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Identity: The unseen frontline of modern cyber warfare

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SVP Venky Santhirahasan on digital platforms, software, applied AI and global scale

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Director of Solutions Marketing
Object First

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TOMORROW'S TECH, TODAY

Isn't it crazy to think that some of the concepts in this month's Technology Magazine have burst into existence from seemingly humble beginnings – and not all too long ago? Quantum computing, for example, has been the technology of tomorrow for decades, as we share in a feature with HSBC and IBM. The piece delves into how quantum is nearing commercial viability and how, soon, there will be a time where quantum computers will be able to perform a task that classical computers cannot. And even AI – which somewhat feels like the tech buzzword of the decade – has evolved in leaps and bounds since its foundations in the 1950s and is now powering data analytics to accelerate sustainability. Enjoy exploring what's possible in the November edition of Technology Magazine.

Maya Derrick

MAYA DERRICK

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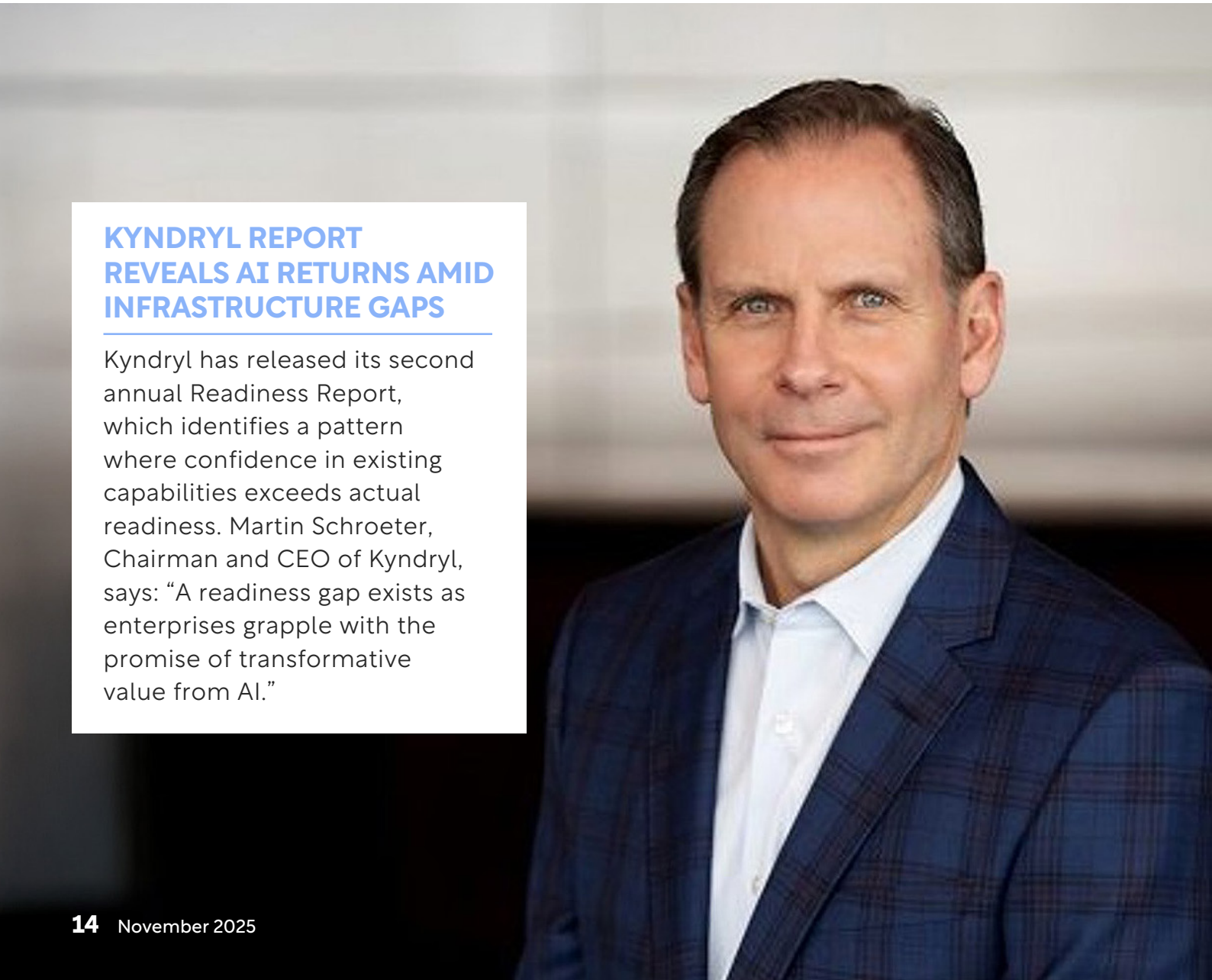
THE MONTH IN TECHNOLOGY

This month's top stories across Technology Magazine include the impact of AWS' global outage, Kyndryl's AI report and the end of Windows 10 support

WRITTEN BY: MAYA DERRICK



KYNDRYL REPORT REVEALS AI RETURNS AMID INFRASTRUCTURE GAPS

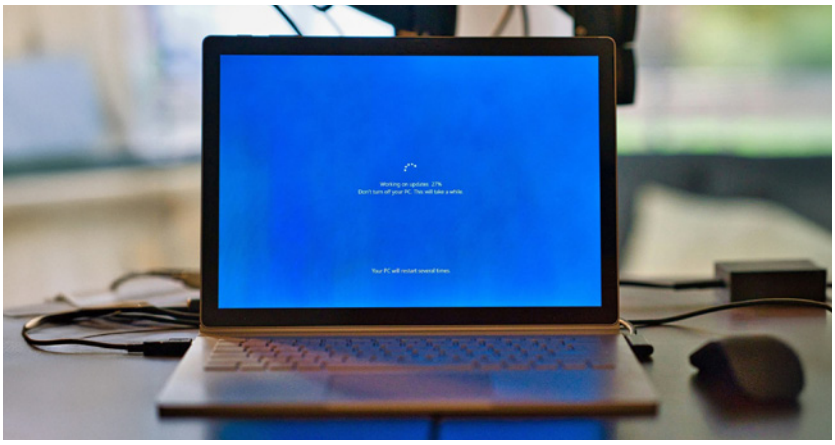
Kyndryl has released its second annual Readiness Report, which identifies a pattern where confidence in existing capabilities exceeds actual readiness. Martin Schroeter, Chairman and CEO of Kyndryl, says: "A readiness gap exists as enterprises grapple with the promise of transformative value from AI."

THE BILLION-DOLLAR IMPACT OF CLOUD DEPENDENCY

A major AWS outage at the end of October affected millions globally, disrupting major apps from banks to platforms like Slack and Zoom.

"Agentforce 360 connects humans, agents and data on one trusted platform, helping every employee and every company achieve more than they ever thought possible"

Marc Benioff,
CEO and Chairman,
Salesforce



WINDOWS 10 SUPPORT ENDS: WHAT HAPPENS TO 40% STILL USING IT?

Windows 10 support has now ended, leaving millions of machines without security updates. TeamViewer data shows more than 40% of global endpoints still run the operating system.

DATABRICKS HAS PLEDGED TO TRAIN

100,000

PEOPLE IN DATA AND AI ACROSS THE UK AND IRELAND BY 2028

STATISTICS

MORE THAN

2,000

COMPANIES WORLDWIDE WERE AFFECTED,
ACCORDING TO DOWNDETECTOR

COMPANIES AND SERVICES AFFECTED INCLUDED:

zoom

slack

monday.com

Canva

HM Revenue & Customs

Some applications came back online after more than

6 HOURS

of disruption

THE IMPACT OF THE **AWS** OUTAGE

THE OUTAGE LASTED APPROXIMATELY

15

HOURS

16 million outage reports were logged on Downdetector globally, a

960%

increase on average daily baseline levels

THERE WERE

8.1 MILLION

REPORTS OF PROBLEMS FROM USERS WORLDWIDE, INCLUDING 1.9 MILLION IN THE US, 1 MILLION IN THE UK AND 418,000 IN AUSTRALIA

PEOPLE MO

Notable tech leader moves include new appointments at Sunwest Bank, telecom giant du, fast food chain Subway and tech behemoth AWS

WRITTEN BY: MAYA DERRICK

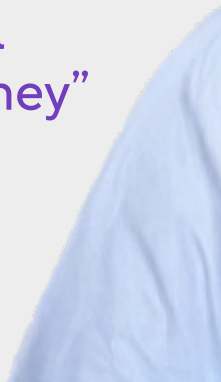
JUSTIN SHIELDS

JOB FROM: **CHIEF TECHNOLOGY OFFICER OF VODAFONE BUSINESS**

JOB TO: **CHIEF INFORMATION OFFICER OF DU**

Justin Shields, Vodafone Business' former CTO with more than 25 years in tech leadership, has joined UAE telecom operator du as CIO. He will lead du's digital transformation by driving cloud, AI, automation and cybersecurity initiatives, aiming to enhance agility, innovation and customer experience for the telco.

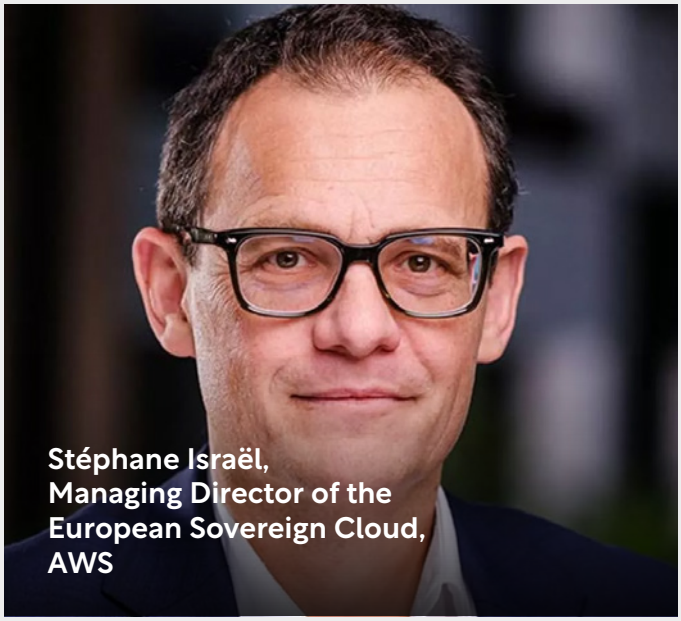
"Justin will play a key role in driving innovation and shaping our organisation's digital transformation journey"



OVES

Justin Shields, Chief Information Officer, du

Mike Bregman, Chief Digital and Analytics Officer, Subway



Stéphane Israël, Managing Director of the European Sovereign Cloud, AWS

PEOPLE MO

MIKE BREGMAN

JOB FROM: **CHIEF DATA AND PRODUCT OFFICER AT HAVAS MEDIA NETWORK**

JOB TO: **CHIEF DIGITAL AND ANALYTICS OFFICER AT SUBWAY**

Mike has joined Subway as Chief Digital & Analytics Officer, set to evolve the brand through AI and advanced data science. "We're in a truly unique position to harness the power of guest data and build a next-generation ecosystem powered by AI and advanced data science," he says.

STÉPHANE ISRAËL

JOB FROM: **PARTNER AT BCG**

JOB TO: **MANAGING DIRECTOR OF THE AWS EUROPEAN SOVEREIGN CLOUD AT AWS**

Stéphane joined AWS as Managing Director of the AWS European Sovereign Cloud in October, leading the company's efforts to boost digital sovereignty across the continent. Former CEO of Arianespace and a partner at BCG, he brings expertise in European technology, space programmes and regulatory compliance with him to AWS. Now based in Berlin, Stéphane drives AWS' €7.8bn (US$9.1bn) sovereign cloud initiative.

Ben Xiang,
Chief Technology
and Strategy Officer,
Sunwest Bank

OVES

BEN XIANG

JOB FROM: **STRATEGIC ADVISOR TO THE CEO AT VERITONE**

JOB TO: **CHIEF TECHNOLOGY AND STRATEGY OFFICER AT SUNWEST BANK**

Ben brings more than 20 years of expertise in AI, IoT and digital transformation to his new role as Chief Technology and Strategy Officer at Sunwest Bank. Formerly Senior VP at Veritone, Ben now leads technology innovation and digital strategy, driving client-focused modernisation initiatives to enhance banking experiences through automation, data and advanced digital tools.

BIG PICTURE

HOW G42 AND NVIDIA ARE USING AI TO TRANSFORM CLIMATE ACTION

AI is reshaping weather forecasting by shifting from physics-based supercomputing to pattern recognition, enabling hyper-local predictions at 200-metre resolution and continuous updates. G42 and Nvidia's Earth-2 collaboration in Abu Dhabi demonstrates this with a generative model that simulates fog and extreme weather. The technology has broad impact – cutting airline delays, optimising renewable energy and improving disaster resilience. By learning regional weather behaviours, AI-powered systems deliver faster, more precise forecasts essential in a climate-challenged world.

THE Technology. INTERVIEW

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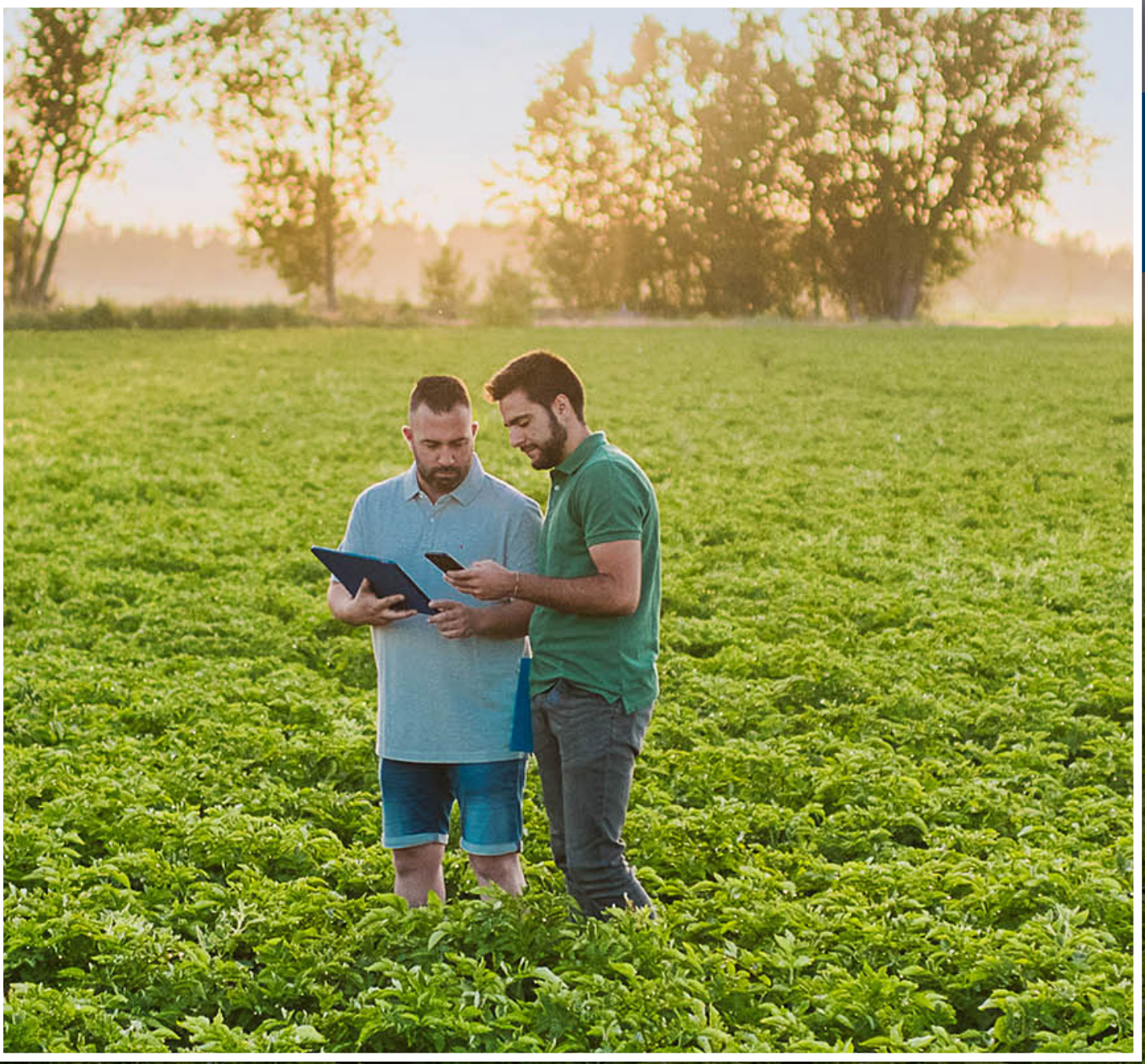
PepsiCo Builds Global Digital Backbone from Farm to Consumer

WRITTEN BY: MARCUS LAW

PRODUCED BY: RYAN HALL



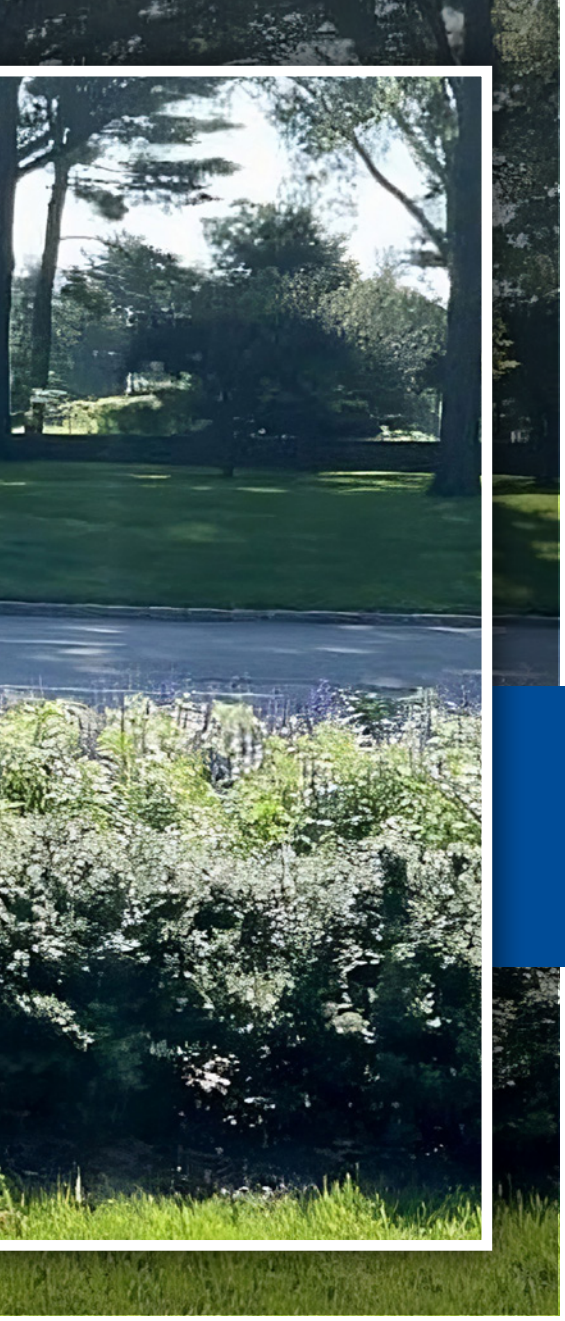
End to End Digital EcoSystem

Farm

Manufacturing

Fleet

Warehouse/
Distribution Centre



Venky Santhirahasan, PepsiCo SVP Engineering & Technology, on transforming fragmented systems into unified platforms serving one billion daily interactions

When Venkatesan (Venky) Santhirahasan joined PepsiCo as Senior Vice President of Engineering and Technology, he inherited a complex technology environment. Each business sector ran separate systems, localised apps and custom backends across regions. For a company processing one billion daily consumer interactions in more than 200 countries, this fragmentation was a potential roadblock to product innovation. The challenge was clear: unify the digital foundation without losing the agility that made each market unique.

"We needed a digital backbone that could serve everywhere, for everyone and can grow with our business, without compromise." he says. His approach shifted PepsiCo from project-based builds to platform-first thinking across the company's multi billion revenue operation.

PepsiCo serves millions of traditional stores, manages thousands of manufacturing lines across brands like Lay's, Doritos, Gatorade, Pepsi-Cola, Mountain Dew, Quaker and SodaStream, and coordinates complex transportation networks. Each brand generates more than US$1bn in estimated annual retail sales.

Venky's strategy combines external SaaS tools with internal platforms designed for competitive advantage. Rather than forcing uniform solutions across diverse markets, PepsiCo built reusable components that adapt locally but scale globally. This modular approach allowed teams to plug into a common digital backbone while tailoring front-end experiences to regional consumer needs. The result was a balance between efficiency and flexibility: global consistency where it mattered and local agility where it was essential.

Platform architecture solves enterprise fragmentation

The technology team built their globalisation strategy around four pillars: reusable, offline-first frontend components, enabling frameworks, common backend systems and embedded AI capabilities.

"Our strategy has been to build reusable platforms with modular capabilities, enabling rapid deployment while preserving local adaptability." Venky explains.

Two foundational platforms anchor this architecture. The Omni-Channel Commerce Hub (OCH) provides unified commerce backend powering catalogue management, offline sync, master data distribution and transaction processing across channels. The Digital Solution Accelerator (DSX) delivers reusable services for identity, access, security, observability, communications, task management and AI infrastructure.

These platforms let PepsiCo consolidate separate front-office systems: Sales+ for Foods and Savvy for Beverages, with the integration creating a closed-loop system from planning to shelf execution while maintaining flexibility for local markets.

The technical implementation uses cloud-native architecture, microservices and API-first design to handle millions of concurrent users across diverse geographies.

VENKY SANTHIRAHASAN

SVP ENGINEERING & TECHNOLOGY

From aerospace cockpits to the shelves of the world's biggest retailers, Venky Santhirahasan has spent his career at the frontiers of innovation. Today, as Senior Vice President of Engineering and Technology at PepsiCo, he is reimagining how technology powers one of the world's most iconic companies: building digital platforms that transform supply chains, deepen consumer connections and redefine scale. With leadership roots at Honeywell and Wabtec (GE Transportation), Venky has turned complex challenges into global solutions across industries. A patented innovator and visionary leader, he blends technical mastery with human-centered leadership, inspiring teams to create technology that doesn't just serve today, but shapes tomorrow.

Venky Santhirahasan,
SVP Engineering
& Technology,
PepsiCo

PepsiCo and Fractal Collaborate to Scale AI-Driven Smart Manufacturing Globally

What if packaging lines could optimize themselves, adjusting in real-time without relying on manual intervention or OEM systems? That's the vision PepsiCo brings to life through its collaboration with Fractal, a leading AI and analytics firm.

Together, they drive large-scale digital transformation in smart manufacturing across PepsiCo's global packaging facilities.

Fractal is a globally recognized enterprise AI company with deep technical, domain, and functional capabilities delivering end-to-end AI solutions, empowering large global enterprises with data-driven insights for smarter decision-making.

The collaboration, which began in 2023, focuses on AI-powered smart packaging technology that enables manufacturing lines to self-optimize and automatically adjust output.

By combining AI, real-time manufacturing data, IoT sensors, and end-to-end digital engineering, the system continuously monitors and controls production variables that were once managed manually by plant operators, unlocking new levels of efficiency and performance.

The Challenge: Operational complexity at scale

With operations spanning over 200 countries and hundreds of manufacturing sites, PepsiCo faces immense complexity in maintaining efficiency across its packaging lines. Each facility produces a diverse portfolio of its beloved products, from Lays and Cheetos to Doritos, across multiple production lines.

"To optimize the packaging line, we need to manually adjust more than 300 parameters, which is nearly impossible for an operator to adjust," says Venky Santhirahasan, SVP of Engineering at PepsiCo. Traditionally, plant operators have relied on experience, OEM solutions, and institutional knowledge to manage these complex systems. However, as production scales globally, this manual approach has become increasingly difficult, vulnerable to inconsistencies in output and efficiency.

"At Fractal, our mission is to help power every decision in the enterprise using AI, engineering, and design," explains Pranay Agrawal, CEO at Fractal USA. "We believe that if we help our clients make better decisions, we help them deliver better outcomes to their customers, employees, shareholders, and the communities they operate in."

The Solution: AI-powered transformation

To overcome these challenges, PepsiCo set out to modernize its manufacturing

operations, shifting from a reactive to a predictive, data-driven approach. Collaborating with Fractal, the company deployed AI-powered smart packaging technology that continuously tracks production metrics and automatically adjusts key parameters in real time. This allows PepsiCo to maximize throughput, reduce waste, and improve efficiency, all without manual intervention.

The system not only boosts performance but also enhances sustainability and ROI. "What we're helping PepsiCo do right now is to drive better asset utilization by increasing throughput, reducing wastage, and lowering electricity consumption," adds Pranay Agrawal.

Through this collaboration, PepsiCo is transforming packaging from a manual process into an intelligent, self-learning system, setting a new benchmark for smart manufacturing.

