered widespread adoption in the past.

Several key use cases illustrate AI's potential in network management. For example, AI can effectively predict and prevent network congestion through dynamic resource allocation based on traffic patterns, significantly minimizing downtime and enhancing overall network reliability. This capability highlights the critical role of automation, which remains essential for building adaptable, intelligent networks.

This shift, fueled by advancements in generative AI, will deliver greater value, efficiency, and agility, allowing human resources to focus on strategic business initiatives.

In addition to performance optimization, AI is also a potent tool for enhancing security by detecting anomalies and potential threats in real-time, even in encrypted traffic. Automated responses can neutralize security threats, significantly reducing response times.

From a sustainability perspective, integrating AI into network infrastructure improves energy efficiency, optimizes resource use, and supports greener, more sustainable growth.

Building networks to empower AI innovation and drive more enterprise value

The urgency for AI adoption is palpable across industries. Gartner predicts that by 2028, the adoption of AI will culminate in over 50% of cloud compute resources devoted to AI workloads, up from less than 10% in 2023.[2]

The business adoption of AI (current and future) reveals a critical reality: AI's demand for compute power and vast amounts of data from diverse sources will reshape enterprise infrastructure. As data and compute power become increasingly distributed, organizations will face a future where traffic patterns are much more difficult to predict.

Consequently, **organizations will require highly flexible network infrastructures to unlock the full potential of data-intensive AI applications** and drive significant business outcomes.

In essence, **without seamless cloud connectivity and resilient networks, AI and cloud computing's transformative power will remain unfulfilled,** limiting their potential to drive innovation and growth.

As a leading telecom operator and integrator, we recognize the importance of leveraging cutting-edge technologies to shape the future of network services. Our strategic investments in AI focus on maximizing value for both our network and our customers.

By harnessing AI's transformative potential, we aim to enhance network performance and optimize operations, improving every stage of the customer experience, from quoting and ordering to delivery and lifecycle management. We view AI as a tool that amplifies human expertise rather than replaces it. Our customers value personal interactions, and we are dedicated to maintaining these essential connections while empowering our teams with AI-driven insights that enhance decision-making and service delivery.

This ebook explores how Orange Business utilizes cutting-edge AI technologies to reshape customer and employee experiences, improve network quality, and drive the future of intelligent network management. Join us as we create a smarter, more connected, and more secure world.

Our comprehensive AI strategy is built around three primary objectives:

1. **AI in our networks:** Enhancing service offerings with advanced AI solutions that deliver superior performance and customer satisfaction.
2. **AI in service desk operations:** Optimizing service operations by integrating innovative AI technologies to enhance efficiency and elevate overall customer experience.
3. **Network for AI:** Upgrading infrastructure to support our customers' seamless adoption of AI, helping them unlock new growth opportunities.

Unlocking the potential of AI tools in network management

Integrating AI into network management is a focal point for enhancing efficiency, performance, insight, security, and scalability. Embracing the "softwarization" of network functions offers significant opportunities as networks grow more complex.

While AI technologies like Generative AI (Gen AI), Machine Learning (ML), Deep Learning (DL), and Cognitive AI are not new, we have observed their profound impact on network operations. We drive innovation and efficiency by embedding AI into our networks, ensuring our infrastructure and clients are well-prepared for success in an increasingly AI-driven world.

Networks are more resilient, secure, and efficient. Our goal is to enhance the customer experience, making their journey seamless and successful.

Legacy networks: lessons learned and opportunities

Integrating AI into legacy networks is not without its challenges. We've observed that existing infrastructure and business processes often require significant adaptation to fully harness AI's potential. Seamless integration demands a comprehensive approach, including investments in technology, training, and strategic planning. However, the rewards are transformative, and we've seen firsthand how AI can unlock new efficiencies and capabilities.

One of the key lessons we've learned is that change management is pivotal. **Introducing AI into networking operations requires that you rethink established processes and workflows. It's not just deploying new tools, it's embedding AI to align with operational goals while addressing ethical and regulatory concerns.** This proactive approach ensures that AI becomes a trusted and effective part of network management.

AI is proving its ability to solve real-world networking challenges. From automating device configurations to diagnosing complex issues through cross-layer correlation, AI provides previously unattainable insights. However, we've also learned the importance of staying pragmatic. Getting caught up in hype is easy, but our focus remains on delivering tangible

20% of initial network configuration will be performed by GenAI by 2026[3]

Our ongoing commitment to transform network performance

We are committed to using AI to enhance network management, reliability, and customer experience. Here's how we apply AI to deliver key value:

1 Building the foundation: Strengthening network observability

We've learned that observability is the cornerstone of effective network management. AI-driven observability provides deeper insights into metrics like latency, packet loss, and error rates, enabling us to detect anomalies and predict maintenance needs. However, while observability offers valuable insights, human intervention is often required to act on this data. Tools like Orange Network Optimizer (ONO) allow us to visualize the impact of network modifications and make data-driven decisions to maintain efficiency and service quality.

Observability lays the groundwork for smarter networks, and AIOps build on this foundation, moving us closer to self-healing systems that dynamically optimize themselves in real-time.

2 Cutting through the noise to improve operations

Through our experience with tools like the Augtera Network AI platform, we've seen how AI/ML can transform daily network operations. By reducing the number of incident alerts our Network Operations Center (NOC) needs to address by 70%, we've freed up resources to focus on more strategic tasks. AI's ability to detect anomalies and predict incidents has significantly improved service quality and operational efficiency.

3 Streamlining the initial stages of incident response

We've observed that automated incident management is a game-changer. By correlating data from multiple sources, AI can trigger alerts and propose corrective actions in real-time. This shortens response times, reduces false positives, and streamlines ticketing processes, allowing IT teams to focus on higher-value tasks.

60% of network operations personnel will use GenAI for Day 2 management by 2026

4 Reducing brownout impact

Brownouts, also called unusable uptime, are periods of reduced network performance that can significantly impact productivity and revenue. Enterprises often do not realize they are experiencing dips in service quality, and they are primarily flagged due to user experience degradation.

We've found that early anomaly detection is critical to preventing minor issues from escalating into major problems. Using AI in our monitoring, we can address issues like brownouts before they affect users. Traditional monitoring tools often fall short in handling complex service issues, but AI enables us to act quickly and effectively.

5 Planning capacity and ingesting digital twins

AI has enabled us to take a proactive approach to capacity planning. By leveraging machine learning and advanced analytics, we can anticipate future demands, optimize resource allocation, and prevent network bottlenecks before they occur. This ensures that networks remain efficient and resilient, even as demands grow more complex.

Digital twins are a key enabler of this approach. These virtual replicas of network environments allow us to simulate various scenarios, test potential solutions, and refine strategies before deploying them in real-world settings. This not only reduces risks but also accelerates the implementation of optimized solutions.

By 2026, 50% of networking vendors will offer a digital twin capability in their solution, up from 10% in 2023.[4]

For our customers, this delivers three tangible benefits:

- Enhanced efficiency: Adapt seamlessly to changing demands thanks to a more robust and scalable network infrastructure.
- Optimized performance: Efficiently handle network demand spikes while preventing overprovisioning.
- Improved business outcomes: Enhance overall reliability, reduce downtime, and streamline operations thanks to greater accuracy in capacity planning.

Our end goal: Interconnecting network and user experience

Through these initiatives, we've learned that AI is more than a tool, it's a strategic enabler that drives smarter, more resilient, and customer-focused networks. By proactively addressing performance issues we have minimized disruptions and ensured continuous improvement for our customers.

Elevating the customer journey

Every business faces challenges managing customer and user support in an increasingly complex environment. By leveraging AI, we can enhance performance and eliminate friction points throughout the customer journey. Through process optimization, automation of repetitive tasks, and actionable insights, we ensure smoother interactions, improved service quality, and greater responsiveness.

At Orange Business, we view every challenge as an opportunity to improve. We continuously enhance our processes, products, and strategies to better serve our customers by analyzing what went wrong, extracting insights, and making adjustments.

This approach is guided by key principles, including our “test fast, fail fast, learn fast” philosophy, which allows us to refine AI-driven solutions through rapid iteration. Combined with our commitment to reducing friction in the customer journey and enhancing operational efficiency, we work to deliver a seamless experience at every step. By staying grounded in real-world challenges and focusing on creating tangible value, we shape the future of network management with innovation and purpose.

Here are examples of innovations we have made to improve our customer journey.