Road Ahead: Scaling innovation globally

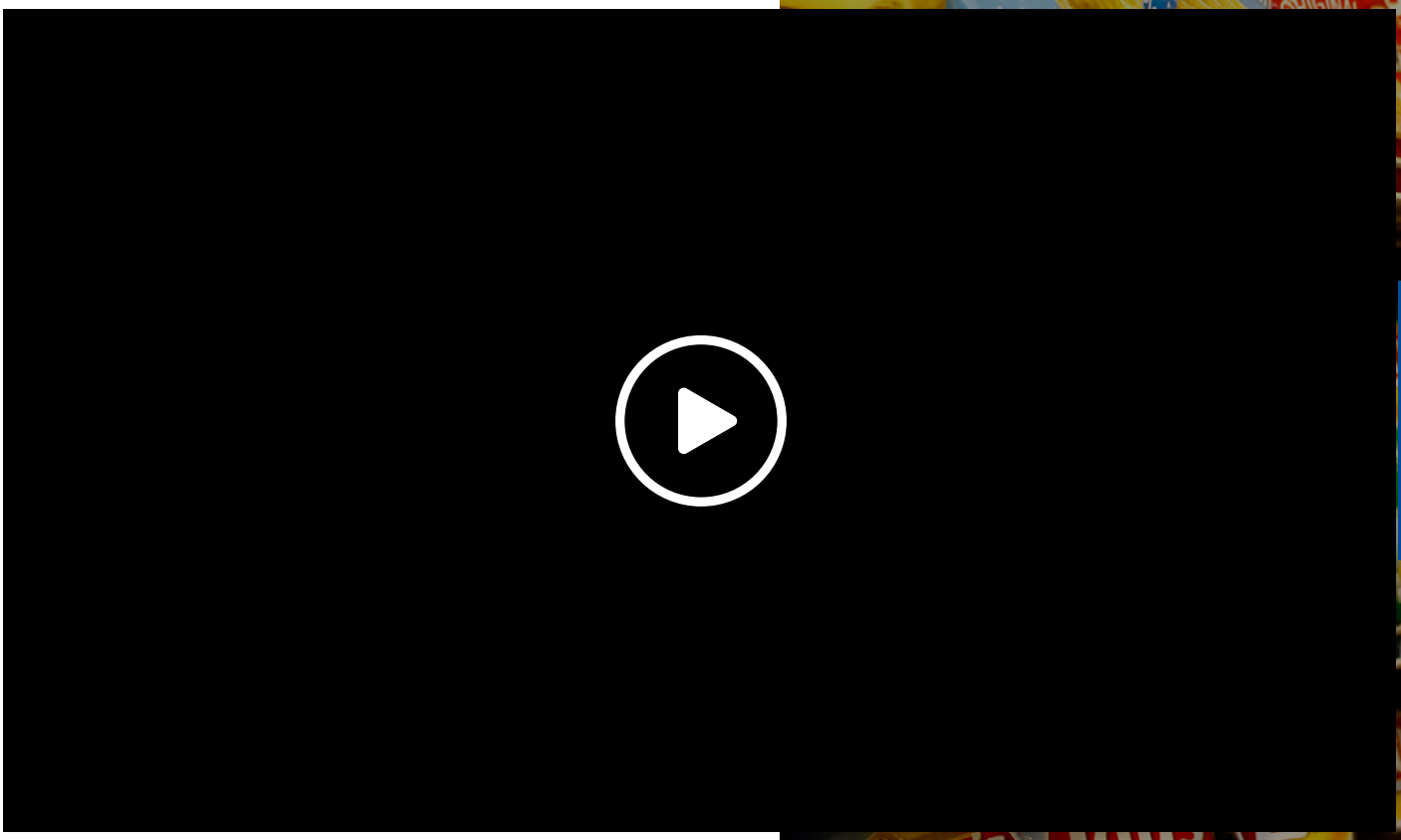
Following a successful pilot, PepsiCo has scaled the smart packaging solution across multiple sites in Latin America and is now expanding globally. Once proven effective on individual lines, the system can be replicated across PepsiCo's vast manufacturing network, unlocking efficiency and consistency at scale.

"The beauty of this is that if it works on a few lines, we can scale it globally," says Pranay Agrawal. The collaboration also extends beyond packaging to PepsiCo's broader AI-driven digital transformation. "From farming to snacking at your table, we leverage AI across the entire value chain," explains Venky Santhirahasan, "from potato seed planning to demand forecasting, supply planning, manufacturing, transportation, network optimization, and how we effectively deliver our product."

Future developments could extend into areas including material consumption monitoring, energy usage optimization, machinery maintenance prediction, and transportation logistics, continuing PepsiCo's journey toward a smarter, more sustainable manufacturing ecosystem.

> ***"Now, our packaging line can self-optimize and adjust the bags per minute automatically. That results in increased throughput, reduced waste, and optimized cost."***
>
> — Venky Santhirahasan
> SVP of Engineering at PepsiCo

Learn More



Systems scale automatically during peak demand and support offline-first capabilities for low-connectivity environments where many of PepsiCo's retail partners operate.

Every central capability – design systems, UI components, offline sync, task frameworks, survey engines, notifications, store insights and AI models – works as plug-and-play components across multiple applications.

End-to-end supply chain digitisation at PepsiCo

PepsiCo sees the supply chain not just as a set of processes, but as the lifeblood of its business.

"Our goal is to create a supply chain that moves as fast as our consumers expect, while empowering the people who make it run," Venky says.

PepsiCo's supply chain transformation centres built a single digital backbone called supply chain hub (SCH) that address different operational areas. The Manufacturing Control Tower (MCT), MFGPro+ and the Transportation Control Tower (TCT) are applications that run on SCH platform to form a connected ecosystem spanning production floors to fleet optimisation.

The Manufacturing Control Tower tackles data scattered across production systems, maintenance schedules,

quality checks and utilities. MCT unifies this information through role-based dashboards, predictive alerts and drill-down analytics.

"MCT doesn't just show data: it empowers supervisors and plant directors to make smarter, faster decisions," Venky states.

Teams can spot issues early and reduce downtime through real-time insights. A pilot and deployment at PepsiCo's Vallejo plant in Mexico delivered efficiency gains within months, highlighting the platform's potential for broader manufacturing operations.

MFGPro+ transforms frontline operations by replacing paper forms, fragmented apps and manual workflows with unified digital experiences.

"We needed a digital backbone that could serve everywhere, for everyone and can grow with our business, without compromise"

Venky Santhirahasan,
SVP Engineering
& Technology,
PepsiCo

9:41

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The platform consolidates over multiple legacy system interactions into a single interface tailored for different roles, from packaging operators to shift managers.

"We wanted to make work simpler, faster and more engaging," Venky says. The system provides digital workflows, intelligent alerts and real-time records. Implementation across multiple North American sites enhanced productivity, reduced waste, lowered downtime and improved compliance.

Workers previously juggled multiple systems and manual processes, but MFGPro+ provides a unified interface that reduces cognitive load while improving operational efficiency.

The third part, Transportation Control Tower, integrates truck-related information where fleet managers can track locations, delivery status and bottlenecks in real time. PepsiCo's distribution network handles millions of weekly deliveries to stores across continents.

"TCT allows us to act before issues arise," Venky notes. The platform addresses fragmented order, delivery and GPS data that typically exists in separate systems, creating a unified view of transportation operations.

Optimised routing and improved fleet utilisation lower costs while advanced analytics and AI continuously refine the network. In North America alone, PepsiCo's Direct Store Delivery (DSD) engine supports tens of thousands of frontline associates and over a million store visits weekly.

AI integration enables predictive operations across platforms

PepsiCo's AI strategy integrates across the platform stack. Smart Ordering uses AI-enhanced capabilities that access sell-out data, shelf imaging and predictive analytics to optimise fill rates and assortment. Smart Execution delivers dynamic store playbooks and validates planograms through computer vision. Smart Leading provides real-time visibility and predictive alerts for proactive issue resolution.

"AI has revolutionised our supply chain, powering predictive maintenance on manufacturing lines and enabling dynamic route optimisation across transportation." Venky explains. "By analysing historical trends, real-time telemetry and environmental factors, AI enables smarter decisions, reduces waste, improves fill rates and creates a truly responsive, resilient network."

The AI approach evolves continuously through telemetry, frontline feedback and business KPIs. Machine learning models analyse ordering patterns and provide relevant product suggestions in real time.

> **"With Pepsi Connect, we move globally as fast as our customers' needs"**

David Dohnalik,
SVP, Tech Strategy & Enterprise Products,
PepsiCo

Infosys®
Navigate your next

PepsiCo Infosys collaboration delivers Sales+ platform for North America Foods

PepsiCo's Direct-to-Store Delivery (DSD) model is a logistical marvel—powering over 500,000 weekly store visits supported by a field sales force of more than 25,000 professionals and generating multi-billion in annual revenue through its PepsiCo Foods North America (PFNA) business alone. Behind this scale lies a complex, high-velocity operation that demands precision, agility, and relentless execution. To sustain and amplify this scale, PepsiCo embarked on a planned, strategic modernization as part of its broader digital transformation—an evolution designed to empower frontline teams, enhance customer-centricity, and future-proof operations. PepsiCo entrusted Infosys, a strategic partner with co-engineering this transformation.

"At its core, we set out to infuse agility and adaptability into a system purpose-built and refined over decades - enabling the organization to react rapidly to shifting market conditions and new business models." says Karthik Sankaran, Vice President Information Technology – Global Sales Transformation at PepsiCo.

The transformation saw a move from a rigid, closed architecture to a flexible digital platform, amid rising consumer expectations and ongoing disruption across established channels – including e-commerce models such as click-and-collect and dark stores.

Infosys alliance enabled scalable digital architecture

Infosys played a key role in PepsiCo delivering a two phased-transformation, the initial phase focused on modernization, consolidating numerous workflows and systems into a suite of unified, cloud-native, mobile-first Sales+ platforms. This was followed by the second phase introduced "Smart" intelligence and automation. AI-driven capabilities were embedded to deliver real-time insights, predictive recommendations, and smarter execution across the Go-To-Market value chain to deliver extreme productivity and enable faster, smarter decisions at every level.

"Our greatest delivery challenge was shaping next-generation niche technologies for a programme of this size and scale: most notably, delivering the world's largest implementation of Xamarin mobile applications, essentially constructing ERP like capabilities on-the-go with full offline functionality," says Mayank Ranjan, SVP & Regional Head – Consumer, Retail & Logistics at Infosys.

The project required integration with several programmes, including a large-scale ERP transformation: all at a time where legacy systems were rapidly becoming obsolete and incompatible. Infosys brought a deep understanding of PepsiCo's business operations, having supported many applications across PepsiCo Foods North America's Make, Move and Sell value chain.

"This was a complex and ambitious initiative by PepsiCo, making it both challenging and exciting for our teams," Mayank says."From day one, Infosys and PepsiCo worked as one unified team:sharing knowledge, aligning on priorities and removing barriers to progress."

PepsiCo Sales + platform consolidates frontline operations

Today, the Sales+ platform has replaced more than 40 standalone applications with a connected ecosystem running on consumer-grade iOS devices, eliminating fragmented user experiences that had accumulated over time across frontline operations.

"We've replaced more than 40 standalone apps with a connected ecosystem of role-based tools," Karthik says. "This ecosystem offers guided experience that helps frontline leaders plan more effectively, frontline users execute more efficiently, and sales professionals focus on what matters most: selling and serving our customers."

The platform incorporates features including digital planograms, digital asset management, proactive notifications, paperless proof of delivery and mobile banking capabilities: reducing manual coordination requirements and enabling real-time insights.

Gen AI integration drives engineering efficiency

AI integration within the platform delivers measurable business impact through automated processes and predictive capabilities."Delivering real business value with new technologies meant ensuring reliability, scalability and measurable impact," Mayank says. "Gen AI-based interventions helped us address tech debt and optimize engineering effort, significantly improving developer productivity."

The 25-year alliance between the companies provided a foundational understanding of PepsiCo's business operations across development, testing and ongoing support functions. Today, Infosys supports the majority of applications across PepsiCo Foods North America Make, Move and Sell value chain.

Sustainability benefits include elimination of paper-based processes through digital proof of delivery, mobile banking and digital planograms, reducing waste whilst improving operational speed."The future of our collaboration is incredibly exciting, with GenAI shaping every step of this journey," Mayank says. He adds, "By embedding Gen AI – powered by Infosys Topaz – into core business processes, we've not only accelerated transformation but also unlocked new levels of agility and intelligence across PepsiCo's digital ecosystem."

By embedding AI capabilities within operational platforms, PepsiCo ensures machine learning models directly impact day-to-day operations rather than existing as separate analytical tools.

PepsiConnect supports millions of traditional trade partners

Traditional trade operations showcase platform thinking at global scale through PepsiConnect, designed to support millions of small store owners worldwide. These independent shopkeepers and corner-store operators form the backbone of PepsiCo's traditional trade network, particularly in emerging markets.

The platform lets store owners place orders seamlessly, track promotions and manage payments through unified interfaces. "Our goal was to take the friction out of day-to-day operations for our store partners, letting them focus on growth and customer service," Venky states.

Cloud-native architecture handles diverse geographies while AI-driven recommendations provide personalised insights tailored to specific store needs.

Platform deployment across Colombia, Mexico, Argentina, Poland and New Zealand enable growth and efficiency. Small stores complete weekly orders digitally within minutes, increasing inventory accuracy and reducing stockouts. Sales teams focus on high-value customer engagement rather than transactional processing.

The platform strategy extends to Direct-to-Consumer operations where unified consumer data enables AI models to deliver personalised offers that adapt to behaviour and preferences. Event-driven architecture, real-time analytics, and elastic infrastructure handle millions of daily interactions.

"Loyalty isn't just about rewards, it's about creating connections that feel personal, everywhere in the world," Venky says. By unifying consumer data, the platform delivers personalised experiences while gamified features like quizzes, videos and surveys engage users and reinforce brand loyalty.

Integration strategy connects B2B and consumer platforms

Venky's integration initiative connects B2B and consumer platforms to create ecosystems linking store-level insights with consumer behaviour.

"No matter where consumers engage with us – on a store shelf, on their phone, or at their doorstep – we aim for every interaction to feel seamless, intuitive and truly rewarding." Venky explains. AI-driven recommendations ensure products remain available where demand exists while personalised offers reinforce loyalty through closed-loop systems.

The technical implementation requires multi-cloud architectures, self-healing systems, event-driven orchestration and advanced analytics designed to scale across regions and handle unpredictable demand peaks. Guided selling tools highlight actionable insights while automated recommendations support decision-making across the ecosystem.

Store owners receive enhanced insights, consumers enjoy more tailored experiences and PepsiCo gains predictive capabilities, operational efficiency and faster time-to-market. “By connecting stores and consumers intelligently, we are redefining how engagement, efficiency and growth happen at scale,” Venky notes.

By connecting ordering data with consumer preferences, the integrated system creates feedback loops that improve both supply chain efficiency and customer satisfaction.

Strategic alliance accelerates platform development

PepsiCo’s platform strategy includes partnerships with technology specialists to accelerate innovation while bringing specialised capabilities that complement internal development teams.

The collaboration with Fractal focuses specifically on AI and machine learning analytics capabilities. Fractal’s expertise in advanced analytics helps PepsiCo develop and deploy the AI models in some of its manufacturing plants. This collaboration enables PepsiCo to implement sophisticated predictive analytics for packaging optimisation across potato, Doritos packaging lines optimising three hundred parameters to improve plant true efficiency.

Infosys provides global engineering expertise that supports PepsiCo’s platform development and scaling efforts. The alliance leverages Infosys’s experience in large-scale enterprise transformations and global delivery capabilities to accelerate platform deployment across diverse markets.

“Our strategy has always been to build reusable platforms with modular capabilities, enabling rapid global deployment while preserving local adaptability”

Venky Santhirahasan,
SVP Engineering
& Technology,
PepsiCo

This collaboration is particularly valuable for implementing the cloud-native architecture, microservices and API-first design principles that underpin PepsiCo’s unified platform strategy.

“We look for domain capability along with technical excellence, and the ability to scale globally,” Venky states. The approach balances internal development with external expertise, ensuring PepsiCo maintains control over strategic capabilities while leveraging specialised knowledge from partners who understand enterprise-scale challenges.

These partnerships follow a strategic model where external capabilities integrate seamlessly with internal platforms rather than creating dependencies. PepsiCo retains ownership of core intellectual property and platform architecture while accessing specialised skills that would be costly and time-consuming to develop internally.

The biggest challenge in scaling solutions globally involves balancing standardisation with local flexibility. Different regions have unique business practices and infrastructure constraints that require platform adaptability without compromising core functionality. The partnership model helps address this challenge by providing access to global expertise while maintaining platform consistency.

Future platforms target enhanced automation

Looking ahead, Venky identifies the next frontier as hyper-personalisation at scale, integrating customer and consumer data to deliver enhanced operational decisions across manufacturing, logistics and retail channels.


Smartfood
KETTLE COOKED
Party Size!
Tostitos
RUFFLES
BAKED

"AI and advanced analytics will continue to reshape every part of our business: from predicting consumer behavior to fully autonomous supply chain operations," he says.

The technical roadmap focuses on platforms that turn insights into action in real time. "The ability to turn insights into action in real time will be transformative," Venky says...

"PepsiCo has always been consumer-obsessed. Today, we complement that with technology-driven insights and capabilities. From our AI-enabled Go-to-Market platforms to our data-rich supply chain control towers, we're embedding intelligence into every decision, making us a tech-first enterprise in operations, customer engagement and product delivery."

The platform-first strategy shows how enterprises can transform legacy operations through architectural thinking rather than point solutions. By treating platforms as products, reusing components instead of rebuilding and designing for offline-first execution, PepsiCo created sustainable competitive advantages through systematic technology strategy.

"The best part is seeing technology directly transform frontline operations and consumer experiences," Venky reflects. "From a plant operator using MCT to a small store owner leveraging PepsiConnect, it's incredibly rewarding to watch our platforms make everyday tasks simpler, smarter and more impactful."


STAGE

TOP 10 TECHNOLOGY EVENTS

From London to Lisbon and San Jose to Spain, here are **10 tech events** not to be missed in the rest of 2025 and 2026

WRITTEN BY: MAYA DERRICK

10

LONDON TECH WEEK

DATES: **8-12 JUNE 2026**
LOCATION: **LONDON, UK**

A week-long festival of tech and innovation, London Tech Week brings together a diverse and influential community to celebrate the best of technology in one of the world's leading tech hubs. With hundreds of events taking place across the city – as well as an expo at Olympia London – it covers a wide spectrum of topics from AI and cybersecurity to climate tech and the future of work. It provides a unique platform for networking, learning and collaboration, connecting entrepreneurs, investors and enterprise leaders.

WATCH NOW
London Tech Week – Highlights – Day 1

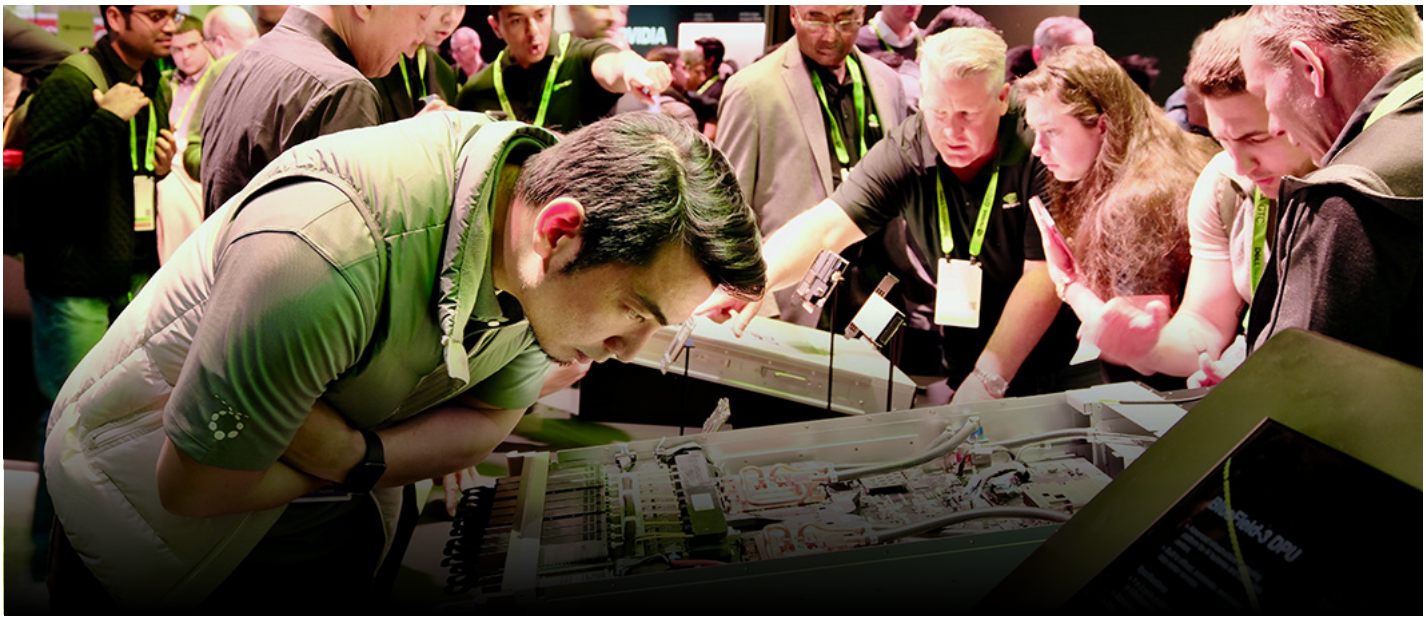
NVIDIA GTC

DATES: **16-19 MARCH 2026**
LOCATION: **CALIFORNIA, USA**

09

For those at the forefront of AI, Nvida GTC is an essential event. This global conference focuses on the latest breakthroughs in AI, deep learning, high-performance computing, data science and accelerated computing across all industries. GTC offers invaluable training sessions, expert-led panels and insights from the world's leading researchers and technologists. It is the premier destination for developers, engineers and scientists looking to harness the power of AI to solve the world's most challenging problems.

WATCH NOW
Nvidia's GTC 2025 Keynote: Everything Announced in 16 Minutes



08

VIVATECH

DATE: **17-20 JUNE 2026**
LOCATION: **PARIS, FRANCE**

As Europe's biggest startup and tech event, VivaTech is a vibrant celebration of innovation that accelerates business transformation. It brings together startups, established tech leaders and investors to collaborate, explore the next big thing and shape a more sustainable future. With a strong focus on AI, robotics, mobility and positive impact technology, VivaTech provides a unique and energetic platform for showcasing groundbreaking solutions and fostering powerful connections between thousands of visionaries from across the globe.

VIVA TECHNOLOGY

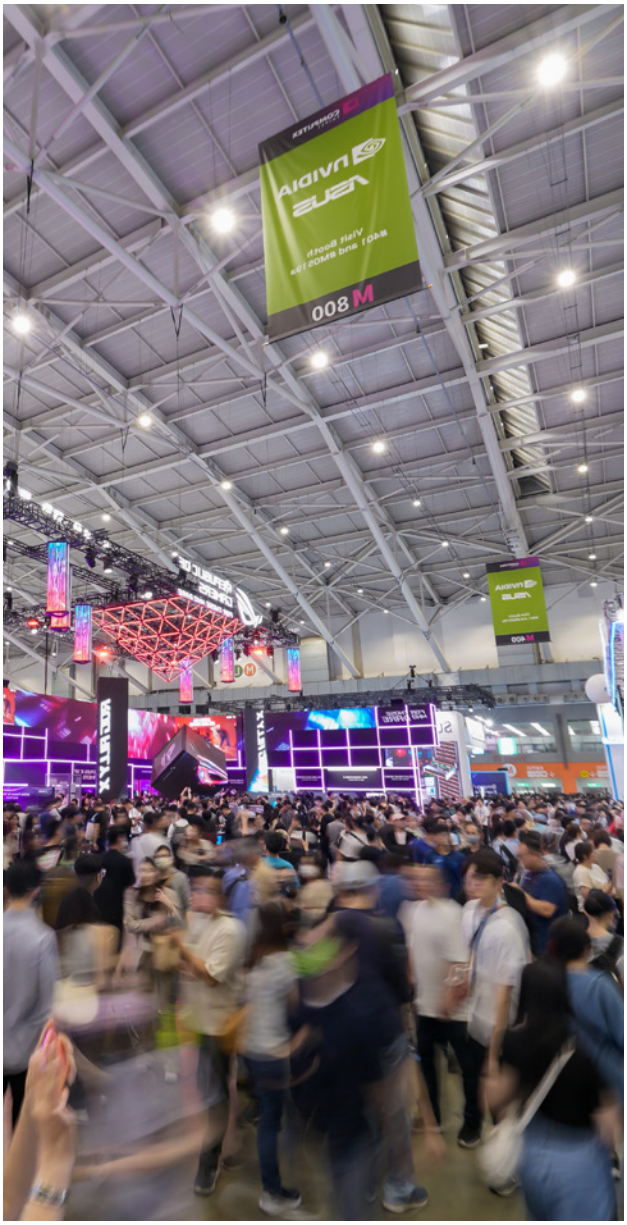
WATCH NOW
Best of #VivaTech 2025

07

COMPUTEX

DATE: **17-20 JUNE 2026**
LOCATION: **TAIPEI, TAIWAN**

COMPUTEX is a leading global ICT and IoT trade show with a strong focus on the entire technology supply chain and its ecosystems. It is a major industry event for anyone involved in computer hardware, from the latest processors and motherboards to groundbreaking developments in gaming, AI components and data centres. With a history of launching paradigm-shifting products, COMPUTEX is where the foundation for the future of computing is unveiled and explored by industry leaders from around the world.



WATCH NOW
Computex 2025 highlight

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ACCELERATE POSSIBILITY: GROWTH AT THE SPEED OF AI

INNOVATION. AGILITY. INTELLIGENCE.

Melillo Consulting partners with OpenText to deliver advanced IT solutions that accelerate digital business. From project management and cybersecurity to compliance, automation, and network operations, Melillo helps organizations reduce risk, boost ROI, and drive sustainable success across hybrid, cloud, and on-premises environments.

DISCOVER MORE

06

AI & BIG DATA EXPO

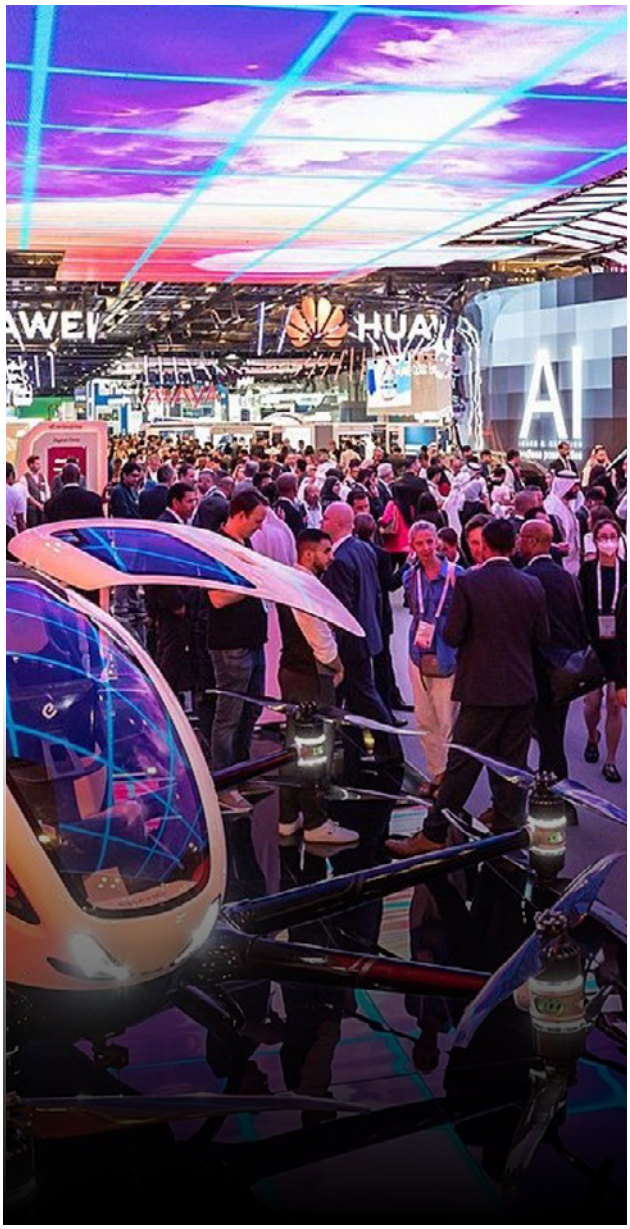
DATE: **20-21 OCTOBER 2026**
LOCATION: **AMSTERDAM, THE NETHERLANDS**

Part of TechEx's global series, AI & Big Data Expo Amsterdam focuses on the practical application of emerging technologies and is a must-attend for enterprise decision-makers. This leading European event delves into real-world case studies and strategies for successfully implementing AI, Big Data, IoT and cybersecurity. A key advantage is its co-location with other specialised events like the IoT Tech Expo and Blockchain Expo, creating a comprehensive ecosystem of enterprise technology.