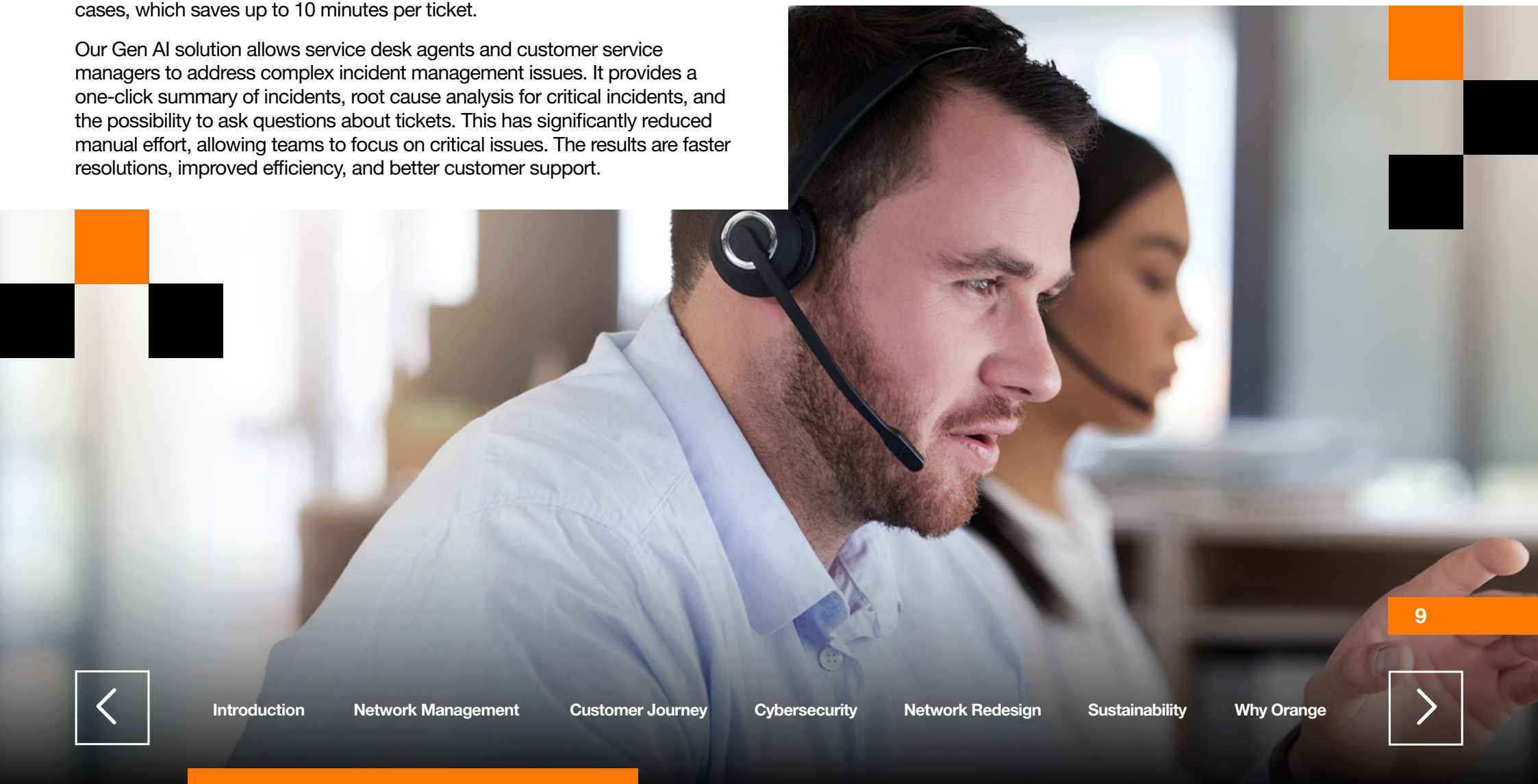
1 Laying the groundwork: Automating service desk ticket management

We began by addressing one of the most time-consuming areas in network operations: service desk ticket management. By integrating GenAI capabilities, we've automated tasks such as summarizing tickets and identifying similar cases, which saves up to 10 minutes per ticket.

Our Gen AI solution allows service desk agents and customer service managers to address complex incident management issues. It provides a one-click summary of incidents, root cause analysis for critical incidents, and the possibility to ask questions about tickets. This has significantly reduced manual effort, allowing teams to focus on critical issues. The results are faster resolutions, improved efficiency, and better customer support.

2 Digging deeper: Root cause analysis (RCA) automation

To complement service desk automation, we've implemented RCA automation to streamline the creation of detailed root cause analysis documents. Leveraging advanced LLM technology, we've reduced the eight hours per incident spent on documentation to approximately four hours. This allows teams to focus on customer-centric tasks while delivering enriched insights to customers faster.



3 Empowering teams: AI-powered knowledge assistance hub

Customers often have their own service requirements, topology, and network diagrams, and it is highly time-consuming for service desk teams to search for relevant information in multiple tools and documents.