AI & BIG DATA EXPO
TECHEX

WATCH NOW
TechEx Global 2025

05



GITEX GLOBAL

DATE: **7-11 DECEMBER 2026**
LOCATION: **DUBAI, UAE**

One of the world's largest and most inclusive tech events, GITEX GLOBAL in Dubai is a major crossroads for the global technology industry, connecting innovators from more than 170 countries. The sprawling event is known for showcasing the latest in AI, cybersecurity, fintech and telecommunications, with a strong focus on emerging markets. It serves as a vital gateway for startups and established tech giants looking to do business in the Middle East, Africa and Asia, with the event series recently expanding into other geographies.

GITEX GLOBAL

WATCH NOW
Official Video | GITEX – Find Your New World

04

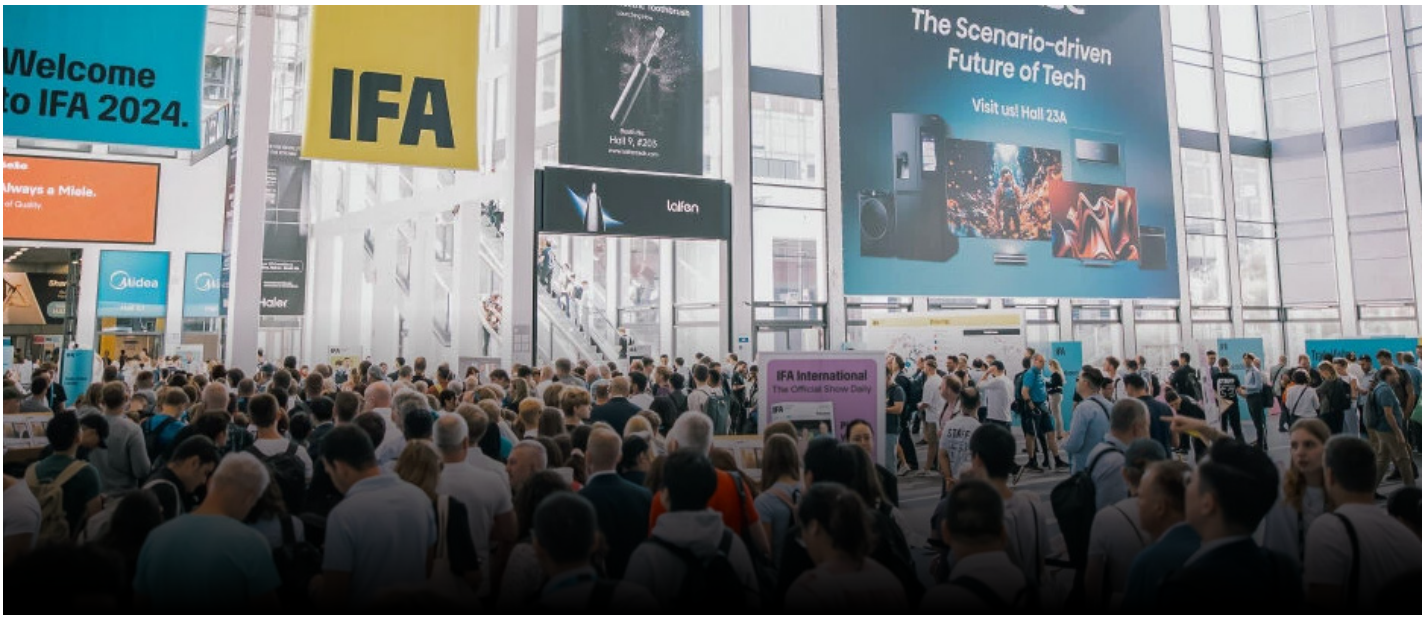
IFA BERLIN

DATE: **4-8 SEPTEMBER 2026**
LOCATION: **BERLIN, GERMANY**

One of the oldest and most respected technology trade shows, IFA Berlin is a key global marketplace for consumer electronics and home appliances. It provides a comprehensive overview of the international market and attracts trade visitors from more than 130 countries who come to see the latest product innovations. IFA is renowned for launching new products ahead of the crucial year-end holiday season, showcasing the latest trends in entertainment, computing, smart home living and telecommunications for both trade and public audiences.

IFA

WATCH NOW
IFA 2025 – Day 1 Highlights



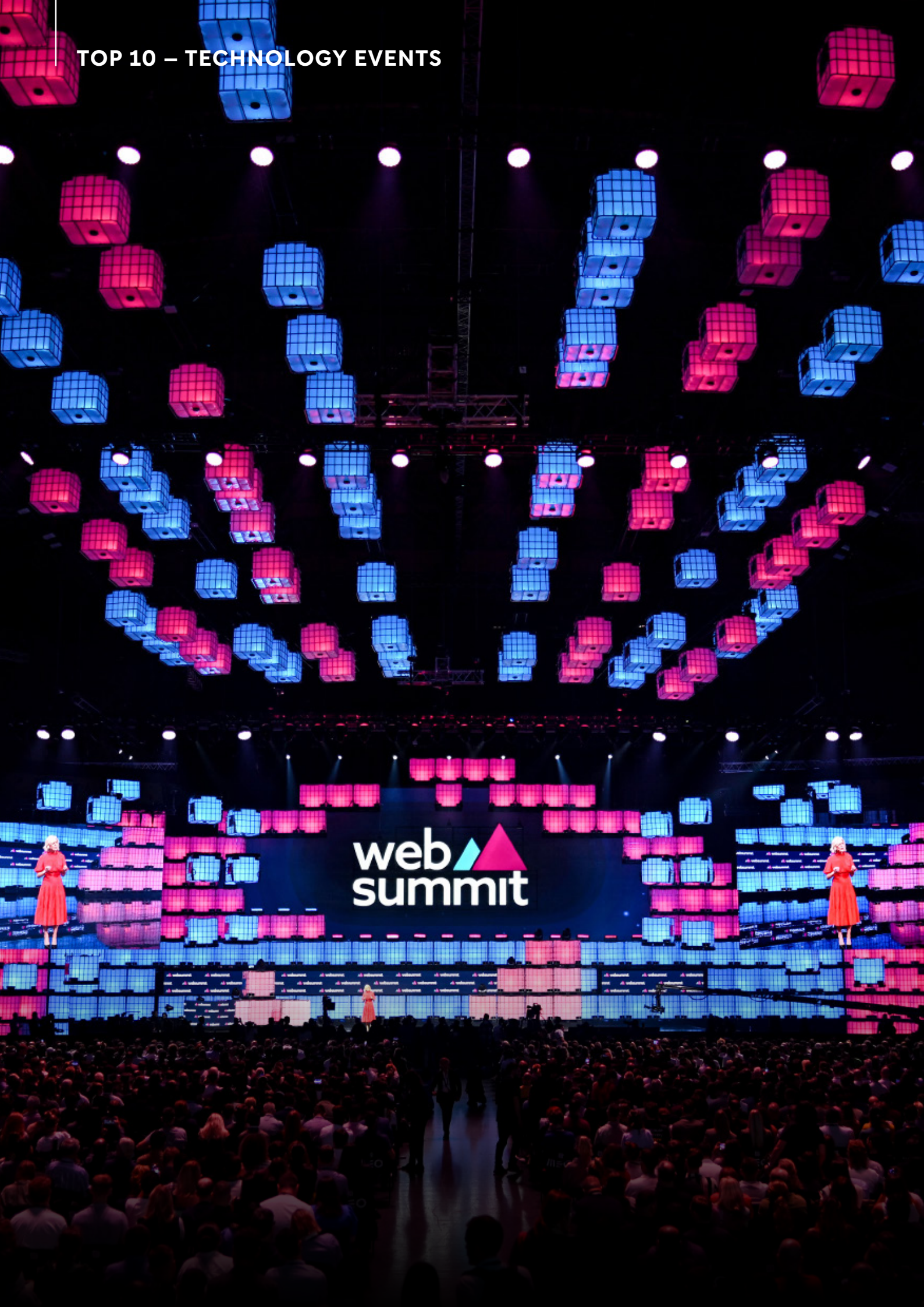
03

MWC BARCELONA

DATE: **2-5 MARCH 2026**
LOCATION: **BARCELONA, SPAIN**

As the world's largest and most influential event for the connectivity industry, MWC Barcelona is the place to be for everything mobile. It's where leading companies and trailblazers share the latest thinking about the progression and future of connectivity. From the newest smartphone launches and groundbreaking advancements in 5G and IoT to the future of fintech, MWC sets the agenda for the mobile world. It is a critical gathering for mobile operators, device manufacturers and technology providers.

WATCH NOW
MWC Barcelona 2025
– Day 1 Highlights


web
summit

02

WEB SUMMIT

DATE: **10-13 NOVEMBER 2025**
LOCATION: **LISBON, PORTUGAL**

Web Summit is a colossal event that brings together the people and companies redefining the global tech industry. It's a vast and energetic melting pot of CEOs from Fortune 500 companies, founders of the most exciting startups and influential investors, all descending upon the city to connect and explore the future. The conference is renowned for its sheer scale and diversity, featuring dozens of independent tracks that cover every conceivable tech topic, from deep tech and data science to marketing, design and sustainability. For startups, its PITCH competition offers a global stage, while for established leaders, it's a vital forum for understanding emerging trends and forging powerful cross-industry partnerships. More than just a conference, Web Summit is a vibrant festival of ideas that sets the tone for the technology landscape.

WATCH NOW
Ever wanted to launch your own startup?

Johnson Controls and NTT: 26 Years of Thermal Innovation

Hear from **Anthony Seiler** and **Jeffrey Jerwers** of Johnson Controls, as they share how a 26-year partnership with NTT has driven responsible growth, innovation, and global sustainability.

Anthony Seiler,
Global Director of
Data Centres Strategy
Johnson Controls

Jeffrey Jerwers,
Account Executive
Johnson Controls

Learn more

01

AI LIVE: THE GLOBAL SUMMIT & AWARDS

DATE: **OCTOBER 2026**
LOCATION: **LONDON, UK**

From the people that brought you the Tech & AI LIVE series, 2026 sees the launch of AI LIVE: The Global Summit & Awards. A premier event dedicated to the dynamic worlds of technology and AI, AI LIVE: The Global Summit & Awards is hosted in one of the world's leading tech capitals and brings together the brightest minds and most influential C-suite executives to explore the future of enterprise tech, AI and cybersecurity. Attendees can expect insightful keynotes from global pioneers and industry-leading speakers who share actionable strategies and real-world case studies on digital transformation. The event is curated to foster high-level networking, connecting CIOs, CTOs and VPs with innovative solution providers. More than just a conference, AI LIVE: The Global Summit & Awards is a critical forum for leaders to debate, challenge and define the technological roadmap for the future. For anyone serious about the business of technology and AI, this is the definitive event for inspiration and strategic insight.

TO READ MORE TOP 10s, CLICK HERE

WATCH NOW
Tech & AI + Cyber LIVE Highlights 2025

NTT DATA

NTT GLOBAL DATA GIGAWATT CAM

WRITTEN BY:
BEN CRASKE

PRODUCED BY:
LEWIS VAUGHAN

CENTERS TARGETS PUS EXPANSION

NTT GDC SVP Brittany Miller explains how NTT is adding a gigawatt of capacity across seven markets as AI workloads reshape infrastructure

The data centre industry is experiencing its most dramatic transformation in decades, driven by AI workloads that demand unprecedented power densities and cooling capabilities.

Traditional enterprise facilities that once consumed 10-15 kilowatts per rack are being replaced by AI-optimised installations requiring 100 kilowatts or more, forcing changes in everything from electrical infrastructure to construction methods.

At the centre of this transformation is Brittany Miller, SVP of Global Infrastructure Development at NTT Global Data Centers (GDC), who has overseen a remarkable scaling of operations during her five-year tenure.

In that time, the company has moved from building modest facilities to planning gigawatt campuses that rival the electricity consumption of medium-sized cities, while simultaneously navigating supply chain challenges, sustainability requirements and the technical complexities of liquid cooling systems.

NTT GDC operates within NTT DATA's broader infrastructure portfolio, which includes cloud services, networks and managed IT solutions alongside data centre facilities. "NTT DATA offers not

only data centres but cloud, networks, cloud services and managed IT under one umbrella that helps us provide solutions for our clients end-to-end across the globe," Brittany explains.

NTT delivers gigawatt expansion across seven strategic markets

The scale of NTT GDC's current expansion is one example of how technology companies today approach infrastructure investment. The company is adding nearly one gigawatt of capacity across seven strategic markets, representing a deliberate choice to build substantial capacity in proven markets.

The company's North American expansion is largely focused on two major developments. The Hillsboro, Oregon facility will reach 350 megawatts when construction completes, while the Mesa campus in Phoenix will reach combined capacity exceeding 300 megawatts. International expansion, meanwhile, has focused on Milan, Paris, India and Tochigi in Japan.

The company's international expansion strategy balances global standardisation with local market adaptation. Operating across more than 20 countries, NTT GDC provides scale advantages while maintaining regional expertise required to navigate diverse regulatory environments.

"We have the global scale that very limited players have, but we also have that local knowledge," says Brittany. "NTT as a whole

BRITTANY MILLER

GLOBAL SENIOR VICE PRESIDENT OF INFRASTRUCTURE DEVELOPMENT

Brittany Miller is the Global Senior Vice President of Infrastructure Development at NTT Global Data Centers, overseeing global construction, engineering and supply chain operations. With over 15 years of experience, she has led major infrastructure projects across the data centre, cloud and semiconductor industries.

Before joining NTT Global Data Centers, Brittany held leadership roles at Microsoft and Intel, where she managed large-scale construction programmes, supply chain operations and strategic infrastructure development. She is also an advocate for diversity in technology and construction.

Brittany Miller, Global Senior Vice President of Infrastructure Development, NTT GDC

> “We went from building 6-12 megawatt data centres to talking about **gigawatt campuses** now, in less than 10 years”

Brittany Miller,
SVP of Global Infrastructure Development,
NTT GDC

operates in over 20 countries. But each data centre campus is designed with the local market’s regulations and our client expectations in mind. We have a standard design and a standard product so that the look and feel of the data centre is the same across the world. But we’re able to tailor it for each market.

“Because we have such a large footprint, we’re able to help our customers along that journey,” she continues, “whether they’re used to building their own and want the same look and feel across the globe.”

AI driving an infrastructure revolution

It's no secret: AI has created the most significant technical disruption the data centre industry has experienced.

Traditional enterprise applications typically require 5-10 kilowatts per server rack, power levels that conventional air cooling systems can manage effectively. AI training and inference workloads demand power densities that have forced fundamental reconsideration of cooling systems, electrical infrastructure and facility design.

"That changed everything from how we design our data centres to the power that supports our data centres to the locations we look at," Brittany explains. "You've seen our densities grow from 10-15 kilowatts to 60 kilowatts to 100 kilowatts, and projected to go higher as we scale."

The industry-wide nature of this transformation has forced unprecedented collaboration between stakeholders that traditionally operated independently. Equipment manufacturers must coordinate with construction contractors,

Cummins and NTT: Powering The Future Of Data Centres

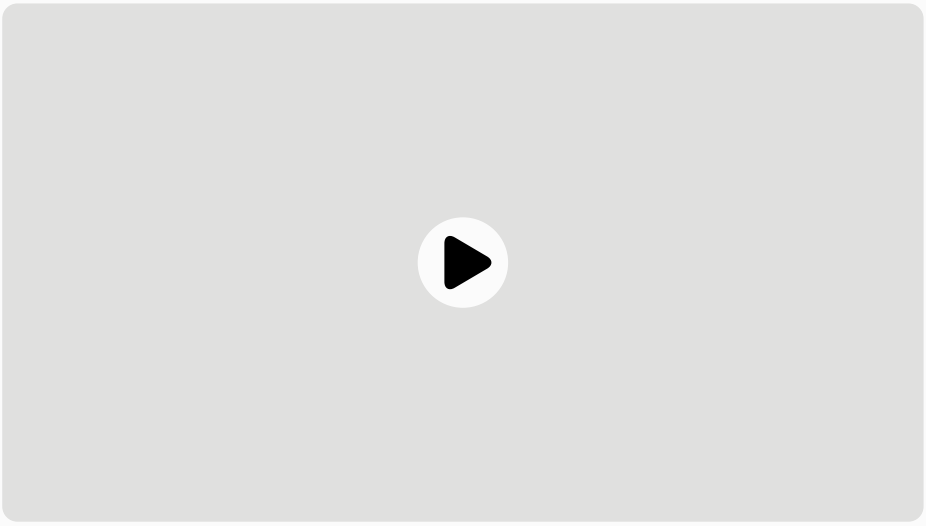
Cummins' Dawn Wehr explains how a shared focus on reliability, innovation, and sustainability is helping meet AI's rapidly growing demand for dependable power — shaping the next era of digital infrastructure and energy resilience

Dawn Wehr leads Strategy, Product Planning and Digital for the power systems business at Cummins, a 105-year-old global power company with operations in more than 190 countries. With more than 37 years of experience serving the data centre industry, Cummins provides the dependable power infrastructure that keeps digital ecosystems running across the world. "One of our brand taglines is 'Depend on Cummins,' and that's something we live by every day," Dawn says. "Reliability is absolutely critical when powering data centers – there is no room for compromise. That reliability goes hand in hand with continuous innovation and a responsible path toward sustainability — because lasting progress requires all three working in balance."

Innovation, Reliability, and Sustainability

In a sector that demands uninterrupted power, one might expect innovation to be an afterthought. For Cummins, though, new products – especially those focused on sustainability – are becoming an important part of the business strategy. For Dawn, the important thing is to ensure that these green technologies can be trusted. "There are new challenges to solve as we integrate emerging technologies to meet the same reliability standards our customers expect," Dawn explains. "That's where our century of engineering experience becomes a real advantage." It's this deep engineering foundation that allows Cummins to innovate confidently — advancing reliability standards while enabling more sustainable operations across the data center landscape.

Dawn and her team are actively exploring more sustainable alternatives to diesel, like natural gas and HVO-compatible machinery, while also producing battery energy storage systems which can be charged using renewable energy.



> **"Innovation, reliability, and sustainability aren't separate goals — they're the blueprint for how Cummins powers progress,"**
>
> Dawn Wehr
> Executive Director, Strategy, Product Planning, & Digital, Power Systems

Navigating global complexity

Cummins is a truly global company, with manufacturing facilities in China, the US, India and the UK, allowing the company to serve markets efficiently and responsively.

Operating such a sprawling network means that Cummins' team has to be agile, though, adapting to different tariffs and regulations in each territory. "Our supply chain team are heroes," Dawn says. "Their ability to adapt and deliver in such a dynamic environment is remarkable."

That adaptability is what fuels Cummins' strength — combining innovative thinking, reliable delivery, and sustainable manufacturing practices tailored to each region's needs.

Globality is Cummins' superpower on this front. Its 50-year presence in China, for instance, has allowed the company to create very strong relationships with suppliers. "That local presence helps us navigate complexity and build lasting partnerships," Dawn explains.

The firm's long-standing 'local for local' approach ensures products are designed and manufactured close to where they are sold, strengthening supply resilience and relationships.

Meeting surging demand

The rapid expansion of AI is driving unprecedented demand for data centres capacity – and Cummins' expertise has never been more essential. Meeting that demand requires a balanced approach — scaling innovation, maintaining the highest levels of reliability, and ensuring every solution contributes to a more sustainable energy future.

"Our plants are sold out for the next few years," Dawn says. The company's immediate priority is delivering on its commitments while evaluating its future investments, which are likely to grow alongside the demand for AI.

NTT, one of the world's largest co-located data centre providers, is one of Cummins' most important clients in this field. "We've had a strong, collaborative partnership for many years," Dawn explains. "It's built on mutual trust, shared values and a common vision for reliability and sustainability."

While much of this collaboration has been centered in the U.S., both organisations are now exploring ways to expand their partnership globally.

"We're excited about the opportunity to take this relationship to the next level and continue powering NTT's growth in a sustainable way," Dawn concludes. "Together, we're demonstrating how innovation, reliability, and sustainability can coexist — powering the future of digital infrastructure with confidence and care."

Discover how Cummins and NTT are powering the future of data centers

LEARN MORE

while utility providers accommodate power demands that exceed traditional data centre loads.

"It's forced some things to happen in the industry – we can't be siloed," she adds.

"It's a supply chain in itself. That's forced a lot of collaboration and some out-of-the-box thinking. Using AI in our industry for our own benefit has happened. It's really changed dramatically in the last five years," Brittany observes.

The timeline of change has compressed dramatically, with fundamental infrastructure modifications occurring within months rather than years.

"Things like automation, modularity, power and sustainability are no longer optional. How do you solve this complex puzzle with those types of things? That's where the industry is now," she notes.

Customer collaboration shapes AI infrastructure development

The complexity of AI infrastructure requirements has moved customer relationships beyond traditional capacity planning into collaborative technology development partnerships. To cite one example, NTT Global Data Centers has deployed substantial liquid cooling capacity over the past two years while engaging customers in forward-looking planning processes.

"How do you power high density? How do you support it from an infrastructure perspective?," Brittany asks. "We've been focused on that and have been able to deploy quite a bit of liquid cooling capacity over the last year or two, which has accelerated the way we're thinking about the product and where the market is going."

Johnson Controls and NTT: 26 Years of Thermal Innovation

What began as a neighbourly relationship in 1999 has evolved into one of the data centre industry's most enduring strategic partnerships

Johnson Controls and NTT have spent 26 years growing together, pioneering sustainability initiatives and scaling thermal management solutions from single-site deployments to global operations worth hundreds of millions of dollars. The partnership's longevity speaks to what Jeffrey Jerwers, Account Executive at Johnson Controls, describes as a foundation of mutual benefit.

"NTT has always been a great partner with JCI," says Jeffrey. "They've valued partnerships as part of one of their key successes, and they've always given us very long-term planning of their business goals. This vision has allowed us to increase our manufacturing, improve our supply chain and scale the products and services that we provide to them."

This collaborative approach has enabled both companies to pursue what Jeffrey characterises as "responsible growth" – expansion underpinned by strategic planning rather than opportunistic scaling. The results are evident in the relationship's scope: what started with two chillers in a single facility has expanded to support NTT's international footprint.

Central to the partnership's success has been NTT's position as a sustainability pioneer. In 2016, the operator made what Anthony Seiler, Global Director for Strategy and Go-to-market at Johnson Controls, calls "a pretty bold decision to move away from water-cooled chillers and eliminate water evaporation completely."

NTT became the first major colocation operator to deploy air-cooled chillers at scale, with JCI installing dozens of units in what proved to be an industry-defining move. "We saw that early pioneering move spread like wildfire across the industry," notes Anthony. The sustainability pivot, which began with test cases in 2011 before full implementation in 2016,

required significant innovation and partnership from both NTT and Johnson Controls. The company developed free cooling screw chiller technology that allowed NTT to transition away from traditional water-cooled systems while maintaining best-in-class efficiency.

“Their environmental leadership created the perfect testing ground for next-generation cooling solutions,” explains Anthony “Efficiency and environmental stewardship aren’t competing priorities any more, but they’re actually complementary advantages.”

Johnson Controls’ value proposition extends beyond individual products to what Anthony describes as comprehensive thermal management “from chip to chiller, covering the entire thermal continuum in a data centre.”

This end-to-end capability has become increasingly critical as the industry transforms. Jeffrey recalls that when he entered the sector in 2005, a five-megawatt facility was considered massive and cooling was treated like air conditioning. Today, the scale and pace of change render these numbers and approaches obsolete, with gigawatt-scale projects now under consideration.

Against this backdrop, Johnson Controls is intensifying its focus on efficiency optimisation. “Today, the scale of these projects is significantly larger, especially as we’re starting to look at gigawatt-type campuses,” says Jeffrey. “After twenty years in the data centre industry, the one constant is it’s constantly changing.”

“We’re intensifying our innovation focus on creating the most efficient thermal chain possible,” concludes Anthony. “Our goal is straightforward – drive the lowest PUE achievable, so our customers can dedicate more revenue to what matters most to them, the computing power in their racks, rather than the infrastructure supporting it.”

Learn more

“It’s forced some things to happen in the industry – **we can’t be siloed.** It’s a supply chain in itself”

Brittany Miller,
SVP of Global Infrastructure Development,
NTT GDC

The collaborative approach extends to strategic planning for AI technology evolution.

“That’s one thing that we’re partnering with most of our customers on. What does their future-looking roadmap look like? How do we get ahead of that? That’s one of the biggest trends,” she continues.

Customer preferences have reinforced the importance of global infrastructure providers capable of supporting AI deployments across multiple regions simultaneously.

“What I’ve also seen from the more mature, broader clients is they want global players – a company that has that global footprint to be able to react to their demand changes as well,” Brittany notes.

Environmental sustainability has transitioned from voluntary corporate responsibility to a fundamental business requirement. NTT Global Data Centers has established net zero targets (Scope 1-3) for 2040 with intermediate carbon neutrality goals for 2030.

Life Is On | Schneider Electric

Strategic Priorities for Modernizing Data Centers in the AI Era

The frenetic growth of AI workloads has exposed a critical bottleneck: **The data center industry can't build infrastructure fast enough to keep up with demand.** In North America, for example, the vacancy rate for primary markets hit a record low of 1.6% in the first half of this year, despite the supply increasing by 43.4% annually.

At this crucial tipping point, the ability to balance breakthrough AI innovation with the next-generation infrastructure is reshaping the competitive landscape. Organizations that treat their infrastructure as a strategic investment, not just a technical necessity, are quickly setting the pace for what's next.

In fact, the world's leading hyperscalers are expected to invest a record **$320 billion in AI infrastructure and data centers** this year. From energy efficiency to thermal management and modular design considerations, their infrastructure choices will have a direct impact on speed to market, the long-term cost and ROI of each deployment, and the performance of the AI workloads.

Away from net new builds, modernization of legacy infrastructure has also become a key consideration, allowing organizations to become 'AI-Ready'. This can include:

1 - Rack Configuration: AI workloads require precise planning to accommodate advanced cooling systems and the associated increased infrastructure footprint, driving the need for more compact and efficient designs. In turn, this is reshaping how whitespace is utilized, with a focus on optimizing rack densities and airflows to enhance systems' performance. Large language (training) models are also driving a shift toward high-density computing, accommodating more servers in a smaller area, allowing for advanced computing power without increasing space.

2 - Liquid Cooling: The heat generated by AI-driven hardware is pushing data centers to adopt liquid cooling to maintain peak performance. Traditional air-cooling systems can't keep up with the heat demands of GPUs, making liquid cooling vital not only to manage higher thermal loads more effectively but to extend equipment lifespan. Additionally, hybrid cooling solutions that combine both air and liquid cooling optimize performance and flexibility, allowing data centers to scale their operations in response to evolving workloads.

3 - Power: High-density workloads require robust power distribution systems, leading data center operators to seek advanced uninterruptible power supplies (UPS) and scalable power solutions for reliable energy delivery. Operators are also equipping racks with advanced power distribution units (PDUs) that can handle

MARC GARNER
CLOUD & SERVICE PROVIDER SEGMENT PRESIDENT, SCHNEIDER ELECTRIC.

higher loads, allowing for dynamic power allocation to support varying AI workloads. By collaborating closely with utility companies, data center operators can implement demand response programs to optimize energy sourcing, and leverage renewable energy for more sustainable and resilient power.

4 -Software: The combination of EPMS, DCIM, and BMS allows for real-time monitoring, enhanced visibility, and control of critical infrastructure, leading to improved efficiencies, reduced downtime, and lower operational costs. Key benefits of integrating these systems include faster modernization, increased financial gains, streamlined processes, standardized system designs, and enhanced security.

In the AI era, infrastructure is everything. Organizations that fail to evolve their data centers for high-density workloads will face rising costs, slower innovation, and shrinking competitive ground. Success won't come to those who simply build bigger, but to those who build smarter.

NTT Global Data Centers Partners with Schneider Electric to Streamline Data Center Software

NTT Global Data Centers division is the world's third largest data center provider, operating over 160 data centers in more than 20 countries. The company offers full-stack services, and is one of the largest connected platforms globally.

Due to the company's fast growth trajectory, NTT faced multiple challenges stemming from fragmentation among its locations. Processes were handled differently across regions and teams, including sales, construction and operations, and its data center designs weren't uniform.

To streamline operations, NTT teamed up with Schneider Electric to provide a standardized software solution for its North American data centers. Schneider Electric's solution was two-fold: it provided a Building Management System (BMS) and integrated Energy and Power Monitoring System (EPMS) solution, including controls and monitoring for NTT's power and cooling infrastructure, as well as cybersecurity software.

BMS is a centralized platform that monitors, controls, and optimizes a building's core infrastructure, including HVAC, lighting, energy, fire safety, and security systems. EPMS provides power management features including real-time monitoring and power quality, as well as energy management such as energy visualization dashboards and reports. This Schneider Electric software gives NTT and its tenants critical, real-time visibility of their mission-critical systems, and helps ensure the sites remain reliable, efficient, and operational.

The cybersecurity solution helps NTT to reduce enterprise-wide digital risk, avoid costs related to downtime, while helping to enforce global security standards that make NTT's operational environments more secure and resilient for its tenants. The platform inventories and monitors every piece of connected operational technology, helping detect cybersecurity threats, risks, and vulnerabilities. This was a critical requirement for NTT, especially for its legacy sites – helping to mitigate potential risks and positioning it to serve key clients, including government entities.

This strategic alliance between Schneider Electric and NTT continues to grow as Schneider Electric begins to deliver its standardized BMS/EPMS and cybersecurity solutions beyond NTT's North American facilities, deploying them across its data center portfolio globally.

"We're approaching that with three different strategies," Brittany says. "The first one is reducing our direct emissions through different alternative fuels, minimising generator testing and those types of options. Our second strategy is procuring renewable energy. Our third strategy is engaging with our suppliers – and that's part of my organisation. How do we, as a supply chain, work towards decarbonisation?" Brittany summarises.

"In FY23, our previous fiscal year, we were able to reduce our emissions by 25% compared to our previous years," she adds. "We've also got over 50% of renewable energy usage. Even with those challenges, we've still made a lot of progress on our goals."

AI tools transform NTT GDC's construction operations

Beyond supporting AI workloads for customers, NTT is implementing AI applications across its own construction and operational processes.

Construction sites employ AI-powered monitoring systems that analyse project progress through computer vision technology, identifying potential delays or quality issues before they impact schedules or budgets.

> “How do you power high density? How do you support it from an **infrastructure perspective?**”
>
> **Brittany Miller,**
> SVP of Global Infrastructure Development,
> **NTT GDC**

“We are piloting multiple tools to help us ensure quality and schedule and cost delivery. We are using AI on the job site to track the progress of projects and understand where we might have issues. We’re piloting different AI scheduling to help us, particularly in some regions that are not used to this type of scale and don’t have that type of experience,” Brittany explains.

Modularisation and prefabrication initiatives benefit from AI capabilities, especially in markets experiencing skilled labour shortages.

“We’re also looking at things like how do we modularise or prefab more things, using AI, particularly in markets where there are labour shortages. All of the development and the broader construction industry is working through how to leverage AI. We’re trying to pilot and work through in different regions what works for us. That’s what we’ve been focused on the last year – building that culture of innovation and seeing what tools are out there.”

Strategic partnerships enable innovation and delivery

The complexity of modern data centre development has elevated strategic supplier partnerships from transactional relationships to collaborative planning arrangements. The collaborative model emerged from necessity during 2020, when supply chain disruptions forced closer integration between operators and suppliers.

“I think the whole industry figured out very quickly that partnerships are where this industry needs to go, and it accelerated that for us,” Brittany reflects.

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The partnership strategy builds on standardised design approaches while providing suppliers with strategic planning information. “At NTT GDC, we have a standard design that we use across the globe, which helps us with our customers’ time to market. On top of that, we are able to partner with people like Cummins and Schneider Electric and JCI to look forwards.

“They have access to our roadmap years forward, so that they can plan accordingly. They help us with getting prepared for a new market and engineering based on what they’ve seen across the world. Recently, with all the high-density changes, having these partnerships has enabled us to pivot quite quickly and leverage some of those partners to accelerate some of our builds,” she explains.

Generator systems represent one of the longest lead time items in construction schedules.

“Cummins is one of our generator suppliers, and they’re focused across the Americas and different regions. They’ve been with us for quite a bit of time. We work with them closely given generators are probably one of the longest lead items in the data centre industry,” Brittany emphasises.

IN NUMBERS: NTT GDC

160+ data centers in 20+ countries and regions

25% emissions reduction achieved in FY23

50%+ renewable energy usage

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People-focused leadership drives team development

Brittany's management philosophy emphasises human relationships and team development, recognising that successful projects depend on effective collaboration across all stakeholder groups.

"The most simple leadership principle that I lead from is it's about the people – particularly in construction. It takes everybody, from the people that are building it to the people that are managing it to the end client. I always focus

> "The most simple leadership principle that I lead from is **it's about the people** – particularly in construction"
>
> **Brittany Miller,**
> SVP of Global Infrastructure Development,
> **NTT GDC**

on the people, and it guides our culture at NTT Global Data Centers," she explains.

"I've been at NTT Global Data Centers now for five years, and when I came here, the goal was to develop a high-performing team to build and scale our business. We've done that. The output of that is being able to see people excel in their careers and be confident and capable and move on to global roles and different types of things in their career. That's the real win out of all of this," she reflects.

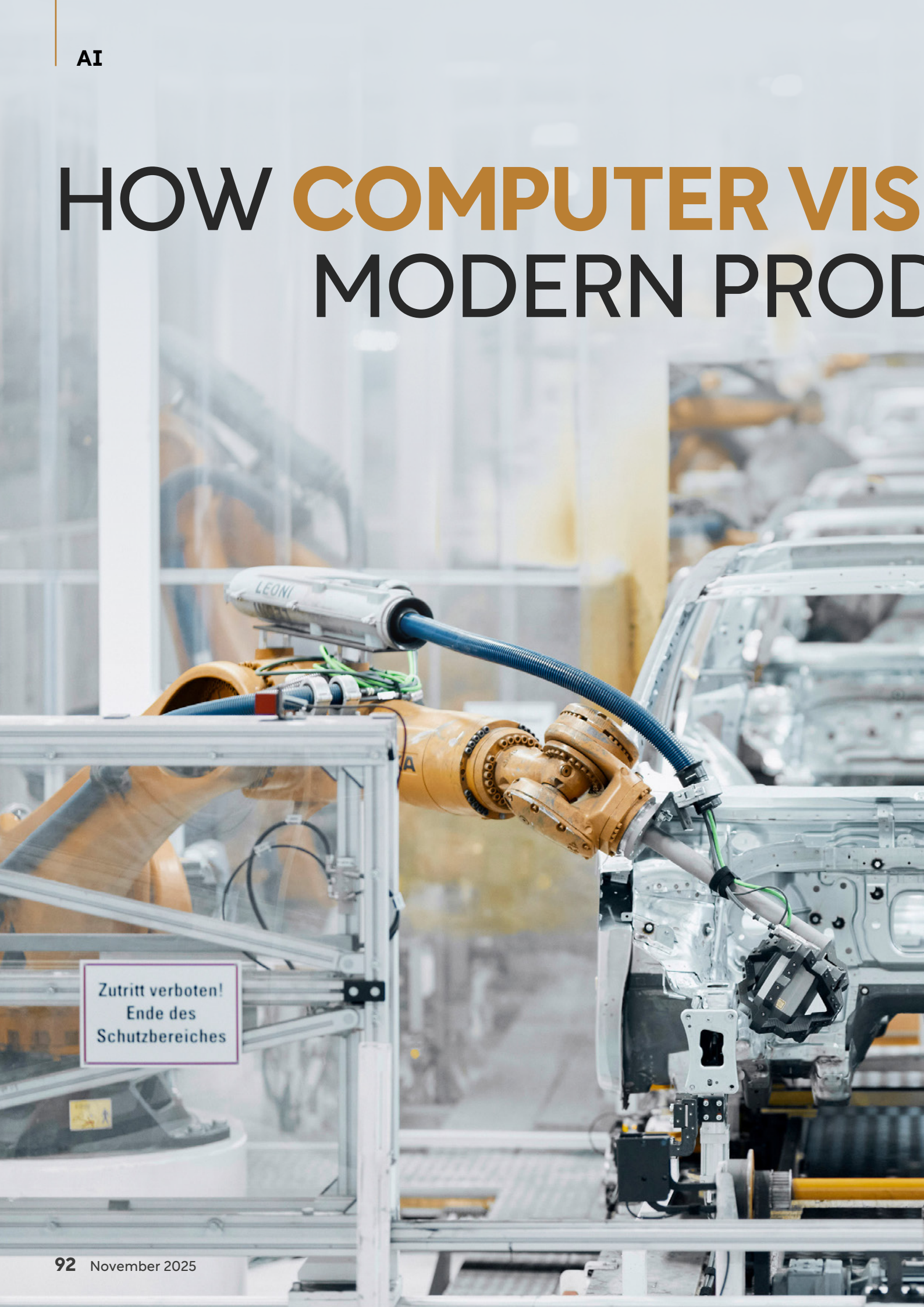
The final months of 2025 will see NTT GDC balancing capacity expansion with technology advancement. The company will continue gigawatt-scale development while opening data centres in new markets and refining high-density designs deployed across 100 megawatts of US capacity.

"We'll continue to leverage and build to one-plus gigawatts across the globe," Brittany says. "You'll see us open data centres in new markets. You'll see us refine and continue to deploy our high-density design.

"We've deployed over 100 megawatts of high-density design in the United States, and that's going to continue across the globe," she concludes.

"We're also partnering with different customers for future-looking things. You'll see a lot of innovation out of NTT, but then also a lot of delivery on what we say from a time-to-market perspective, because at the end of the day that's what the clients are looking for."

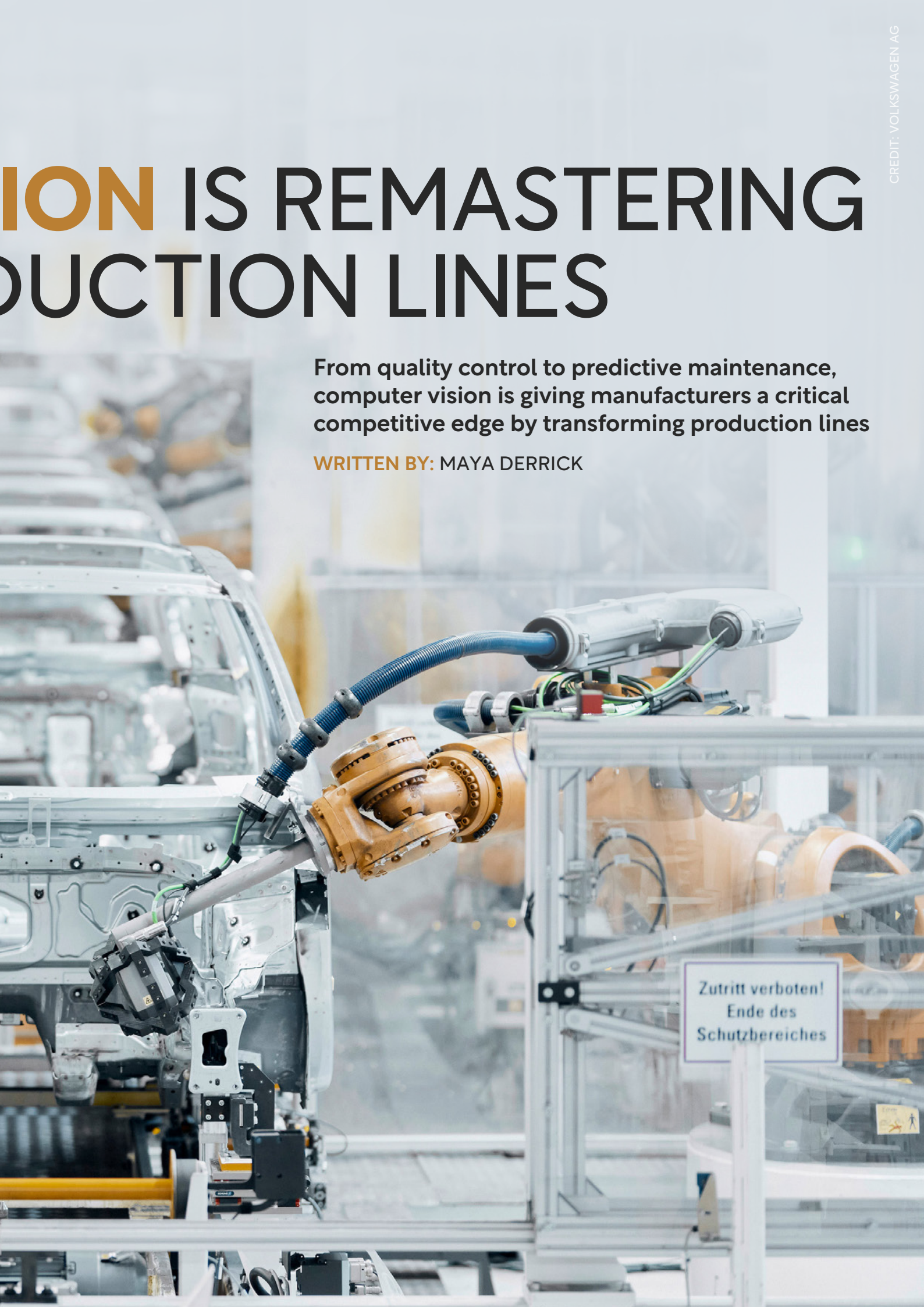
HOW COMPUTER VIS
MODERN PROD



ION IS REMASTERING DUCTION LINES

From quality control to predictive maintenance, computer vision is giving manufacturers a critical competitive edge by transforming production lines

WRITTEN BY: MAYA DERRICK



CREDIT: VOLKSWAGEN AG


CREDIT: VOLKSWAGEN AG

AI is driving significant transformation in manufacturing. At the heart of this is computer vision – a field of AI that trains computers to interpret and understand the visual world. But what does this mean for manufacturers?

Moving beyond the conceptual stage, computer vision is a practical tool in manufacturing, creating smart factories that are more efficient, less wasteful and far more adaptable than traditional predecessors. By equipping machines with the ability to 'see', companies are unlocking unprecedented levels of quality control, automation and predictive insight.

How Volkswagen scales up with AWS

Volkswagen Group is deep into exploring this avenue of industrial evolution. By working with Amazon Web Services (AWS), the automotive giant is scaling its Industrial Computer Vision (ICV) platform, built on AWS, across 43 of its global factories to enhance efficiency and quality in its production processes.

Before collaborating with AWS, Volkswagen faced the problem of isolated IT systems, which hindered its ability to deploy innovations rapidly and uniformly. To maintain its competitive edge and drive its ambition to become a global automotive tech driver, the company needed a way to centralise and scale its artificial intelligence and computer vision initiatives.

"Together, we're **fast-tracking AI solutions** that will help unlock new levels of innovation"

Kathrin Renz,
VP of AWS Industries,
Amazon

By expanding its partnership with AWS, Volkswagen was able to build and scale its Digital Production Platform (DPP), which acts as the digital nervous system for its factories. This created a standardised infrastructure that now connects its sites across three continents. Building on AWS eliminated Volkswagen's need for costly on-premises GPU clusters at each location. Instead, it used the cloud for the high availability and scalability required for production-critical systems.

This centralised approach underpins what has become the automotive industry's largest industrial AI deployment. Using Amazon SageMaker, Volkswagen's teams can develop, train and deploy machine learning models efficiently, allowing solutions to be rapidly replicated across the entire network.

Real-time computer vision is used as part of this strategy and underpin Volkswagen's approach to quality control. At major German facilities, AI-powered systems process thousands of images per hour directly on the assembly line, automatically verifying that thousands of components align with each vehicle's specific configuration. This automated inspection detects mismatches with a speed and consistency that manual processes cannot achieve, preventing faults from ever reaching the customer.

KATHRIN RENZ

TITLE: **VP OF AWS INDUSTRIES**

COMPANY: **AMAZON**

INDUSTRY: **TECHNOLOGY**

LOCATION: **MUNICH, GERMANY**

Kathrin leads collaborations that combine AWS' cloud and AI services with industrial expertise, fast-tracking innovation for manufacturing giants like Volkswagen to unlock new levels of operational efficiency.

By standardising the DPP, Volkswagen has deployed more than 1,200 AI systems, generating cost savings in the double-digit millions.

"Volkswagen Group is setting new standards for smart manufacturing," says Kathrin Renz, Vice President of AWS Industries."Our five-year extended collaboration combines AWS' cloud infrastructure and purpose-built IoT and machine learning services with Volkswagen's manufacturing expertise.

"Together, we're fast-tracking AI solutions that will help unlock new levels of innovation throughout Volkswagen Group's manufacturing operations."

Panasonic: Building smarter factories with computer vision

Manufacturers are under constant pressure to increase productivity, enhance product quality and reduce operational costs. The risk of human error in complex assembly tasks is a top concern, along with the need for greater supply chain efficiency and worries over data security in deploying new technologies.

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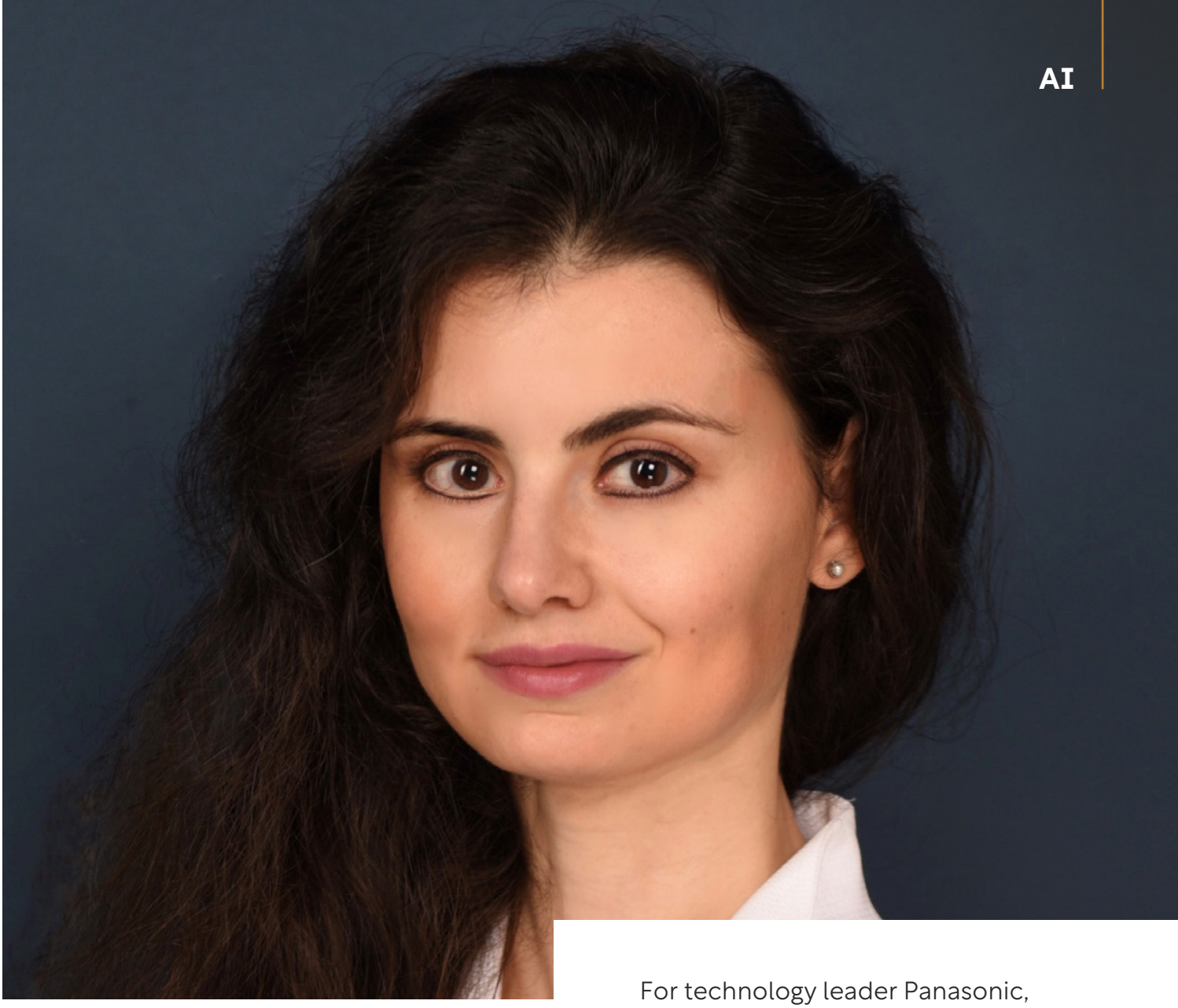


MARGARITA LINDAHL

TITLE: **AI HEAD**

COMPANY: **PANASONIC CONNECT EUROPE**

INDUSTRY: **ELECTRONICS MANUFACTURING**

LOCATION: **WIESBADEN, GERMANY**

Margarita champions the use of mature computer vision technology to drive productivity and improve product quality, focusing on practical, high-impact applications for the modern manufacturing industry.

For technology leader Panasonic, the goal was not just to implement new systems but to champion a mature, reliable technology that could deliver tangible value and a significant return on investment. Panasonic positioned AI-powered computer vision as a core technology to solve these challenges. Championing computer vision as a technology ready for practical, high-impact application, Panasonic sees it as "a powerful tool for improving product quality and driving productivity", according to its AI Head at Panasonic Connect Europe, Margarita Lindahl.

She adds that computer vision is "expected to reach its productivity plateau within the next two years, making it a more mature and reliable technology for practical applications in manufacturing".

With this projection in mind, Panasonic is focusing on deploying this technology in targeted, high-value areas. For example, in electronics final assembly, computer vision systems are used to guide the insertion of components and the connection of sub-assemblies to main boards. This technology can "increase accuracy and sensitivity", Margarita says, in tasks often performed by people. The systems also analyse operator movements to enhance efficiency and pinpoint the source of quality issues caused by human error. Beyond the production line, Panasonic uses computer vision for logistical tasks like volume measurement, ensuring pallets are loaded efficiently for transportation.

By integrating computer vision, Panasonic is driving significant operational improvements. The technology directly addresses the core goals of enhancing quality and boosting productivity. Margarita says: "It enables significant productivity and efficiency gains, automates many processes, enhances quality control nd accelerates innovation. It will be fascinating to see how this technology continues to transform the sector and whether these ambitious expectations are met or even exceeded." Panasonic's own data backs up this belief, too, with it predicting that the technology will drive productivity increases of 42% on average over the next three years.

GANESH BUKKA

TITLE: **VP**

COMPANY: **HITACHI DIGITAL SERVICES**

INDUSTRY: **IT SERVICES**

LOCATION: **THE RANDSTAD, THE NETHERLANDS**

Ganesh is a leader in evangelising AI within the manufacturing landscape. He focuses on deploying advanced solutions like agentic AI to enhance product quality, efficiency and supply chain management.

A vision for agentic AI in manufacturing

At Hitachi Digital Services (HDS), the company sees core challenges of tech-driven manufacturing revolve around data quality, as well as the availability of data and the effective integration of real-time data with legacy systems. High capital costs come about as a result, often deterring companies from looking to modernise their operations and harness the power of AI. HDS set itself a task: to create solutions that could overcome these data hurdles and unlock tangible value on the factory floor.

Hitachi's strategy has been to lead the charge in "evangelising AI within the manufacturing landscape", as Ganesh Bukka, Vice President at HDS, explains. The company focuses on core use cases that improve efficiency, reduce waste and optimise supply chains.

For Ganesh, a key component of this is the deployment of a more advanced, autonomous form of AI. "Agentic AI is a game-changer in manufacturing," he explains. "Unlike traditional AI, agentic AI autonomously reasons data and works towards more accurate outcomes continuously."

This technology is at the heart of Hitachi's Advanced Quality Inspection (AQI) solution.

Ganesh adds: "Here, robotic spot dogs capture images and videos of the final product assembly. This computer vision data is processed in real-time at the edge, where agentic AI constantly refines the model, improving inconsistencies, defects and deviations to enhance product quality."

CREDIT: VOLKSWAGEN AG

1,200+

The number of AI systems Volkswagen has deployed via its Digital Production Platform

5 years

The length of the extended collaboration between Volkswagen and AWS

CREDIT: VOLKSWAGEN AG

“It’s a **powerful tool** for improving product quality and driving productivity”

Margarita Lindahl,
AI Head,
Panasonic Connect Europe

Hitachi’s approach is already delivering significant results. The AQI solution has been deployed across more than 400 machines for a leading global automotive manufacturer, fundamentally improving its quality control and predictive maintenance capabilities. By tackling the root causes of machinery stoppages and enhancing product quality, Hitachi is proving the real-world value of its AI-first computer vision approach.

Ganesh believes this technology is reshaping the industry. “AI is already reshaping the competitive landscape of global manufacturing and supply chains,” he says. Manufacturers that embrace AI can see up to a 10% improvement in raw material and process efficiency. AI can extend product life by 15-20%, creating significant value through digital revenue streams and servitisation.

“This shift not only enhances operational efficiency but also opens up new business models focused on product-as-a-service, allowing manufacturers to derive ongoing value from their products long after they leave the factory floor. The result is a more agile, efficient and sustainable global manufacturing ecosystem.”