We've introduced an AI-powered knowledge assistance hub to improve this while managing data confidentiality. This tool enables teams to quickly access relevant information, avoiding the delays caused by siloed data. Through an internal chatbot, teams can retrieve accurate answers in real-time, improving delivery times.

The solution is designed to cover any knowledge domain in Orange Business, including service desk, customer service management, security, project management, communications, marketing, and HR.

4 Accelerating business processes: Contract management transformation

One less visible aspect that AI has revolutionized is our contract lifecycle management. Automating the generation of contracts and proposals has reduced errors and accelerated response times. AI also helps with back-to-back contract screening, ensuring compliance with customer requirements.

This transformation impacts everything from contract negotiations to IT operations, enabling faster, more accurate service delivery. For example, AI assists us in selecting the ideal combination of internet service providers (ISP) tailored to meet specific customer RFP requirements.

5 Streamlining operations throughout the end of the chain: Orders and billing processes

Finally, we've integrated AI into our order-to-billing process to simplify workflows and reduce complexity. AI-based tools automate repetitive tasks, adjust stock levels based on demand, and verify invoices for accuracy. Invoice errors can be costly and time-consuming for both our customers and us. By rapidly verifying invoices and cross-referencing them with contract terms and pricing agreements, AI reduces the risk of errors and ensures smoother transactions.

This approach streamlines operations, minimizes disruptions, and provides customers with greater clarity and control over their accounts.
The result is a more efficient, responsive, and customer-focused framework that enhances the overall experience.

Outpacing security threats

While offering huge benefits, AI also introduces new security threats to networks and digital infrastructures. These threats can arise from malicious use of AI, vulnerabilities within AI systems, or the ways in which AI changes the nature of traditional cyber threats, making them more sophisticated.

AI can swiftly identify early signs of problematic patterns, often caused by malicious actors, and issue predictive alerts or “red flags”. Our network and security teams can then take proactive measures, preventing potential incidents before they escalate and ensuring our customers’ infrastructure remains protected and resilient.

AI-driven threat detection and response

Our experience shows that traditional security methods, which rely on predefined rules or basic statistical models, often fail to detect subtle or evolving threats. To address this, we leverage AI to enhance threat detection and response across all network layers. Our AI-driven anomaly detection identifies inconsistencies in data that deviate from typical patterns, signaling potential risks such as cyberattacks, insider threats, or system failures.

Unlike rule-based systems, our advanced machine learning algorithms continuously learn from data, adapting to evolving behavior patterns and uncovering hidden issues that might otherwise go unnoticed. For example, AI monitors real-time network traffic to detect unauthorized access or suspicious activities, issuing predictive alerts before incidents escalate. Over time, these models also conduct behavioral analysis to identify subtle changes that may indicate sophisticated attacks.

We integrate AI with security information and event management (SIEM) and security orchestration, automation, and response (SOAR) to strengthen this capability. This powerful combination automates threat detection, prevention, and response, enabling rapid action against cyberattacks. Customers benefit from faster, more reliable protection, ensuring their operations remain secure and resilient against evolving threats.

Addressing shadow AI: A growing security concern

One of the emerging challenges we've observed is the rise of shadow AI: the unsanctioned use of generative AI tools in the workplace without IT oversight. With so much hype around Generative AI, it is unsurprising that workers have bypassed standard IT and its processes.

A recent report, which analyzed the usage patterns of 3 million workers, found that the volume of corporate data entered into AI tools more than quadrupled between March 2023 and March 2024. This trend creates an enormous headache for enterprises in terms of security vulnerabilities, data privacy issues and leakage, and potential regulatory non-compliance. To mitigate these risks, all enterprises must focus on:

- Protecting internal data through robust security measures.
- Implementing solutions like self-sovereign identity (SSI) that give users control over their data in a decentralized manner.
- Developing ethical governance frameworks to ensure transparency, trust, and accountability.
- Driving awareness and training to educate employees about the risks of shadow AI.

SASE: gaining visibility and security control

The secure access service edge (SASE) framework and its subset security service edge (SSE) diminish risks associated with shadow AI by providing comprehensive visibility, control, and security for network traffic and data. This integration helps control shadow AI applications across various environments.

By consolidating network and security functions, SASE enhances visibility into traffic, including encrypted traffic. This allows the detection of unauthorized AI applications and services operating undercover within the network.