BUILDING **CYBE**
RESILIENCE THR
STRATEGIC PART

R
ROUGH
TNERSHIPS

WRITTEN BY:
AMBER JACKSON

PRODUCED BY:
TOM VENTURO

Fairfax County CISO *Michael T. Dent* reveals how Virginia's largest local government tackles emerging threats with enterprise-wide risk management

Michael T. Dent, Chief Information Security Officer (CISO) at Fairfax County Government in Virginia, has recently completed a significant transition.

As of August 2025, he moved into a new role as Strategic Liaison to the CIO and CISO as part of a planned leadership succession, passing the CISO responsibilities to Charles Gore.

The transition comes after 23 years with Fairfax County, following his military service. This extensive tenure has shaped his approach to cybersecurity leadership in one of America's largest local governments.

"My military background instilled a mindset of discipline, accountability and mission-first leadership, values that I've carried into my work in public sector cybersecurity," he says.

His approach to cybersecurity emphasises integration rather than isolation. Cybersecurity is embedded in everything from budgeting to public-facing services, with accountability extending to executive level leadership.

"No security programme succeeds if it operates in a silo or if exceptions are made for VIPs," Michael explains. "You have to be resourceful, collaborative and able to explain cyber risk in plain terms, because at the end of the day, you're securing not just infrastructure, but democracy at the local level."

This philosophy has guided the development of Fairfax County's comprehensive cybersecurity framework.

Fairfax County
Government Center

CREDIT: WIKIPEDIA

Fairfax County's commitment to digital resilience

Located in the heart of Virginia, Fairfax county serves over one million residents and operates extensive digital infrastructure. This scale presents unique challenges in balancing security requirements with accessibility and public service delivery.

With this in mind, the county's enterprise-wide IT risk management programme is designed to be both comprehensive and intentional. Michael says that what makes it so effective is that it's built not just to "check compliance boxes", but to "ensure the security, resilience and trustworthiness of every county service that touches technology".

He adds: "What makes it effective is that it's embedded at every level, from our core Information Technology Security Policy, which outlines the minimum-security requirements across all platforms, to aggressive, ongoing risk assessments that inform action and accountability."

The cybersecurity programme operates under a robust vulnerability and risk management model, which means the county is constantly assessing its security posture, validating controls and adapting to evolving digital threats. This is undertaken on a continuous cycle, with the programme covering every county IT asset across every platform and department to ensure there are no blind spots in infrastructure, applications or operations.

"We take compliance seriously, aligning with federal, state and local requirements, from HIPAA and PCI-DSS to NIST guidelines and we have

> **"At the end of the day, you're securing not just infrastructure, but democracy at the local level"**
>
> **MICHAEL T. DENT,**
> STRATEGIC LIAISON TO THE CIO AND CISO, FAIRFAX COUNTY VIRGINIA

governance structures in place to ensure that alignment isn't just documented, but operationalised," Michael says. "Our Governance, Risk and Compliance (GRC) approach is a cornerstone. Within Fairfax County Public Schools, for example, the Office of Cybersecurity includes a dedicated GRC team, reflecting how seriously we take not only risk identification but ownership and follow-through."

The programme is strategically aligned with the Countywide Strategic Plan – a roadmap within Fairfax County that exists to help guide future work based on 10 Community Outcome Areas.

"That's important, because cybersecurity isn't isolated from community outcomes," Michael emphasises. "Whether we're enabling digital equity or safeguarding critical infrastructure, our goal is the same: to provide the residents of Fairfax County with secure, reliable access to services they depend on.

"We built a programme that's both technically sound and strategically aligned and that's why it works."

MICHAEL T. DENT

STRATEGIC LIAISON TO THE CIO AND CISO

Michael Dent is a nationally recognised cybersecurity leader with over 30 years of service in government, including nearly 24 years as CISO for Fairfax County, Virginia. He built and led one of the most resilient local government cybersecurity programmes in the US, achieving zero downtime from cyber incidents. A trusted advisor to federal, state and regional bodies, Michael has shaped cybersecurity policy, advanced Zero Trust strategies and championed leadership accountability. He has served on numerous national advisory boards and continues to advocate for sustainable, locally driven cybersecurity investments and stronger CISO-CIO collaboration across government and industry.

How Lookout Secures Fairfax County's Mobile Infrastructure

Lookout protects 90% of Fairfax County iOS devices with SIEM integration to correlate mobile threats with endpoint and network security data

Fairfax County has deployed Lookout's mobile security solution across its device fleet since 2018, addressing what Tim LeMaster describes as a "blind spot" in the organisation's security infrastructure.

Tim, who leads solutions engineering for Lookout's public sector team, says the county recognised the need for visibility into mobile threats before many other organisations understood the scale of the risk.

The partnership began after discussions between Lookout and Fairfax CISO Michael Dent. "They [Fairfax County] recognised the need for better visibility into mobile and were looking for a way to address the blind spot," Tim says. "A lot of organisations don't recognise that mobile visibility gap so it was impressive that they not just understood the risks but were intent on finding a solution."

Charles Gore, incoming CISO at Fairfax County, says mobile devices represent a persistent vulnerability. "As mobile devices continue to evolve in their use for both productivity and data consumption, they will continue to represent a vulnerable attack surface in any organisation," he says.

More than 90% of Fairfax County's iOS devices now run Lookout's security software, which addresses malicious applications, operating system compromises including jailbreaking and rooting, and network threats such as adversary-in-the-middle attacks.

The company's focus reflects the shift in how attackers target mobile users. "Social engineering is really the most common threat we see today, so we spend a lot of time on issues like mobile phishing, executive impersonation and other social engineering threats that are so prevalent on mobile," Tim says.

The company has developed capabilities that target these attack vectors, including AI tools that detect executive impersonation and SMS phishing attempts.

Fairfax County integrates Lookout telemetry into SIEM

The county has moved beyond using Lookout solely for device protection. Fairfax County now feeds telemetry and event data from Lookout into its security information and event management system, where analysts correlate mobile threats with activity from traditional endpoints and network infrastructure.

“They’ve gone beyond just protecting the devices. They’re using the telemetry and events from mobile to ingest into their SIEM, correlating it with event data from traditional endpoints and network devices,” Tim says. “This gives them a better understanding of the overall cyber threat and strenghtens their security posture.”

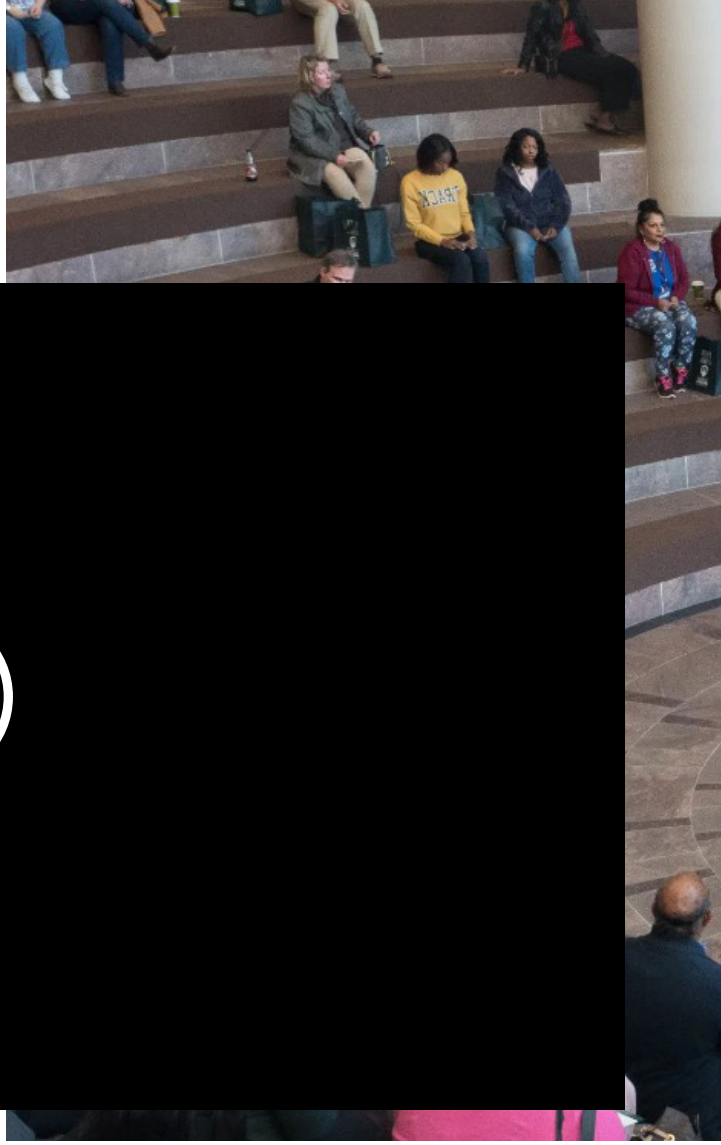
This integration provides the county’s security operations centre with a view across mobile, endpoint and network layers. When a phishing attempt reaches an employee’s mobile device, analysts can trace the attack through multiple systems and identify whether other vectors have been compromised. Charles says the capability matters for protecting both county staff and citizens. “The ability to proactively analyse suspicious links, messages and app behaviors is essential in helping protect our employees – and more importantly, the citizens we serve – from malicious actors,” he says.

Lookout adapts platform as threat actors change tactics

Lookout has operated in mobile security for more than 15 years, accumulating data that informs its threat detection models. The company uses this experience to identify emerging attack patterns as threat actors modify their techniques and as new vulnerabilities appear in iOS and Android operating systems.

Tim says the threat landscape shifts continuously. “The cyber threat landscape constantly evolves. Threat actors and their motivations change, they change their TTPs, new vulnerabilities are exposed, and devices themselves change and evolve,” he says. “The threat protection solutions must evolve also, and Lookout does. “We will continue to work with Fairfax County to leverage the new capabilities in our roadmap to help them secure their mobile devices and users.”

Learn more



‘Doing more with less’

Michael explains that Fairfax County, as a local authority, has had to do ‘more with less’ when it comes to funding. In order to maximise cybersecurity impact across the region, Michael says the organisation has had to drill down on strategy.

“When resources are limited and they often are in local government, success comes down to focus, discipline and leadership alignment,” he says. “We start by being strategic. We don’t try to do everything at once. We prioritise the highest-impact areas, identity, access, resilience and visibility and ensure our investments are scalable, sustainable and aligned to our overall enterprise architecture.

“Every dollar has to count, so we focus on capabilities that reduce risk across the board, not just point solutions.”

The county also makes sure to emphasise strong governance and accountability, viewing its cybersecurity programme as an integral part of the county’s overall risk management strategy.

“By embedding cybersecurity into procurement, budgeting and executive planning, we ensure that protection is baked into how we operate, not bolted on after the fact,” Michael explains. “Collaboration is another key lever. We actively engage with regional and national partners, tap into threat intelligence sharing and participate in joint planning and exercises. That kind of coordination amplifies our internal efforts and gives us a clearer picture of what’s coming over the horizon.”

To set itself apart, Fairfax County has also built a culture of ownership,

DIT Security Awareness Day 2017

meaning that cybersecurity is a shared leadership responsibility, rather than leaving it just to the CISO.

"We hold the entire organisation accountable, no executive exceptions, no silos and no disconnect between policy and practice," Michael says. "When leadership models the right behaviour, the organisation follows.

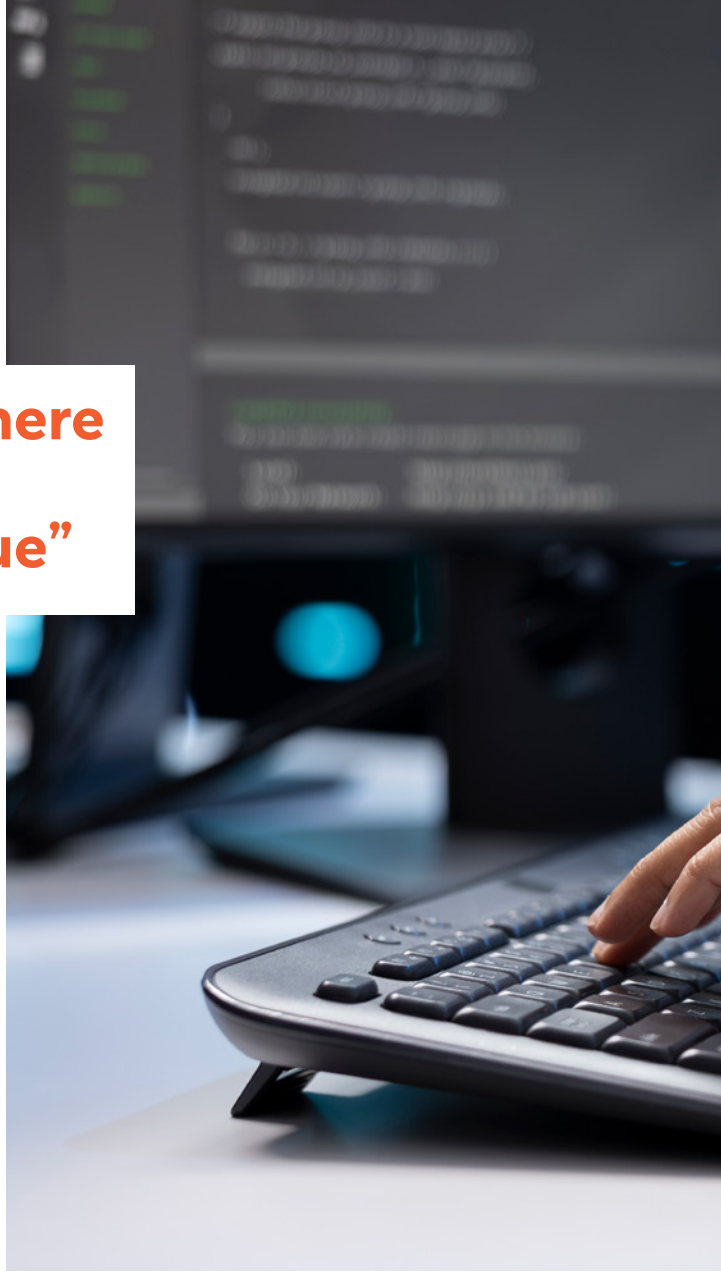
"Doing more with less isn't easy but with clarity, collaboration and leadership will, it's possible. Fairfax is proof of that."

It can be a challenge to balance the technical complexities of cyber defence with the need to communicate risks and protections to both county leadership and residents in an accessible way. In order to achieve these things, Fairfax County prioritises translation and trust.

Michael says: "As the CISO of Fairfax County, I focus on building shared understanding with both county leadership and the public. When it comes to executive leadership, I translate risk in terms that align with their priorities: operational continuity, financial impact, service delivery and public trust. Connecting security decisions to mission outcomes is what drives investment and accountability.

"For residents, it's about transparency without fear. We don't overwhelm people with jargon, but we also don't sugarcoat reality. We explain what steps we're taking to protect their data, how they can protect themselves and why cybersecurity is part of good governance."

He highlights that this balance is possible because of strong leadership support within Fairfax itself.



“We’re building a culture where cybersecurity isn’t a tech issue, it’s a community value”

MICHAEL T. DENT,
CISO,
FAIRFAX COUNTY VIRGINIA

“The Department of Information Technology works hand in hand with county executives and agency partners,” he says. “We’re building a culture where cybersecurity isn’t a tech issue, it’s a community value.”

Building connections for greater resilience

Fairfax County holds a number of partnerships that are essential to improving its cybersecurity posture.

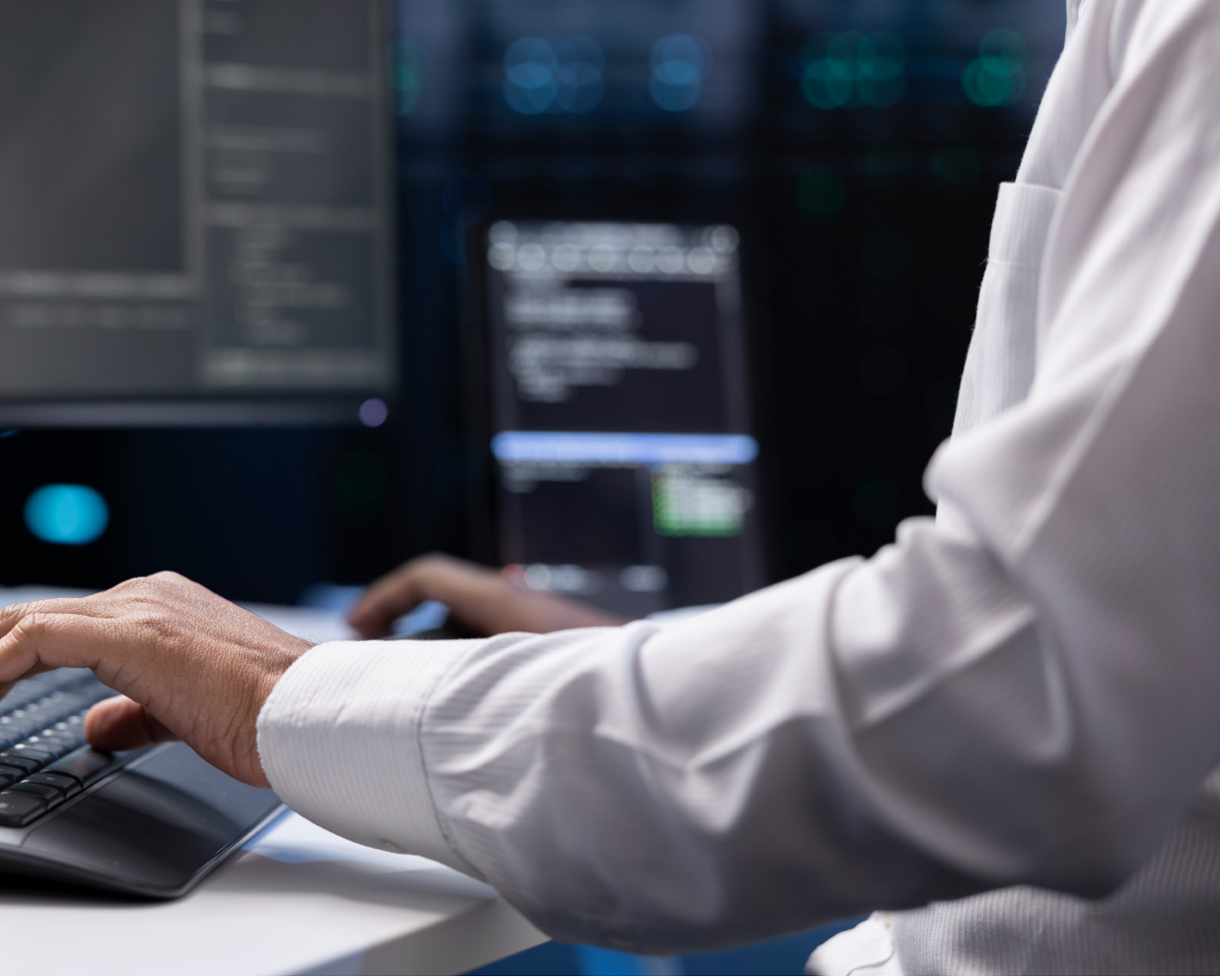
For instance, its alliance with cybersecurity leader Arctic Wolf means that it can reap the benefits of AI-driven technology to enhance its security measures. The company’s expertise and commitment to customer success has supported Fairfax County’s ongoing efforts to maintain a resilient cybersecurity framework.

“Fairfax County’s partnership with Arctic Wolf is a recent but promising development and, while we don’t currently utilise their Managed Detection and Response (MDR) platform, we’ve adopted their endpoint protection solution, Aurora, which was formerly known as Cylance,” Michael says. “Aurora’s ability to proactively prevent threats before they execute aligns perfectly with our goal of staying ahead of emerging cyber risks.

“The transition from Cylance to Aurora has been seamless, thanks to Arctic Wolf’s genuine, professional and supportive approach during this period of change. Their team has been highly engaged, ensuring that we’re fully equipped to maximise the capabilities of the platform.

“We’re genuinely excited about this partnership and confident that Aurora will continue to strengthen our defences against modern cyber threats.”

Likewise, the county is leveraging the software company Splunk for its security



information and event management (SIEM) capabilities to gain greater visibility across its IT infrastructure. Splunk has supported by aggregating and analysing large volumes of data from various sources, which has helped Fairfax to detect suspicious activities and potential security incidents in real time.

"The advanced analytics and customisable dashboards allow us to quickly identify patterns and take proactive measures to mitigate risks," Michael says. "This level of visibility not only enhances our security operations, but also supports compliance with regulatory requirements – ultimately strengthening our overall security posture."

Another powerful partner for the county is Lookout, which offers support for mobile security. Charles Gore, who assumed the role of CISO in August 2025, explains that in a government environment, all staff need secure access to sensitive data across multiple locations and devices.

"This is a critical component of our security strategy," he notes. "Our collaboration with Lookout as a mobile security partner has been pivotal in addressing this challenge. Lookout provides comprehensive mobile threat defence, safeguarding our devices from a wide range of threats including malware, phishing and network attacks."

FAIRFAX COUNTY VIRGINIA

Fairfax County has been a Lookout customer since October 2019, making it a long-standing component of the county's defense-in-depth mobile security strategy. The county primarily uses Lookout to enhance the security of County-issued iOS devices, working seamlessly with Microsoft Intune to manage endpoint security and threat protection.

"Lookout provides us with comprehensive mobile threat intelligence, real-time threat detection and endpoint notifications and alerts to our user community," Charles explains. "Additionally, Lookout provides us with a categorised inventory of discovered

apps across the mobile enterprise, along with a detailed assessment of risks and considerations for each app."

The county faces several cybersecurity challenges, including the protection of sensitive data, safeguarding communications, and mitigating risks from threats like phishing, smishing, and mobile device exploits. With an incredibly mobile workforce, securing these endpoints is mission critical.

"By identifying malicious apps, unsafe websites and compromised devices, Lookout has been instrumental in maintaining the County's zero-trust cybersecurity posture and ensuring consistent operations to our users," Charles says.

Lookout's solution integrates successfully with Fairfax County's existing infrastructure and offers real-time threat intelligence and protection without compromising on user experience.

"This ensures that our employees can work securely and efficiently, no matter where they are," Charles adds. "As mobile devices continue to evolve in their use for both productivity and data consumption, they will continue to represent a vulnerable attack surface in any organisation. The ability to proactively analyze suspicious links, messages and app behaviors is essential in helping protect our employees – and more importantly, the citizens we serve – from malicious actors."

Creating a stronger blueprint at county government level

Looking ahead, a range of critical cybersecurity challenges could face county governments, particularly as threat actors become more sophisticated. For Michael, county governments sit at "the intersection of critical infrastructure constituent services and limited resources".

Fairfax County is the most populous jurisdiction in Virginia, with approximately

1.2 million

residents and 406 square miles of land

He says this makes "our cybersecurity challenge unique and urgent". One such challenge is the continued surge of ransomware and supply chain attacks.

"Local governments often rely on interconnected systems, shared platforms and third-party vendors to deliver services, from courts and health systems to public safety, and that interconnectedness can become a liability if not managed with rigour," Michael explains.

"Equally important is the growing gap in cybersecurity talent. While threats are escalating, the competition for experienced cyber professionals is intense and local governments often can't match the private sector on salary. That puts even more emphasis on retention, culture and leadership development."

Another challenge Michael cites is the misalignment between risk and authority. He argues that, often, CISOs are tasked with defending their enterprise, but don't actually have the executive authority or financial backing to make decisions that match risk level.

"That's something I've worked hard to change in Fairfax, because cybersecurity must be treated as a leadership issue, not just a technical one," he explains.

"Emerging technologies like Gen AI also introduce both promise and peril. These tools can enhance efficiency and threat detection, but only if implemented with strong data governance, ethical oversight and clear boundaries.

"That's why Fairfax has been proactive in developing policy guidance and guardrails for AI use, rather than waiting for mandates to catch up."

In order to better position itself to tackle these issues, Fairfax County has built its cybersecurity programme around resilience, adaptability and leadership accountability. This is the

CREDIT: JOHN M CHASMIA GETTYIMAGES

foundation that Michael says ensures the county keeps ahead of emerging threats.

"We've moved from a reactive mindset to a risk-driven, enterprise-wide approach," he explains. "Our programme is embedded in county operations, from procurement and budgeting to continuity planning, so cybersecurity isn't an afterthought; it's part of how we do business. We use data-driven insights and continuous assessments to inform priorities, rather than chasing headlines."

The county is also prioritising Zero Trust cybersecurity principles in a way that is scalable and sustainable for the public sector.

"We know we can't do everything at once, so we prioritise core capabilities – identity, access, resilience and visibility – which have broad impact across our ecosystem," Michael says. "We've also built a cross-agency, collaborative environment that makes cybersecurity everyone's job, not just the security teams. That's allowed us to lead regional efforts, influence national policy discussions and share what works with peers across the country."

He adds: "We're embracing innovation responsibly. We're focused on building a future-ready programme that supports digital transformation while keeping our residents safe, informed and confident in their local government."

IBM Quantum System Two

IBM AND HSBC: HAS QUANTUM COMPUTING REACHED COMMERCIAL VIABILITY?