Building future-ready networks for AI-driven business

As businesses increasingly adopt AI, networks are expected to face growing adaptability, scalability, and security demands. With the rise of distributed computing and agentic AI, AI applications won't behave like traditional traffic. They introduce unpredictable patterns, require real-time responsiveness, and raise new challenges around data privacy. This shift suggests that network infrastructure will need to evolve to meet emerging requirements.

As AI technologies continue to advance and integrate into business operations, networking infrastructure will need to adapt to meet the unique requirements of AI-driven applications. AI applications are expected to generate substantial and unpredictable traffic patterns, driven by several factors:

- **Data generation everywhere:** AI consumes vast amounts of data, which can be generated from multiple sources, including live data from remote sites or user devices, external data collected from the internet, historical data stored in the cloud, or local data centers.
- **Data duplication across models:** AI agents often act as proxies, sending multiple copies of the same data to different models. This approach, used to avoid model bias and hallucinations, increases traffic complexity.
- **GPU optimization challenges:** as expensive resources, GPUs need to be optimized for AI workloads. However, this optimization can lead to sub-optimal traffic flows within the network.
- **Periodic fine-tuning:** AI models require periodic fine-tuning, which can generate temporary but extremely high bandwidth demands.

These factors highlight the growing complexity of managing AI-driven traffic, which traditional network designs may struggle to handle.

Powering a future-ready network to meet AI demands

At Orange Business, we are focused on creating networks that can adapt to the evolving demands of AI applications while ensuring seamless performance and security. Along with increased bandwidth for rapid data transmission, AI will introduce new demands such as real-time response, lossless delivery, distributed east-west traffic exchange, compute intensity, and high sensitivity to data privacy.

To meet these demands, **networks must become more dynamic, capable of scaling resources based on workload variability, and equipped with distributed computing capabilities to process data closer to its source.** Leveraging edge computing is a key part of this strategy, as it brings AI models closer to data sources, reduces latency, and improves real-time responsiveness.

Additionally, we are exploring responsible and trusted network designs to support ethical AI techniques, such as federated and split learning, where AI is trained in decentralized locations. These approaches not only enhance data privacy but also align with the growing emphasis on sustainable and secure AI deployment.

Collaborating for an open, scalable network ecosystem

We believe that building future-ready networks requires collaboration across the ecosystem. Through partnerships with hyperscalers, telecom providers, and industry organizations, we are driving innovation and co-creating solutions to meet AI's demands.

80% of enterprises will use GenAI apps and APIs by 2026[5]

By 2030, nearly 75% of network traffic will incorporate AI, with rapid video and image content growth.[6]

Our open platform strategy emphasizes using standardized APIs to enable seamless data exchange between systems, applications, and services. By fostering a consumer/producer ecosystem, we aim to achieve complete automation and flexibility for AI traffic from edge to cloud. Open APIs also accelerate innovation, enabling the development of new use cases and inspiring enterprise adoption of AI-driven technologies.

For example, we are working with the TM Forum on the Modern Data Architecture for Telecom Operations Project. This initiative aims to modernize data architectures within telecom operations, addressing AI's evolving needs and supporting the rapid adoption of data analytics. We are confident that this project will help modernize data architectures within telecom operations to address AI's evolving needs alongside data analytics and its rapid adoption.

Sustainable growth

AI-driven sustainability is pivotal to our strategy, which focuses on business growth while achieving social and environmental goals. This is a proactive approach to achieving social and environmental goals, and a necessary response to evolving legal constraints and regulatory demands.

We designed our plan to deliver the services our customers need to compete and thrive. Our AI-driven initiatives focus on optimizing energy consumption, improving operational efficiency, and reducing carbon emissions across various industries.

AI-driven sustainability initiatives are pivotal for us and our customers to remain compliant, minimize legal and reputational risks, and align with mandatory environmental, social and governance (ESG) and environmental reporting standards.

We use AI to minimize the environmental impact of our operations while supporting our customers in their business objectives and digital transformations. Central to this initiative are AI-driven solutions to optimize energy use, predict resource demand, and automate processes, enhancing operational efficiency while reducing carbon footprints.

Integrating AI into network infrastructure enables customers to achieve sustainable growth with more energy-efficient networks. Our customers benefit from smarter, more sustainable network management, which drives efficiency and contributes to sustainability efforts.

Making IT networks more sustainable

Our advanced networking technologies, analytics, automation, and AI create more efficient, eco-friendly network solutions. AI-driven analytics, for example, optimizes network traffic and reduces energy consumption by managing data flow more efficiently. Automation allows for the dynamic scaling of network resources based on real-time demand, which ensures that energy is used only when necessary.