IBM Heron processors have delivered a 34% performance gain over classical computing in HSBC bond trading using production data from live markets

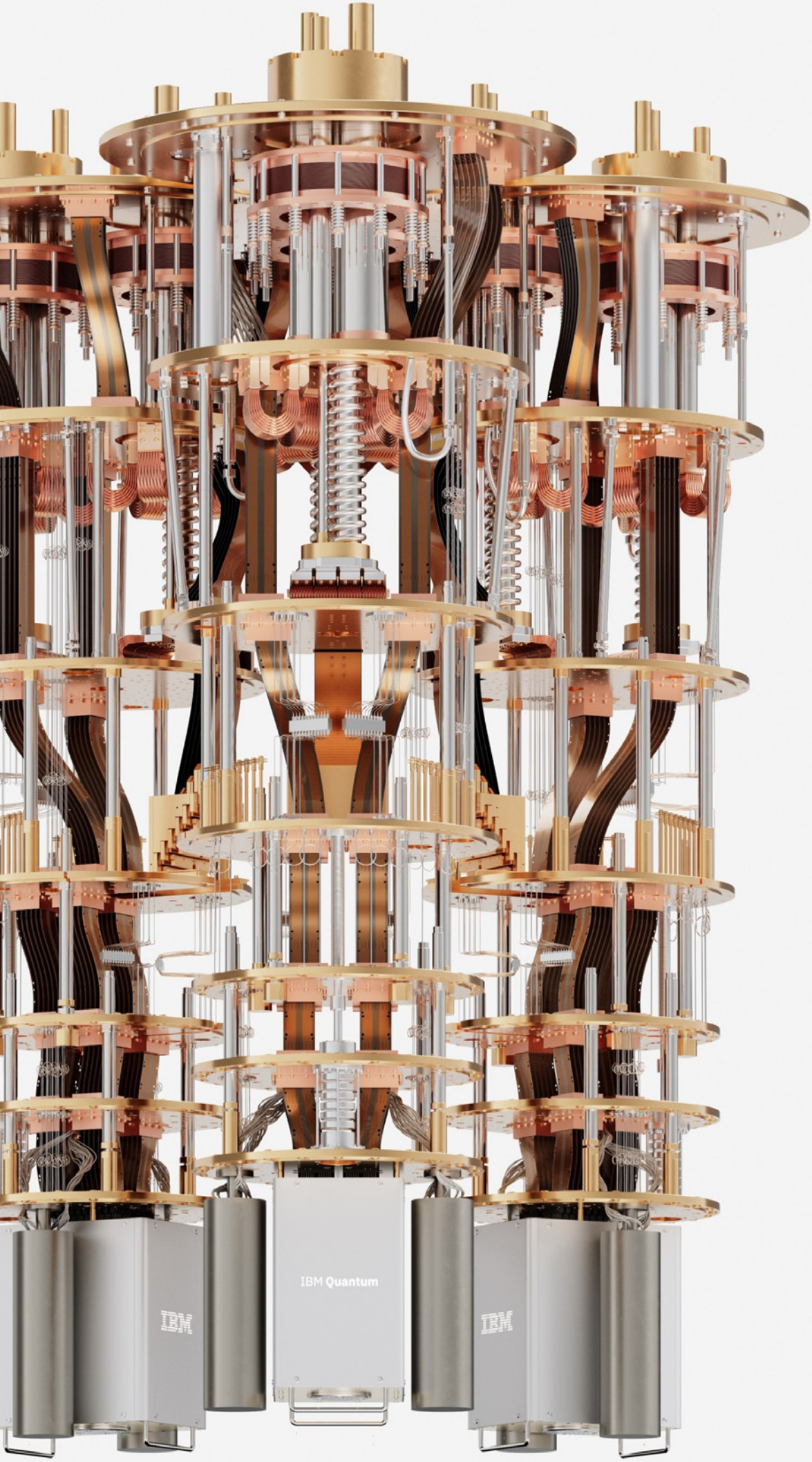
WRITTEN BY: MARCUS LAW

Quantum computing has been the technology of tomorrow for decades. Researchers have built increasingly sophisticated quantum processors, published thousands of papers on quantum algorithms and secured billions in funding from governments and venture capitalists. Yet the question has persisted: when will quantum computers be able to perform a task that classical computers cannot?

IBM and HSBC appear to have answered that question, with IBM quantum processors achieving what they describe as the first documented performance advantage over classical computers in a commercial application. Working with HSBC, IBM delivered 34% better algorithmic accuracy using quantum methods compared with conventional computing approaches on problems involving multiple interconnected variables.

34%

performance improvement in predicting bond trade fill probability over classical methods



IBM Quantum System Two

The partnership used production trading data across multiple IBM quantum systems and tested quantum hardware against classical alternatives in a business environment where financial outcomes depend on computational accuracy.

HSBC bond trading operations handle millions of pounds daily

HSBC processes thousands of bond trading requests daily across European markets. Individual transactions can be worth millions of pounds. The bank's algorithmic systems compete against other financial institutions in automated bidding processes where pricing accuracy translates directly into profitability or loss.

"This is a ground-breaking world-first in bond trading," says Philip Intallura, HSBC Group Head of Quantum Technologies. "It means we now have a tangible example of how today's quantum computers could solve a real-world business problem at scale and offer a competitive edge, which will only continue to grow as quantum computers advance."

Algorithmic trading systems operate at speeds and volumes that make human intervention impractical. "Algorithmic trading refers to using computer programmes to automatically execute trades, usually with predefined rules, market data and certain strategies," Philip says. "And this is done with zero or almost no human interaction."

DR PHILIP INTALLURA

TITLE: **GROUP HEAD OF QUANTUM TECHNOLOGIES**

COMPANY: **HSBC**

INDUSTRY: **FINANCIAL SERVICES**

LOCATION: **UNITED KINGDOM**

Quantum physicist with PhD from Cambridge University. Leads HSBC's quantum technologies team, pioneering quantum security and computing applications in finance. UK Government Quantum Adviser. First demonstrated telecom fibre-based quantum key distribution using quantum dots.

The quantum processors handled interconnected data streams that create processing bottlenecks for traditional algorithms, processing multiple variables simultaneously whilst generating predictions under conditions of uncertainty.

IBM Heron processors improve order fulfilment predictions

The IBM Heron processor spotted patterns in trading data that classical systems missed. The quantum chip accessed computational spaces

Dr Philip Intallura, Group Head of Quantum Technologies, HSBC

beyond traditional processing and delivered measurable performance improvements that HSBC's trading teams observed in operational metrics.

"This is the single most important achievement of the HSBC quantum programme to date," Philip says. "What we've effectively shown here is up to 34% improvement in predicting whether an order will be fulfilled. We aren't able to compare to that number using classical-only methods. And what that ultimately means is increased margins and greater liquidity."

"THIS IS THE SINGLE MOST IMPORTANT ACHIEVEMENT OF THE HSBC QUANTUM PROGRAMME TO DATE"

Dr Philip Intallura,
Group Head of
Quantum Technologies,
HSBC

Dr Jay Gambetta, Vice President, IBM Quantum,

Jay Gambetta, Vice President IBM Quantum, says the collaboration focused on applying quantum computing to problems in the financial sector. “The partnership with HSBC has been about how can we use quantum computing to look at problems in the financial space,” he says. “And working with HSBC I think, is one of the best examples of us putting science and practice together.”

IBM quantum algorithms identify patterns in trading data

Jay explains how the quantum approach addresses the computational structure of algorithmic trading.

DR JAY GAMBETTA

TITLE: **VICE PRESIDENT**

COMPANY: **IBM QUANTUM**

INDUSTRY: **TECHNOLOGY**

LOCATION: **NEW YORK, USA**

IBM Fellow leading quantum computing strategy since 2011. PhD in Physics from Griffith University, Australia. Created Qiskit platform. Over 130 publications with 55,000+ citations. Named IBM Fellow in 2018 for advancing superconducting quantum computing.

"Algorithm trading actually uses a lot of advanced computation to do the problem," he says. "And what they're doing is a big optimisation problem, and what the team has done is injected into this optimisation, a quantum algorithm that looks for patterns. And since we know that quantum is better at finding certain types of patterns or structure, this is a good candidate of exploring quantum computing for industry applications."

The collaboration required expertise across multiple disciplines. "We literally got together a global and interdisciplinary team of experts from HSBC and IBM that really brought together a unique set of skills from quantitative finance, trading, data science and AI to quantum algorithms and hardware," says Manuel Proissl, IBM Quantum Industry Applications Lead for Financial Services.

"The exciting part about this collaboration, and in particular this project, was to directly work with the algorithmic traders that work with these models every day and know their limitations," Manuel says. "They really understand the problem at the heart and this inspired also the way how we would approach going in from a quantum perspective."

Josh Freeland, Global Head of Algo Credit Trading at HSBC, says the bank estimates the likelihood of winning trades thousands of times daily.

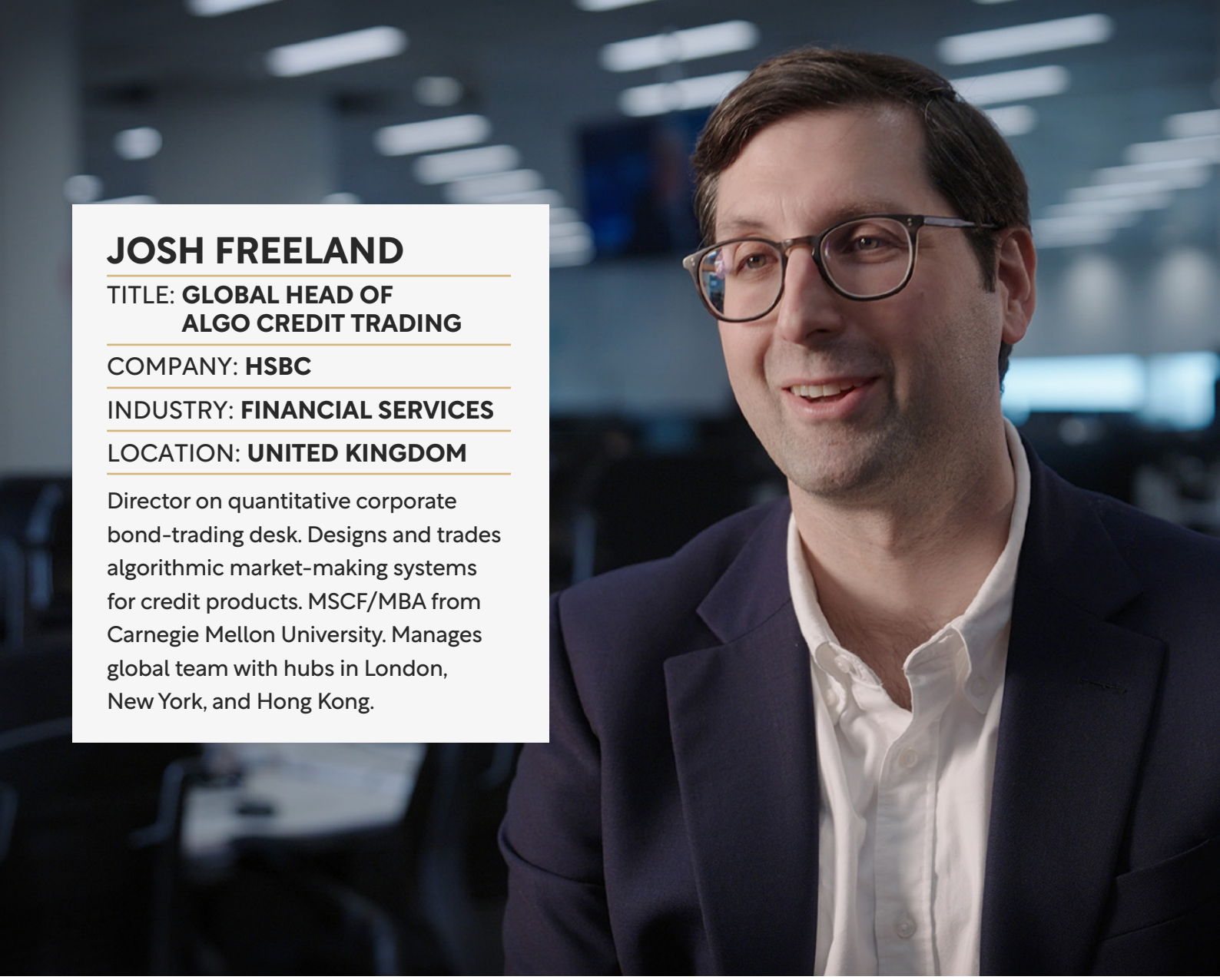
MANUEL PROISSL

TITLE: **GLOBAL INDUSTRY APPLICATIONS LEAD, FINANCIAL SERVICES**

COMPANY: **IBM QUANTUM**

INDUSTRY: **TECHNOLOGY**

Senior Technical Advisor connecting quantum computing and AI with financial services applications. Over 20 years advancing science and technology. Previously worked at CERN, Accenture, UBS. Contributed to quantum physics discoveries including Nobel Prize-awarded research.



JOSH FREELAND

TITLE: **GLOBAL HEAD OF ALGO CREDIT TRADING**

COMPANY: **HSBC**

INDUSTRY: **FINANCIAL SERVICES**

LOCATION: **UNITED KINGDOM**

Director on quantitative corporate bond-trading desk. Designs and trades algorithmic market-making systems for credit products. MSCF/MBA from Carnegie Mellon University. Manages global team with hubs in London, New York, and Hong Kong.

"So this is something that we do thousands of times a day already and that's estimating the likelihood of winning a trade," Josh says. "At one point there were 16 physicists and AI machine learning researchers working around the clock trying to achieve the same thing that the quantum computer did."

The quantum processor delivered results that required a team of 16 specialists working continuously using classical approaches.

IBM and HSBC deploy hybrid quantum-classical systems

IBM used a hybrid approach where quantum and classical systems work together.

Quantum processors handle specific calculations where they deliver superior performance. Classical systems manage tasks where conventional computing remains efficient.

"This exciting exploration shows what becomes possible when deep domain expertise is integrated with cutting-edge algorithm research and the strengths of classical approaches are combined with the rich computational space offered by quantum computers," Jay says.

IBM offers quantum computing through cloud services via Qiskit, its open-source development platform. Qiskit includes quantum circuit design tools, optimisation libraries and

simulation capabilities, with the platform supporting multiple programming languages and integrates with classical computing frameworks.

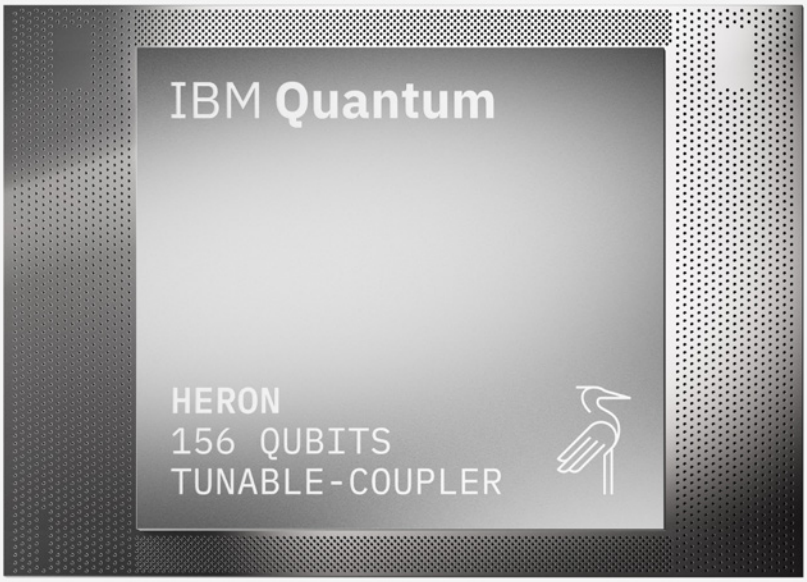
IBM Quantum processors work on production financial data

Jay says this is the first example of quantum computing delivering measurable advantages on production industry data. "It's the first example of using quantum on real industry data," he says. "As our systems get bigger, faster and more performant, and as we start to discover more algorithms, we are only going to see more and more of these examples."

The collaboration tested quantum methods on probability calculations with multiple interactive variables. These statistical challenges require processing vast amounts of interdependent data.

Philip says the results indicate financial services firms can extract value from quantum computing now. "This is the beginning but it is also our most tangible demonstration of just how close we are from extracting value from quantum computing," Philip says.

Quantum processors work on optimisation problems, machine learning applications and cryptographic challenges where classical computers face limitations.



IBM'S **HERON** QUANTUM PROCESSOR

The Heron processor features 133 physical qubits arranged in a heavy-hex lattice topology, designed to minimise quantum errors whilst maximising computational connectivity. Classical bits exist in definitive states of 0 or 1. Qubits can exist in quantum superposition, allowing them to represent multiple possibilities simultaneously until measured.

75+

IBM quantum systems deployed online globally

These application areas span logistics, manufacturing, pharmaceuticals and cybersecurity.

The Heron processor is IBM's latest quantum processor. The hardware offers better qubit stability and fewer errors than previous generations. These improvements make quantum computations more reliable for commercial use.

"We believe that quantum technology is going to have a very significant impact on the financial services industry," Philip says. "It's a very exciting time within this field because we're at this point of discovery, we're trying to forge a path that there is no blueprint for."

Philip says the results on current quantum computing hardware indicate financial services firms are approaching a transition in computational capability. "Given the trial delivered positive results on current quantum computing hardware, we have great confidence we are on the cusp of a new frontier of computing in financial services, rather than something that is far away in the future."


CREDIT: TGS
TGS
TRANSFORMING
ENERGY WITH A
CLOUD TECHNO

G
AI AND
OLOGIES

WRITTEN BY:
MAYA DERRICK

PRODUCED BY:
TOM VENTURO

TGS' *Wadii El Karkouri* reveals how the world's largest energy data company is leveraging digital innovation to revolutionise subsurface exploration

As demand for energy rises and the industry faces increasing pressure to operate more efficiently, companies are turning to AI and cloud technologies to transform their operations. At the forefront of this transformation is TGS, the world's largest energy data company. TGS has built its business on acquiring, processing and selling subsurface data to help oil and gas companies make informed investment decisions. Under the leadership of Wadii El Karkouri, Executive Vice President of Imaging & Technology, TGS is evolving from a seismic company enabled by technology into something far more ambitious.

"We're turning it into a technology company enabled by seismic data," Wadii explains.

Wadii joined the business in 2024 from AWS following a career predominantly at the intersection of energy and technology, with more than two decades at SLB preceded by a stint at TotalEnergies. His appointment represents a strategic bet on the convergence of energy expertise and digital innovation.

CREDIT: TGS

Wadii El Karkouri,
Executive Vice President,
Imaging and Technology,
TGS

To underpin this shift, TGS has acquired numerous competitors over the last four decades, creating what Wadii describes as "pieces of Lego" – technology, people, knowledge and experience – that must be brought together.

TGS operates through four main business units. Its seismic data acquisition division owns expensive vessels worth up to US$250m each that collect subsurface data using either streamer technology or ocean bottom nodes.

The processing and imaging division transforms raw seismic signals into three-dimensional subsurface maps, while a multi-client business model involves investing company funds to acquire data, then selling access to multiple energy companies.

The fourth and final division focuses on renewable energy, including wind farm site characterisation and solar asset management software – diversification that reflects the industry's broader energy transition while maintaining focus on traditional hydrocarbon exploration.

Bridging gaps with technology

One of Wadii's primary challenges involves bridging the generational divide within the oil and gas industry – a space that has been slow to adopt digital innovations.

His goal is to create a new generation of "oil and gas explorers and producers that are thinking digitally from the beginning".

The challenge extends beyond individual attitudes to systemic issues within the energy sector. Wadii explains that economic cycles have become more frequent and volatile, forcing companies to deliver faster returns on technology investments.

> **"Because of advances in AI and digital technologies like the cloud, we are able to push the physics of imaging to a level never seen before"**
>
> **Wadii El Karkouri,**
> Executive Vice President,
> Imaging and Technology,
> **TGS**

"The return on investment of R&D and technology is not the five to seven years that it was when I joined the industry," he says. "It's now more like 12 to 18 months."

The impact of revolutionary data processing capabilities

TGS' technological advantage begins with its massive subsurface data library, accumulated over the course of 44 years of global operations – Wadii Thinks of it as Google Maps meets a digital twin – where you don't just view the subsurface, you simulate it, interpret it with AI and make improved drilling decisions.

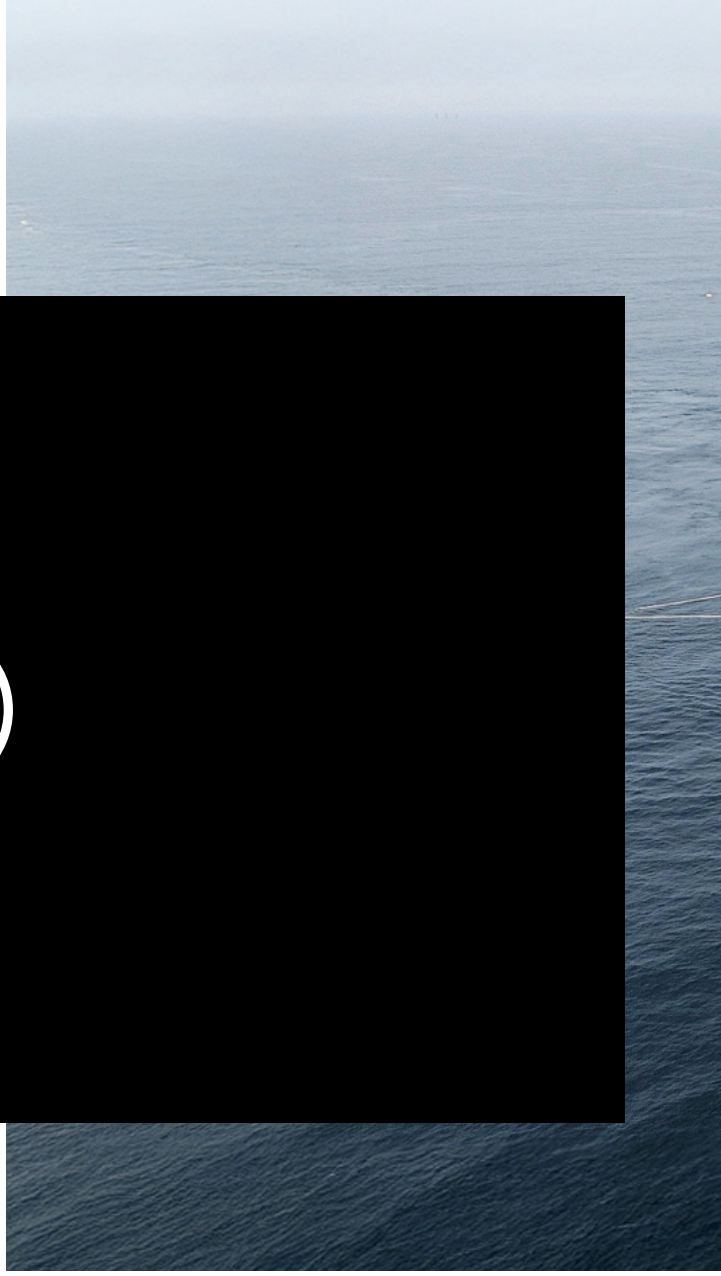
The extensive dataset enables TGS to develop what Wadii calls a "seismic foundation model" – essentially a Gen AI chatbot for subsurface exploration. The system can identify patterns and connections across different geological basins worldwide.

CREDIT: TGS

WADII EL KARKOURI

EXECUTIVE VICE PRESIDENT, IMAGING AND TECHNOLOGY

With over 25 years of leadership experience in the energy and technology industries, Wadii drives innovation and technological advancements in seismic processing, data analytics and digitalisation. Prior to joining TGS, he served in a range of leadership roles in SLB in the US, Africa, Asia, Europe and the Middle East, including Global Vice-President WesternGeco Geosolutions and Global Vice President WesternGeco Sales & Commercial. He has also worked as a Global Sales Director at AWS.



This level of knowledge and interconnectedness traditionally only existed in the minds of experienced geologists with decades behind them. Now, the foundation model aims to democratise this expertise, making sophisticated geological insights available through AI.

This, Wadii hopes, could accelerate discovery rates – all while reducing the industry's dependence on scarce human expertise.

The technical process begins at sea, where TGS vessels acquire data using airgun sources that generate sound waves. These waves travel through subsurface layers and return to sensors, creating detailed underground maps.

Modern satellite technology – including Starlink low-orbit systems – now enables real-time data transmission from vessels to cloud processing centres. This represents a significant improvement over previous methods, which involved transferring physical storage devices via helicopter.

How cloud computing transforms imaging capabilities

Once this data reaches the cloud, TGS applies advanced processing techniques to clean signals and remove various types of noise. Sophisticated imaging algorithms are then employed to convert time-based signals into depth-based geological maps.

CREDIT: TGS

Two key technologies – elastic full waveform inversion and reverse time migration – use intensive computational power to create accurate subsurface images. These techniques can reveal complex geological features like salt formations, faults and reservoir channels.

Wadii shares: "Because of advances in AI and digital technologies like the cloud, we are able to push the physics of imaging to a level never seen before, allowing energy companies to make better decisions, calculate ROI on their investments in drilling a new well or investing in new prospects and, hopefully, leading to better discoveries and more energy for the world."

"We're working on tidying up all our legacy data and bringing it onto the cloud so that we can enable new workflows that will generate value for our clients"

Wadii El Karkouri,
Executive Vice President,
Imaging and Technology,
TGS

Case Study

Geoscience Meets Cloud HPC: The Next Frontier of Innovation

Few computing challenges rival those found in geoscience and exploration workflows. Seismic imaging, full-waveform inversion and reservoir simulation are among the most computationally demanding workloads on Earth – on par with large-scale AI training and climate modelling. Even today, specialised geoscience systems occupy the second and third spots among the world's most powerful privately held supercomputers.

While industries like finance and life sciences have already embraced cloud computing for high-performance workloads, the energy sector's transition has been slower and more complex. The reasons are deeply technical.

1. RIGID LEGACY SYSTEMS

Most geoscience software was designed decades ago for fixed-size, on-premises supercomputers. These environments were optimised for tightly coupled parallelism and predictable hardware – not today's elastic cloud infrastructure.

Cloud pricing favours rapid, on-demand scaling, yet many legacy applications lack the flexibility to start, stop or resize efficiently – reducing both performance and cost efficiency.

2. INTOLERANCE TO INTERRUPTIONS

Public clouds offer discounted spot instances – temporary compute nodes that can be reclaimed without notice. While ideal for AI or analytics workloads, traditional seismic or reservoir codes cannot tolerate such interruptions. Losing one node can invalidate hours of computation.

To capture the cloud's economic advantage, fault tolerance and checkpointing must be engineered in, moving from static assumptions to resilient design.

3. THE DATA BOTTLENECK

A single seismic survey can hold tens to hundreds of terabytes of data that must be accessed by thousands of compute nodes simultaneously. This becomes difficult when file-based HPC systems meet object-based cloud storage.

Bridging this gap demands domain-aware I/O strategies, adaptive caching and hybrid data architectures that preserve performance while exploiting cloud scalability.

4. THE CLOUD'S HIDDEN LIMITS

Despite the promise of infinite scale, the cloud has physical limits.

At large sizes, geoscience workloads encounter real constraints – cluster size limits, network address exhaustion, data-transfer caps and regional capacity constraints. These limits only appear under extreme load, but for energy supercomputing, they are the norm, and thus unavoidable. Understanding and designing around them is key to building production-grade cloud HPC.

THE ROAD AHEAD

AI is rapidly transforming geoscience computing – from automating seismic interpretation to optimising reservoir modelling and production planning. But realising these gains requires HPC environments that are elastic, fault-tolerant, data-centric and AI-ready.

This shift is already visible in major industry collaborations uniting leading geoscience data providers, cloud hyperscalers and digital engineering specialists. Recent initiatives – such as the one we are leading at EPAM systems in conjunction with TGS and AWS – show how re-architected cloud HPC platforms can deliver end-to-end seismic and subsurface workflows, seamlessly integrating AI, scalable compute and high-performance storage. The result: faster insights, higher efficiency and a markedly lower carbon footprint. These advances are setting a new template for energy operators seeking to modernise their compute-intensive environments.

Emerging orchestration frameworks can now enable multi-vendor interoperability, allowing workloads to move securely and efficiently across different clouds. For example, the Energy HPC Orchestrator (EHO), developed as a collaboration between EPAM Systems and AWS in partnership with several major oil and gas operators demonstrates how scalable job management, data movement and cost optimisation can be unified under a single control plane.