AI optimizes the supply chain for network infrastructure, reducing waste and ensuring that materials are sourced and used sustainably. In addition, AI tracks the network equipment lifecycle, recommending necessary upgrades or replacements and promoting the recycling of components where possible.

By innovating and implementing these AI-driven solutions, we show how networks can be more sustainable, reducing their environmental impact while maintaining or even improving performance and reliability.

Facilitating greener networking at the edge

By deploying AI and edge computing resources closer to points of presence (PoP), we can physically bring computation and data processing closer to where the data is generated – such as IoT devices, sensors, or mobile networks.

This integration enables more efficient and intelligent real-time data processing at the edge of networks, closer to its source. By reducing the need for long-distance data transmission, we can significantly cut energy consumption.

In industries like manufacturing, for example, AI and edge computing help optimize resource use and improve energy efficiency. Our AI-powered solutions enable real-time analysis and decision-making, allowing manufacturers to predict equipment failures and reduce waste,

It can also drive intelligent process automation. For example, AI-powered robots and autonomous systems can perform highly precise and efficient tasks, reducing waste and significantly enhancing productivity.

Optimizing energy consumption

Reducing energy consumption in the network while maintaining service performance is an ongoing challenge. We are exploring many avenues for adaptative power management to monitor and reduce energy usage, and the first results have shown up to 15% savings.

Engaging with Orange

AI may be trending right now, but it isn't new for Orange Business. We have extensive experience with neural networks and AI and have been using it to improve our network for some time. We continually advance AI's use to refine the network's overarching performance.

Culture of continuous improvement

We are committed to continuous improvement – creating a secure and robust AI-driven infrastructure for our customers' AI endeavors via a best-in-breed partner ecosystem and open platform approach. Our holistic approach ensures efficient, reliable, and adaptable networks to the evolving demands of the digital age.

Supporting you in building modern AI networks

At Orange Business, we are a user, integrator, and innovator of AI-driven networking solutions. Designed to adapt and scale, our approach empowers enterprises to unlock the full potential of AI, no matter the use case. We're dedicated to capitalizing on our expertise to guide you at every turn, ensuring your business secures a leading edge in the AI revolution. Let's embark on this journey together!

Our vision is to infuse AI into all aspects of our network to provide the highest quality of service and satisfy our customers' business needs. This includes using AI in our service sourcing to ensure processes are as streamlined and convenient as possible. Key capabilities include:

- **Proven track record:** years of successfully delivering innovative network solutions and extensive experience in utilizing AI and neural networks.
- **Cutting-edge AI capabilities:** leveraging advanced AI in optimization and real-time analytics to enhance our network offerings, ensuring they are robust, efficient, and scalable.
- **Trailblazing infrastructure design:** at the forefront of developing and deploying next-generation AI-ready infrastructure solutions, integrating areas such as edge computing.
- **Strong ecosystem and partnerships:** promoting interoperability and collaboration through open APIs and co-creating cutting-edge solutions.
- **Comprehensive security:** using AI tools to secure networks, protect data, and always maintain user privacy.
- **The green factor:** dedicated to driving sustainability through our network operations and aligning with global environmental goals.
- **Customer-centric approach:** Above all, we are here to understand and meet the needs of our customers, providing AI-enhanced networking solutions that can be tailored to individual needs.

Sources

1. Gartner n "Hype Cycle for I&O Automation, 2024."- https://www.gartner.com/en/news-room/press-releases/2024-09-18-gartner-says-30-percent-of-enterprises-will-automate-more-than-half-of-their-network-activities-by-2026
2. Gartner Webinar: Top cloud market trends for 2025
3. Gartner AI networking – its potential to revolutionize network operations 2023 https://www.gartner.com/doc/reprints?id=1-2EKOX80J&ct=230728&st=sb
4. Gartner AI networking – its potential to revolutionize network operations 2023 https://www.sdxcentral.com/networking/definitions/what-is-ai-networking-use-cases-benefits-and-challenges/
5. Omdia: AI traffic forecast https://omdia.tech.informa.com/om119985/omdias-new-ai-network-traffic-forecast-expects-surge-pressure-on-telcos-to-meet-future-growth
6. Gartner: Generative AI Trends and Technologies https://omdia.tech.informa.com/om119985/omdias-new-ai-network-traffic-forecast-expects-surge-pressure-on-telcos-to-meet-future-growth