For operators, the implication is profound: HPC is no longer a fixed asset – it's an adaptive capability, accessible on demand and tuned to evolving exploration and production needs.

UNLOCK THE FULL POTENTIAL OF YOUR ENERGY WORKFLOWS WITH CLOUD HPC

LEARN MORE

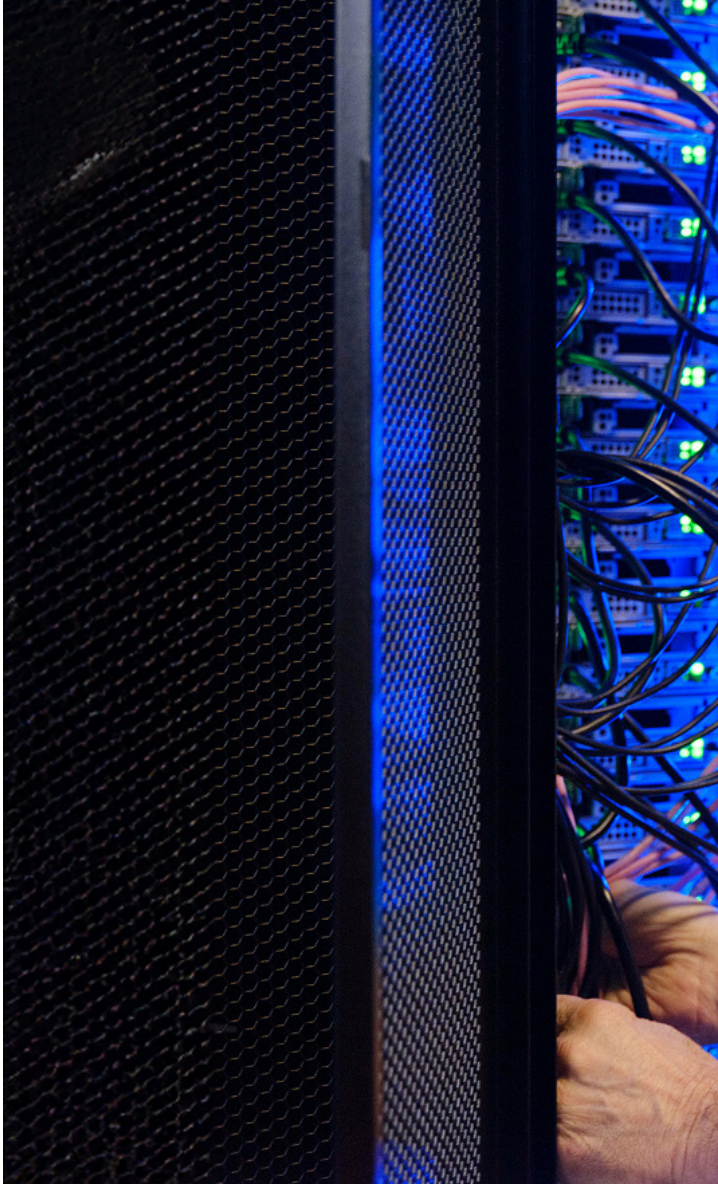
This shift does not come without challenges, however. The sheer volume of data TGS processes means careful organisation and standardisation is required. Wadii, using Netflix as an analogy, explains the need for consistent data formats that enable instant playback – like that of streaming services – to ensure the approach works.

"Because Netflix was near enough born on the cloud, all its movies are in the same format," he explains. "When you subscribe and log in, things play at the touch of a button. But imagine Netflix was born 50 years ago and they acquired Blockbuster and data on tapes – they'd have a mixture of formats. It would've been a huge amount of work to get to where they are today, or reformatting all that content probably wouldn't have even been possible.

"The journey we're going on is similar. We're working on tidying up all our legacy data and bringing it onto the cloud so that we can enable new workflows that will generate value for our clients. This is a challenge we want to overcome for ourselves as TGS, but we also offer this as a service to various energy companies. We have contracts in place with large energy companies to support them through this process."

Strategic partnerships drive innovation

TGS' digital transformation relies heavily on strategic partnerships across the technology ecosystem. The company works with cloud providers, like Google Cloud and AWS, to modernise its IT infrastructure and processing capabilities.



EPAM, a global IT services company, serves as TGS' primary systems integrator for workflow modernisation and architecture updates, while cybersecurity firm Wiz monitors the company's cloud footprint against potential threats.

"The oil and gas industry is always a target for various malicious organisations," Wadii shares, emphasising the importance of collaboration and partnerships. "We have to make sure we are top-notch, and these partnerships do that."

On top of this, Wadii and TGS worked tirelessly to achieve the ISO 27001 certification, demonstrating robust cybersecurity practices to clients and partners "and readiness in case such an event happens".

CREDIT: TGS

These partnerships reflect a broader industry trend toward collaboration between traditional energy companies and technology specialists. Wadii emphasises that this is because no single organisation – even one like TGS with decades of specialised expertise – possesses all the knowledge needed for comprehensive digital transformation.

TGS also participates in industry standards initiatives like the Open Group OSDU Forum, aiming to create common data formats and exchange protocols across the energy sector.

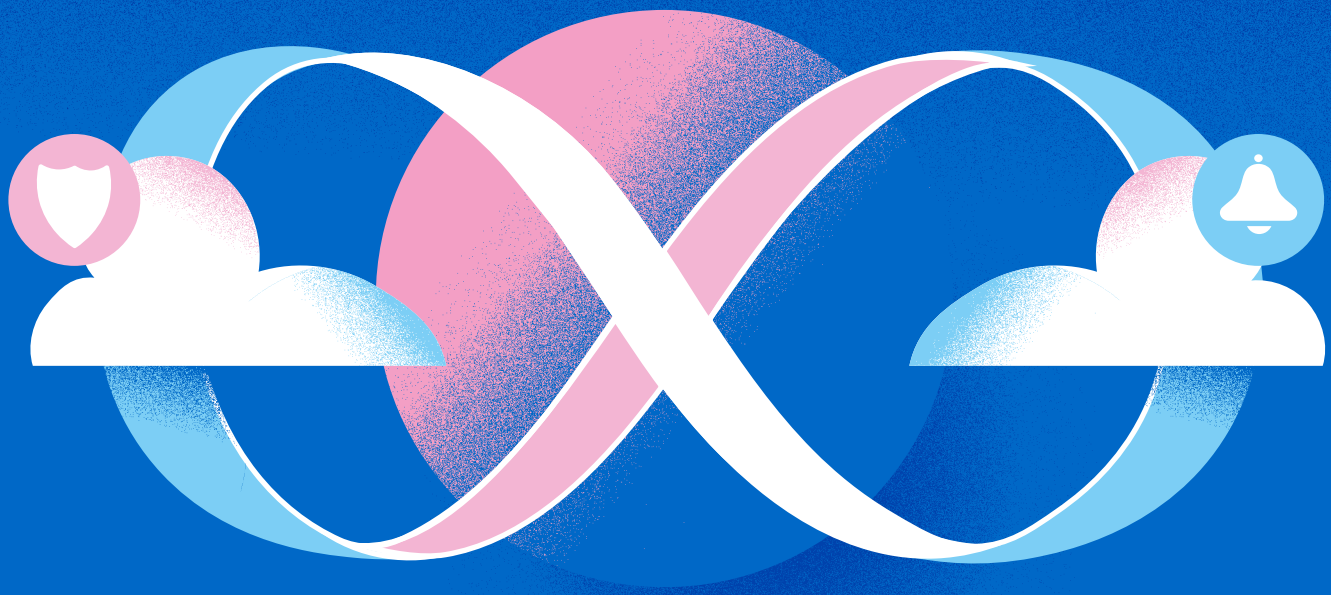
What's more, TGS has contributed its MDIO streaming format as open-source software, enabling efficient data access without creating multiple copies.

"Our communications on AI emphasise not just compliance, but also how AI is a transformative enabler for operational efficiency, integration post-merger and accelerated insight delivery for clients"

Wadii El Karkouri,
Executive Vice President,
Imaging and Technology,
TGS

WIZ

Unified Cloud Security from Prevention to Detection



Understand how WIZ cloud security provides full-stack visibility and pinpoint accuracy to help you prioritize critical risks.

See Wiz in action at wiz.io

CREDIT: TGS

Emphasising responsible AI implementation

As TGS deploys AI across its operations, the company has developed comprehensive governance frameworks for responsible AI use. This includes policies balancing innovation with data protection and regulatory compliance requirements.

"We've developed a Gen AI policy that ensures AI is deployed responsibly, balancing innovation with controls around data use, IP protection and regulatory compliance," Wadii reveals. "Beyond policy, we are embedding AI into workflows in a controlled and transparent way, for example, assisting teams with efficiency and innovation while maintaining clear boundaries around confidential and sensitive data.

"Our communications on AI emphasise not just compliance, but also how AI is a transformative enabler for operational efficiency, integration post-merger and accelerated insight delivery for clients."

Security considerations are built into TGS' cloud migration strategy from the outset. As the company moves high-performance computing workloads from on-premises systems to AWS, it implements cloud-native security controls and zero-trust principles.

Given the sensitivity of seismic and subsurface data, TGS treats cybersecurity as integral to business continuity and client trust rather than merely an IT function.

The importance of industry collaboration

Beyond technology partnerships, TGS maintains extensive relationships with universities and research consortia. These collaborations provide access to cutting-edge research and insights from other industries that could benefit energy exploration.

“We hope to be able to completely change the oil and gas, and energy industries going forward”

Wadii El Karkouri,
Executive Vice President,
Imaging and Technology,
TGS

Wadii sees potential for cross-industry knowledge transfer, where subsurface expertise could generate value in manufacturing, sports and other sectors.

“That’s never been done before, as far as I know, in our industry,” he says.

The company also works closely with governments worldwide, helping develop local capabilities and organising regulatory frameworks for energy block auctions. TGS invests hundreds of millions of dollars acquiring data in various countries to help market their hydrocarbon potential.

As well as this, client relationships remain central to TGS’ strategy, with regular discussions with major energy companies. These conversations help TGS understand industry priorities and budget constraints.

Wadii continues: “We like to make sure we understand what their priorities are, what their challenges are, what they’re trying to achieve in the next 12 to 24 months and how their budgets align with their aspiration so we can discuss how we can use technology, data and knowledge to help them get the maximum return. That’s the key item today.”

The future of energy exploration

Wadii envisions TGS enabling the energy industry to achieve efficiency improvements comparable to those seen in finance, pharmaceuticals and manufacturing through digital transformation.

The company’s ambition focuses on “enabling energy for all by unlocking vital, data-driven solutions and knowledge” and, with the world’s population approaching eight billion people and energy poverty affecting roughly one billion, demand for all energy sources will continue growing.

CREDIT: TGS

"We need all sources of energy to contribute to this energy portfolio – whether it's oil and gas, wind, solar or hydrogen," he explains. "There are a lot of other things that are still in research that will be able to enable this energy for the future of society. We need technology and data so we can invest the right amount of money in the right places and get the best return – all with minimal carbon footprint."

This balanced approach recognises both the ongoing need for hydrocarbon resources and the importance of renewable energy development. TGS' diversification into wind and solar markets reflects this comprehensive energy strategy.

TGS aims to continue growing while helping transform upstream workflows to be "better, faster and much more cost effective than today". Success requires integrating technology, human expertise and comprehensive subsurface data to enable better energy discoveries. "We hope to be able to completely change the oil and gas, and energy industries going forward," Wadii concludes.

THE Technology.
SPECIAL REPORT

HOW INNOVATIO PLAY A KEY ROL DE-RISKING DIS

From Gen AI to ML, modern innovation labs are leveraging cutting-edge tech to accelerate discovery and solve complex business challenges

WRITTEN BY: MAYA DERRICK

ON LABS
LE IN
RUPTION

Innovation has become a bit of a buzz word of late, and with good reason. According to a study by Boston Consulting Group (BCG), 83% of senior executives now rank innovation as a top-three strategic priority for their organisations, a significant increase from previous years. However, this elevated priority coincides with a sharp drop in what it calls 'innovation readiness', with just 3% of organisations deemed prepared to act on these ambitions. On top of this, McKinsey reports that 84% of CEOs believe innovation is critical to growth, despite 80% of business models being at risk. It also finds that just 6% of CEOs are satisfied with their innovation performance.

So, how is this shift being tackled? The primary corporate response to this challenge has been the innovation lab – a purpose-built environment designed to foster creativity, experimentation and rapid development, intentionally ringfenced from the constraints of daily operations. These labs enable the development of groundbreaking solutions, from new products and services to entirely new business models, allowing companies to anticipate future trends and maintain a competitive edge.

The makeup of the specialised environment used to foster this innovation varies and can be a physical space equipped with advanced technology or even a virtual platform that connects diverse teams across locations. Innovation labs operate with a somewhat startup-like mindset, focused on rapid ideation, prototyping and testing, allowing teams to explore potential innovations in a risk-free environment.

As a space that allows businesses to safely challenge the status quo, innovation labs play a strategic role in driving business growth. They encourage cross-functional

Amazon Innovation Lab

collaboration among employees, customers, partners and sometimes competitors, bringing diverse perspectives together to spark unique solutions.

These labs support a culture of innovation and help organizations move faster in identifying emerging trends and developing technologies that create value – whether through new products, improved processes or disruptive business models.

> "By **fostering AI innovation** here in Liverpool, we aim to ensure that organisations are ready to capitalise on the transformative power of AI"
>
> **John Chambers,**
> President for the UK and Ireland, Kyndryl

TOP 10 VENDORS

1. AWS
AWS is a leading cloud platform providing the scalable compute, data and AI services that power modern experimentation

2. Microsoft Azure
Azure is a comprehensive cloud ecosystem trusted by 95% of Fortune 500s for its integrated AI, data and enterprise solutions

3. Nvidia
A leader in accelerated computing, Nvidia provides the essential GPU hardware and AI platforms for cutting-edge R&D

4. DataBricks
DataBricks' unified data and AI platform enables collaborative data science and the development of enterprise-grade AI models

5. monday.com
monday.com is a highly adaptable work OS that streamlines project management, workflows and team collaboration in a visual interface

6. Miro
Miro is an industry-standard online whiteboard for real-time brainstorming, ideation and visual collaboration for distributed teams

7. Slack
A premier channel-based messaging platform, Slack connects teams, tools and knowledge to accelerate innovation workflows

8. Trellix
A global leader in industrial 3D printing, Stratasys provides advanced additive manufacturing solutions for rapid prototyping

9. Protolabs
Protolabs is a digital manufacturing powerhouse offering on-demand 3D printing, CNC machining and injection molding for prototypes

10. Strategyzer
A leading innovation management platform, Strategyzer provides proven tools like the Business Model Canvas to structure and test new ideas

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- Over 100 million products
- AI-driven spend management platform
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John Chambers, President for the UK and Ireland, Kyndryl

kyndryl

WATCH NOW

World's largest IT service provider, Kyndryl, sets up new headquarters in Liverpool Liver Building

Kyndryl's AI Innovation Lab – launched in May in Liverpool's iconic Royal Liver Building – exemplifies the new blueprint for lab success by embedding itself within a broader strategic context. Rather than operating as an isolated R&D centre, its purpose is explicitly tied to addressing the critical AI skills gap, a challenge where only 29% of business leaders feel adequately prepared.

The lab's ambitious goal to create up to 1,000 software engineering and AI-related jobs over three years directly supports the UK Government's AI Opportunities Action Plan, transforming the lab into a vital regional ecosystem hub. This model avoids the 'ivory tower' trap through two key mechanisms: First, the inclusion of a Kyndryl Vital Studio facilitates designer-led, open co-creation sessions, ensuring that innovation is developed in direct collaboration with customers to solve real-world problems. Secondly, an expanded, multi-year partnership with Liverpool-based retailer The Very Group was established from the outset, grounding the lab's work in a tangible, large-scale use case focused on enhancing end-to-end digital capabilities. This ensures its innovations have a clear and immediate path to market relevance and implementation.

"With businesses eager to develop AI capabilities, our new Kyndryl AI Innovation Lab Liverpool represents a significant step in addressing the AI skills gap," says John Chambers, Kyndryl's President for the UK and Ireland. "By fostering AI innovation here in Liverpool, we aim to ensure that organisations are ready to capitalise on the transformative power of AI."

Hannah Bernard,
Head of Business Banking,
Barclays

BARCLAYS

WATCH NOW
Eagle Labs Academy

The Barclays Innovation Hub in London's Shoreditch district is a striking example of the power of the 'Open Innovation' model, where collaboration is used as a strategic tool to overcome internal limitations and tap into a wider talent pool. Powered by the bank's Eagle Labs incubator ecosystem, the hub is a consortium of industry giants, with Microsoft and Nvidia as core partners. This partnership creates a uniquely powerful ecosystem for the 150 AI and Deep Tech startups it houses, reflecting the belief of Hannah Bernard, Barclays' Head of Business Banking, that "key players from across the industry need to come together to help nurture and develop the next wave of tech entrepreneurs".

The model's strength lies in its synergistic expertise: Barclays provides the financial infrastructure and innovation banking specialists while Microsoft offers its vast AI and cloud platform and Nvidia contributes essential GPU hardware and developer upskilling programmes. For the corporate partners, the hub functions as a strategic listening post, providing a de-risked and capital-efficient method to engage with cutting-edge technologies.

"The Barclays Innovation Hub is a vital catalyst for upskilling the UK's workforce in AI and accelerating the growth of its ambitious startups," says Anthony Hills, UK Country Manager of Nvidia. "Nvidia's contributions to the Innovation Hub supports our broader commitment to upskill UK developers with AI skills."

Amazon's European Operations Innovation Lab in Vercelli, Italy is a masterclass in solving the strategic disconnect that plagues so many corporate labs. Its mission is not to explore abstract, far-future technologies but to design, test and implement solutions that directly enhance the safety, efficiency and sustainability of its global fulfillment centres.

Amazon's problem-first approach ensures that every innovation is born from a tangible need within the company's core business. Technologies developed at the lab, such as the Flat Sorter Robotic Induct (FSRI) for automated sorting and the Universal Robotic Labeller to minimise packaging waste, are all targeted at specific operational pain points like reducing repetitive tasks for employees.

Because the lab is an integrated part of Amazon's operations, it completely bypasses the 'corporate immune system' that often rejects external ideas.

The lab is open to the public and has a dedicated visitor centre, meaning any interested individuals can take a peek inside and learn about the advanced technologies developed by Amazon at the facility.

"I want visitors to see how every innovation is always focused with the customer in mind, always trying to deliver in time and more efficiently," the Innovation Lab's Head, Richard Zeger, says. "I also want them to understand that new technologies are constantly being developed in the heart of Europe. We are really proud of that."

amazon

WATCH NOW
Welcome to Amazon Operations Innovation Lab

Richard Zeger, Innovation Lab's Head, Amazon

Solutions30

Solutions for New Technologies

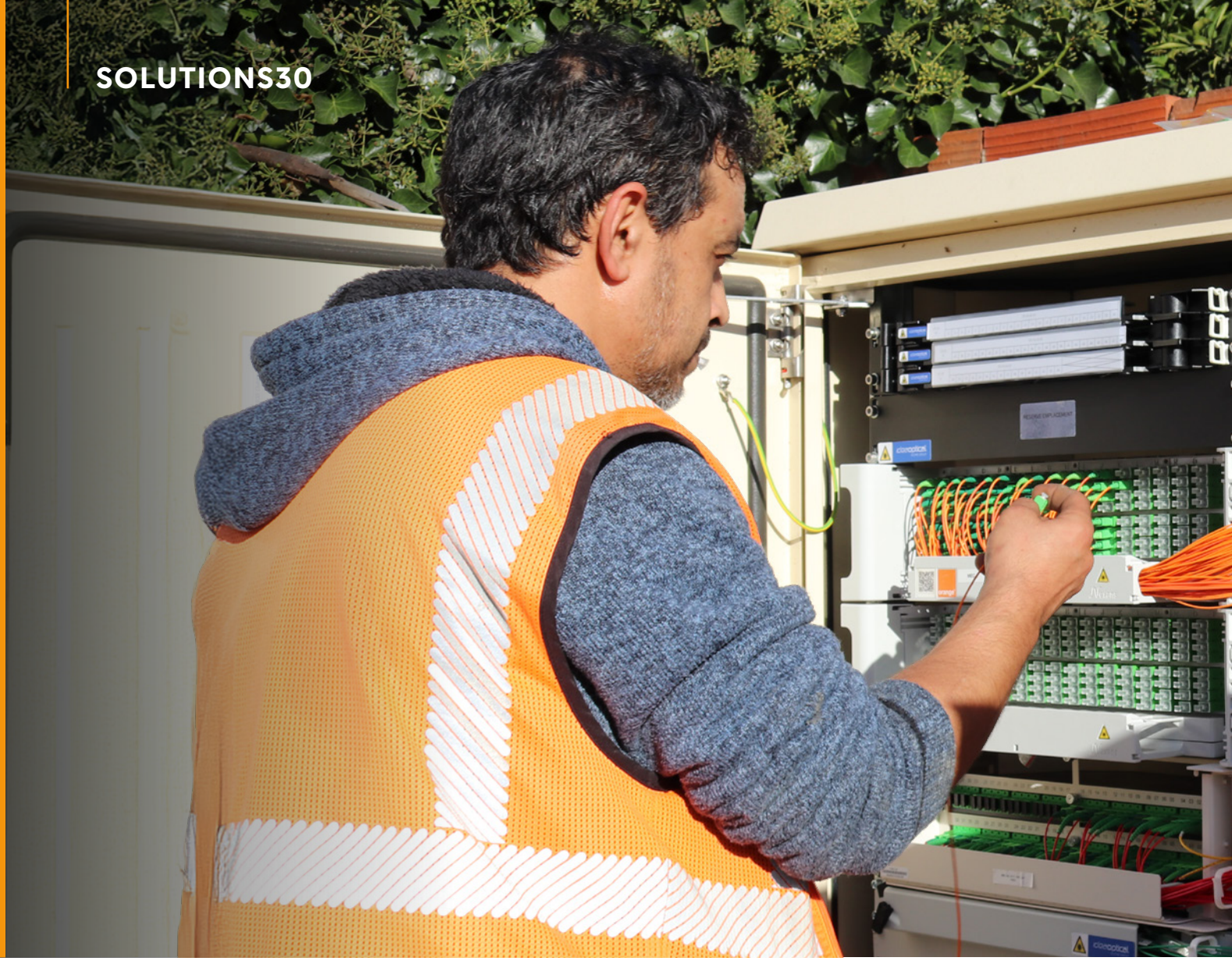
Solutions30'

for Connectivity, Energy and Technology Services

s AI Strategy

WRITTEN BY:
KITTY WHEELER

PRODUCED BY:
JOE PALLISER



Solutions30 harnesses AI tools like image recognition and route optimisation across its 16,000 workforce, driving sustainable connectivity, energy and technology services

When a company manages 80,000 service calls daily across 10 countries with a workforce of 16,000 technicians, manual oversight becomes impossible.

This reality has driven Solutions30, the European field services company, to embrace AI. Solutions30 provides installation and maintenance services for telecommunications infrastructure, energy grids and digital equipment across Europe.

From installing fibre optics to switching traditional meters for smart meters, its technicians handle everything from routine maintenance to complex safety-critical work that can't afford mistakes.

Jerzy Badowski, the company's Group Chief Information Officer (CIO), spent over 20 years in IT across banking, insurance, healthcare and aviation before landing at Solutions30.

His perspective on AI reflects this broad experience: it's a tool that must complement existing frameworks rather than replace them entirely.

"AI is a layer on top of all the controls and all the frameworks that already exist," he explains.

This philosophy guides Solutions30's approach to stand out in the market.

How Solutions30 uses AI to tackle quality control and route optimisation

Solutions30's approach to AI is about implementing AI systems that enhance rather than disrupt established operations.

Outwardly, the company's growth through acquisitions across Europe has created both opportunities and challenges. While the scale provides rich data sets for AI applications, integrating systems from multiple acquired companies requires careful standardisation.

This backdrop makes its AI deployments particularly interesting, as Solutions30 is not starting with a clean slate but rather layering intelligence onto complex, multi-country operations.

Solutions30's most compelling AI implementation addresses a problem that's both safety-critical and scale-intensive: verifying the quality of smart meter installations.

When technicians exchange traditional gas meters for smart devices, the connections must be perfect.

On the flip side, poor installation can create dangerous situations for both workers and customers.

In response, the company used what it calls the "Deepomatic" system, using computer vision to analyse installation photographs in real time.

During the project, this AI system processed over 1.3 million images, automatically verifying that connections were properly secured and safety protocols followed.

"We have implemented an image recognition system, which allows our technicians to verify the quality of a job before they do it," Jerzy says.

The system addresses work that is "quite risky and dangerous, not only for the technician doing the job but also for the customer."

The AI system identifies specific connection points and components, comparing them against predetermined standards and flagging deviations immediately.

Technicians get instant feedback before leaving a job site, eliminating the need for separate quality inspections and reducing the risk of callbacks.

The second major AI deployment tackles route optimisation, a challenge that becomes exponentially more complex when Solutions30 is coordinating thousands of vehicles across multiple countries.

The system processes variables including traffic patterns, appointment schedules and geographic constraints to calculate optimal travel paths daily.

> "If a company will not use AI technologies within the next few years, I think that it'll not exist anymore"
>
> **Jerzy Badowski,**
> Group CIO,
> **Solutions30**

JERZY BADOWSKI

GROUP CIO

Jerzy is a seasoned IT executive with a track record of driving digital transformation across global enterprises and startups.

With deep expertise in cybersecurity, service delivery and agile project management, he brings a hands-on, business-first approach to innovation.

Jerzy has led IT initiatives in regulated sectors including finance, healthcare and aviation, and thrives in fast-paced, international environments.

Jerzy Badowski,
Group CIO,
Solutions30

ninjaOne

Solutions30 & NinjaOne:

Secure Endpoint Management at Scale

Solutions30 Group CIO Jerzy Badowski on how NinjaOne helps it manage 16,000 technicians across Europe, boosting security compliance and cutting costs

With a sprawling network of 16,000 field technicians operating across 10 European countries, Solutions30 faced a complex operational challenge. To manage and secure its workforce, it turned to NinjaOne's unified endpoint management platform. The company handles 80,000 service calls daily across telecommunications, energy, and digital sectors. The scale of activity requires centralised visibility over thousands of laptops, mobile devices and servers spread across its European operations.

According to Jerzy Badowski, Group CIO at Solutions30, managing this environment manually was not feasible: "It cannot be done manually," he explains, "so we needed a lot of different systems to support the technicians' activities." This reliance on multiple, disparate systems was a key challenge the company aimed to solve by finding a single, consolidated platform.

In 2021, Solutions30 evaluated multiple endpoint management solutions to address this need, focusing on both functionality and cost-effectiveness.

Ultimately, NinjaOne emerged as the preferred choice due to its platform coverage and competitive pricing structure.

How NinjaOne reduces administrative overhead

NinjaOne's platform's autonomous patching capabilities have delivered significant operational efficiencies for Solutions30's IT team.

Rather than requiring dozens of administrators to manually update software across thousands of devices, the company can now deploy patches with minimal manual intervention.

"We would have needed to have 50 or maybe 100 administrators to do the patches every day and currently we can do it just by one click," Jerzy explains. "That's a huge optimisation and saving of both time and resources."

NinjaOne's centralised dashboard provides Solutions30 with real-time visibility across all endpoints, enabling rapid identification of missing patches, software vulnerabilities and hardware issues.

This capability proves particularly valuable given the company's compliance requirements across multiple regulatory frameworks. "We are obliged by different directives and different standards to properly manage patching and vulnerabilities. NinjaOne's tool is helping us with those processes," Jerzy says.

NinjaOne's capabilities for platform scaling and infrastructure growth

Solutions30's implementation demonstrates how automated endpoint management platforms can scale with organisational growth. The company initially deployed NinjaOne across a limited portion of its infrastructure before expanding to full coverage as it recognised the platform's value.

> "The bigger infrastructure you migrate into NinjaOne, the more advantages you get,"
>
> Jerzy Badowski ,
> CIO, Solutions30 Group

"The bigger infrastructure you migrate into NinjaOne, the more advantages you get," Jerzy says. "If you implement it for the whole infrastructure, then it becomes a really strategic tool to manage your infrastructure, to manage all your architecture and applications." The platform now covers Solutions30's entire device ecosystem, from desktop computers and laptops to mobile phones and servers. This coverage enables the company to maintain security standards and operational efficiency across its geographically distributed workforce.

NinjaOne's Patch Intelligence AI provides users with predictive insights about potential infrastructure issues.

Solutions30 is looking into how to more fully take advantage of NinjaOne's automated patch management capabilities and, Jerzy confirms they will play a significant role in the future: "It's something we haven't explored yet," he notes, "but something we'll be using much more frequently."

Discover how NinjaOne can simplify IT management and boost efficiency in your organisation

Learn more

Installation of a 60 kW Ekoenergetyka DC charger in Olawa, Poland

IOT heating technician, France

The results demonstrate how AI can deliver multiple benefits simultaneously.

Reduced travel time improves customer satisfaction, lower fuel consumption supports environmental targets and increased efficiency allows technicians to complete more appointments per day.

"We can optimise the time of travel, which is good for our end customer because they don't need to wait a lot of time," Jerzy explains.

"From an ESG point of view, we are lowering carbon footprint and we are reducing fuel use as well."

For a company operating thousands of vehicles, small efficiency improvements generate substantial aggregate benefits.

Even saving a litre of fuel per vehicle per day adds up to significant environmental and cost impacts across its European operations.

The results of data quality becoming the foundation

What makes Solutions30's AI story particularly relevant is its emphasis on data quality as a prerequisite for effective machine learning (ML).

Operating across multiple countries with different languages, currencies and regulatory frameworks creates data complexity that many companies underestimate.

"We are living in a big data world," Jerzy says.

Solutions30 Portugal offices

"There are a lot of different advantages of AI technologies, but there is also a kind of threat behind it"

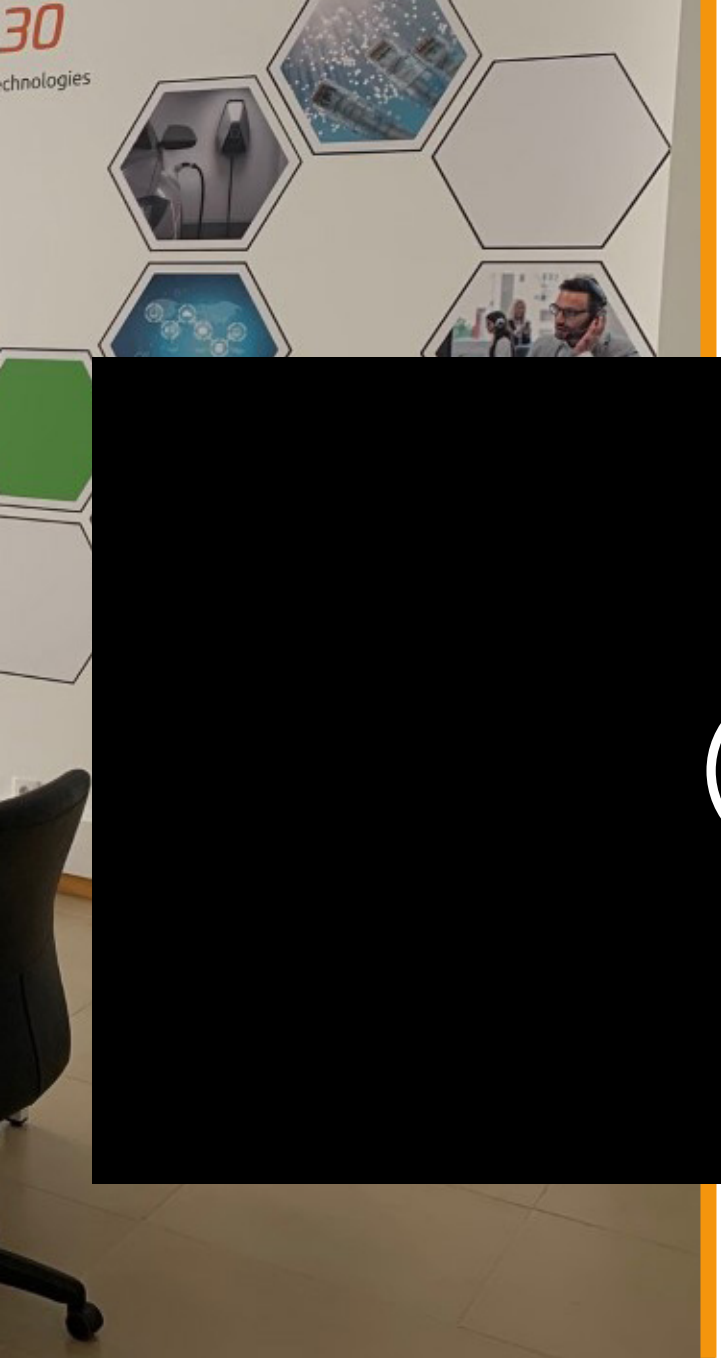
Jerzy Badowski,
Group CIO,
Solutions30

"We have hundreds of different databases in use, which generates a lot of data."

But volume without quality creates problems: "If we don't have enough quality in our data, we will make wrong decisions, we'll go in the wrong direction," he adds.

"So one of our preliminary goals is to keep the quality of data, then to give the good data to our decision makers to properly manage the company.

"That's the kind of foundation not touching AI, but if we include AI into this part, then it can be



easier to keep this quality – that's something on our roadmap."

This focus on data foundations reflects hard-won experience.

AI systems learn from historical patterns, so errors or inconsistencies in training data will produce unreliable algorithms.

For a company handling safety-critical work, this isn't just about efficiency: it's about preventing dangerous mistakes.

The company's approach involves standardising data collection and storage processes across its acquired companies.

This creates consistent formats that AI systems can process reliably while supporting broader business intelligence needs.

Jerzy's team has several AI proof -of-concept projects in development, but he emphasises the importance of comprehensive testing before production deployment.

"AI has two sides, so I would compare it to a knife. It can ease your daily activities, but it can also be very dangerous," he warns.

"We need to approach AI very carefully. We need to test it, and we need to prepare it in such a way that it'll not harm us or any of our partners."

The role of NinjaOne

In environments where AI decisions affect safety, customer relationships or regulatory compliance, the testing phase becomes crucial.

This is where the company's partnership with NinjaOne, the endpoint management platform provider, comes in.

NinjaOne illustrates how large enterprises balance functionality with budget constraints.

"We are using this platform for monitoring and for managing our endpoints like PCs and mobile devices," Jerzy says.

Unlike large banks or telecoms with substantial IT budgets, field services companies must evaluate solutions based on both capability and cost.

"We look at the solutions very comprehensively and not only from the functionality point of view, but also from the cost of the licences," Jerzy explains.

"NinjaOne was the most cost efficient, as well as valuable option for Solutions30."

Solutions30 manages **80,000** service calls daily

... across **10 countries**

... with a workforce of **16,000** technicians

New buildings and implementation of a network desaturation, France

The NinjaOne platform manages endpoints across Solutions30's workforce, providing centralised visibility into hardware and software status while automating security patching and system updates.

The platform's AI algorithms offer predictive insights about infrastructure problems, though Jerzy admits they haven't fully exploited these capabilities yet.

The partnership has evolved over four years, expanding from a limited pilot to comprehensive coverage of its infrastructure.

"The bigger infrastructure you migrate into NinjaOne, the bigger advantages you get," Jerzy observes.

AI advice for long term success

Solutions30's AI strategy must account for an increasingly complex threat landscape where attackers also use AI tools.

This creates a defensive requirement for AI-enabled security systems while ensuring its own AI deployments don't create new vulnerabilities.

"The hackers use AI technology to attack us. So we must be very careful," Jerzy notes.

This arms race dynamic means companies can't simply implement AI for efficiency gains. They must also consider how these systems affect their security posture.

The regulatory environment adds another layer of complexity. Operating across European jurisdictions means complying with GDPR, the NIS2 Directive and various industry-specific standards.

“Use AI widely, but use it wisely as well”

Jerzy Badowski,
Group CIO,
Solutions30

AI systems must operate within these frameworks while maintaining operational consistency across different countries.

Perhaps most striking is Jerzy’s view on the competitive implications of AI adoption.

He suggests that companies delaying AI implementation may face existential challenges: “If the company will not use AI technologies within the next few years, I think that it’ll not exist anymore.”

For Solutions30, the scale of operations makes this particularly relevant.

“We have a huge scale of operations and a huge scale of the workforce, so AI can bring a lot of efficiency and cost reduction in our future,” Jerzy says.

The company’s experience demonstrates that successful AI implementation in traditional industries requires balancing innovation with caution, functionality with cost and efficiency with safety.

Its approach – treating AI as a layer that enhances existing frameworks rather than replacing them – offers a practical model for companies navigating similar transformations.

“Use it widely, but use it wisely as well,” Jerzy advises. “There are a lot of different advantages of AI technologies, but there is also a kind of threat behind it.”

Ilots Blandin Floating Solar Plant Project, France

SUSTAINABILITY AND ANALYTICS

IBM, AMAZON AND NOKIA IN FOCUS

Technology Magazine explores how IBM, Nokia and Amazon integrate AI, data analytics and renewable power to accelerate their sustainability journeys

WRITTEN BY: MAYA DERRICK

IBM

IBM leverages AI, renewable energy and data analytics to advance sustainability, reduce emissions and drive innovation

IBM's 2024 Annual Report highlights its commitment to sustainability through the integration of advanced AI, data analytics and hybrid cloud technologies. Central to IBM's approach is sustainability analytics embedded within its software and consulting offerings that help enterprises measure, manage and reduce their environmental impact. The report shines a light on IBM's AI-powered solutions – including the Envizi platform and Maximo Application Suite – which optimise asset lifecycle management and emissions tracking to enable sustainable operations.

IBM underscores the importance of leveraging AI and data for improving resource efficiency across supply chains, facilities and IT infrastructure as these technologies support intelligent decision-making, environmental risk assessment and automation, helping clients to achieve sustainability goals while enhancing operational resilience.

Additionally, IBM's sustainability strategy is integral to its hybrid cloud and AI growth areas, with strong investments in R&D and acquisitions to advance sustainable technology capabilities. The company actively supports clients in operationalising sustainability initiatives through consulting expertise combined with technology platforms infused with AI governance and hybrid cloud flexibility.

> "SUSTAINABILITY IS NOT JUST A FEEL-GOOD WORD HERE, IT IS IN OUR DNA"
>
> **Christina Shim,**
> CSO,
> **IBM**

Christina Shim,
CSO,
IBM

TARGETS

Achieve net zero greenhouse gas emissions by **2030**

Source **90% of the electricity** consumed globally from renewable sources by 2030

Utilise feasible technologies like carbon capture by in **2030**

LATEST FIGURES

IBM has reduced its operational greenhouse gas emissions by 65% compared to 2010

IBM has helped avoid 256,000MWh of energy consumption by reducing excess computing capacity in AI workloads

FOCUS AHEAD

Pledged to divert 90% of its total non-hazardous waste from landfills and incineration

IBM has 3,000 energy conservation projects to avoid 275,000MWh of energy consumption

Improving data centre cooling efficiency by 20% to reduce power consumption per unit of delivered work

PROGRESS

74% of electricity for its data centres comes from renewable energy

Reduced operational greenhouse gas emissions by **65%** compared to 2010 levels

IBM has saved more than 11,400m³ of water through conservation projects

Planted 50 pollinator gardens as part of biodiversity initiatives

IBM has implemented more than **2,100 energy conservation projects globally** aimed at reducing energy use and greenhouse gas emissions

IBM

HEADQUARTERS: **NEW YORK, USA**

NUMBER OF EMPLOYEES: **270,000+**

MARKET CAP: **US$264.8BN (SEPTEMBER 2024)**

NUMBER OF COUNTRIES: **170+**

AMAZON

Amazon's sustainability report details the company's AI-driven sustainability strategy, with analytics tracking progress on EV deliveries, plastic reduction and ESG goals

Amazon's 2024 Sustainability Report demonstrates a deeply quantitative and analytics-intensive approach to measuring and managing its ESG performance. The central analytical theme centres on decoupling business growth from emissions, highlighted by its key performance indicator: carbon intensity. In 2024, this figure fell to 72.6g CO2e/$GMS.

Amazon's analysis of its sustainability journey shows the company's progress despite a slight rise in absolute emissions. The report's specific metrics for tracking resource consumption and social impact are key indicators of this pattern, with 1.5 billion packages delivered by more than 31,400 electric vehicles and a 16.4% global reduction in single-use plastic delivery packaging.

A key pillar of its strategy is leveraging AI for sustainability analytics to foster innovation. Amazon shares in the reporthow it uses AI to optimise packaging size, reduce returns through better sizing recommendations, identify energy inefficiencies in its operations and detect water leaks. This is further supported by granular data tracking, such as the Power Usage Effectiveness (PUE) of 1.15 for its AWS data centres. The report's analytics include its Scope 1, 2, and 3 emissions, showcasing how analytics are a core driver of strategic decisions for operational efficiency and resilience at Amazon.

> "SUSTAINABILITY IS NOT SEPARATE FROM OUR CUSTOMER OBSESSION – IT'S AN EXTENSION OF IT"
>
> **Kara Hurst,**
> CSO,
> **Amazon**

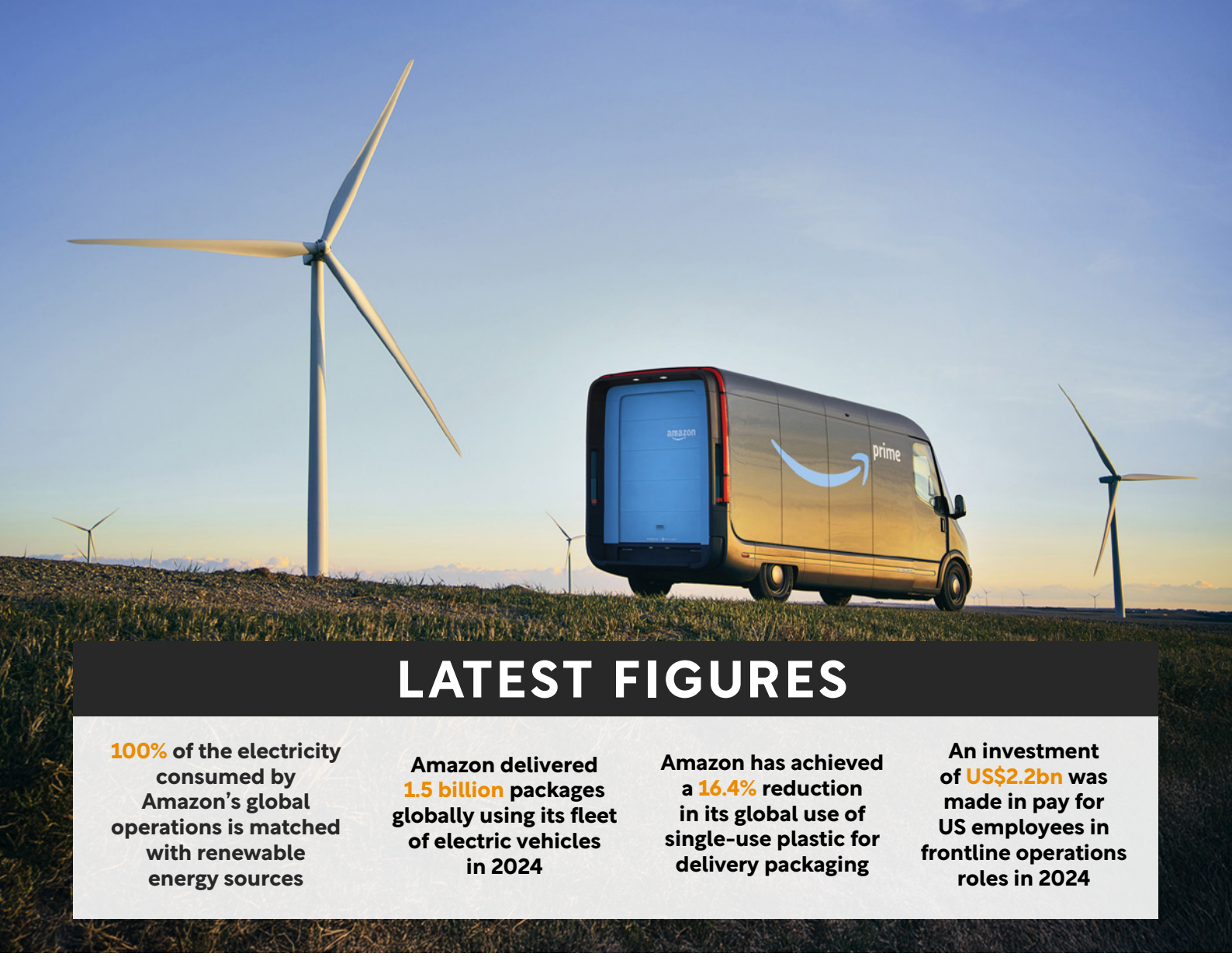
Kara Hurst,
CSO,
Amazon

TARGETS

Reach net-zero carbon emissions across Amazon global operations by **2040**

For AWS to be water positive by **2030**

To have at least **100,000 electric delivery vans** on the road by 2030



LATEST FIGURES

100% of the electricity consumed by Amazon's global operations is matched with renewable energy sources

Amazon delivered 1.5 billion packages globally using its fleet of electric vehicles in 2024

Amazon has achieved a 16.4% reduction in its global use of single-use plastic for delivery packaging

An investment of US$2.2bn was made in pay for US employees in frontline operations roles in 2024

FOCUS AHEAD

Investing US$1.2bn to provide education and skills training to more than 300,000 US employees

Providing free AI skills training to two million people globally

Reach net-zero carbon emissions across Amazon's global operations by 2040 through The Climate Pledge

Empowering 1,000 other companies to commit to net zero carbon emissions through The Climate Pledge by 2040

PROGRESS

Distributed up to **US$60m** in AWS cloud computing credits to support global health

Maintained its position as the world's largest corporate purchaser of renewable energy for the **fifth consecutive year**

Increased the amount of **fibre from responsibly managed forests or recycled materials** used in Amazon paper-based primary packaging across supply chains

Achieved a landfill diversion rate of **85%** for waste across Amazon's operations

Reached **34GW** of renewable energy capacity globally with **621 projects**

amazon

HEADQUARTERS: **WASHINGTON, USA**

NUMBER OF EMPLOYEES: **1.6 MILLION**

MARKET CAP: **US$2.4TN (SEPTEMBER 2024)**

NUMBER OF COUNTRIES: **23+**

NOKIA

Guided by new EU rules, Nokia's sustainability report finds 95% of its emissions are from product use, driving its focus on energy efficiency and innovation

Nokia's 2024 Sustainability Statement is framed by the stringent analytical requirements of the new EU Corporate Sustainability Reporting Directive (CSRD), built upon a "double materiality assessment" to identify and prioritise key ESG topics. A critical analytical insight guiding its strategy is that 95% of its total greenhouse gas emissions come from the use of its sold products (Scope 3). This data point focuses the company's efforts on improving the energy efficiency of its technology as the most impactful decarbonisation lever.

The report features forward-looking analytics, presenting a detailed net-zero pathway to 2040 which quantifies the projected emissions reductions from various initiatives, including product energy efficiency and supply chain improvements. Performance is tracked against a science-based target to slash Scope 1, 2 and 3 emissions in half by 2030 from a 2019 baseline, with analytics showing a 36% reduction already achieved by 2024.

Nokia also extends its analytical capabilities to its customers, offering a Private Wireless Sustainability Calculator to help enterprises quantify their own environmental gains, fostering innovation and resilience across its value chain.

"DIGITAL TECHNOLOGIES UNDERPIN CRITICAL ASPECTS OF OUR LIVES, BUT WE HAVE A RESPONSIBILITY TO ENSURE THE COST OF THESE BENEFITS IS NOT PAID FOR BY FUTURE GENERATIONS"

Subho Mukherjee,
VP & Global Head of Sustainability,
Nokia

Subho Mukherjee,
VP & Global Head
of Sustainability,
Nokia

TARGETS

Net zero
by **2040**

95% of employees complete
Nokia's annual Ethical Business
Training (EBT) module

Digital Inclusion
by **2030**

LATEST FIGURES

95% of Nokia's total greenhouse gas emissions came from the use of its sold products by customers

Nokia achieved a **36%** reduction in its total greenhouse gas emissions in 2024 compared to its 2019 baseline

In 2024, **87%** of the electricity consumed in Nokia's own facilities was from renewable sources

Women make up **28%** of all global external hires at Nokia

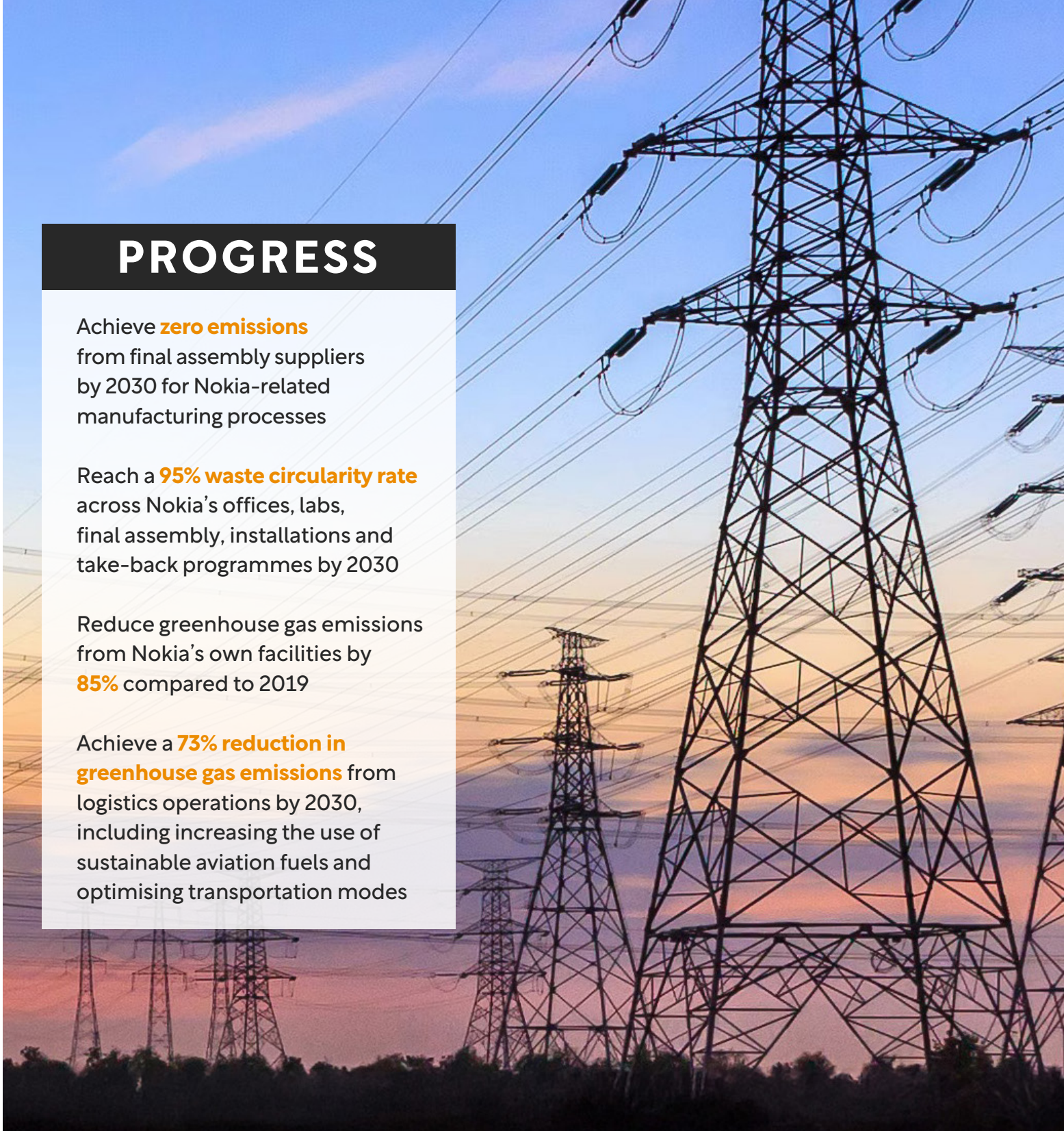
FOCUS AHEAD

To use 100% renewable electricity in its own facilities

To improve the lives of 1,500,000 people through social digitaliation projects

To reduce absolute Scope 1, 2 and 3 greenhouse gas emissions by 50% from a 2019 base year

To achieve a minimum of 25% women as a share of its total employees



PROGRESS

Achieve **zero emissions** from final assembly suppliers by 2030 for Nokia-related manufacturing processes

Reach a **95% waste circularity rate** across Nokia's offices, labs, final assembly, installations and take-back programmes by 2030

Reduce greenhouse gas emissions from Nokia's own facilities by **85%** compared to 2019

Achieve a **73% reduction in greenhouse gas emissions** from logistics operations by 2030, including increasing the use of sustainable aviation fuels and optimising transportation modes

NOKIA

HEADQUARTERS: **ESPOO, FINLAND**

NUMBER OF EMPLOYEES: **70,000+**

MARKET CAP: **US$25.1BN (SEPTEMBER 2025)**

NUMBER OF COUNTRIES: **130+**

ROB TURNER

deliveroo

An exclusive interview with Rob Turner, Chief Procurement Officer at Deliveroo, who discusses the food delivery leader's procurement transformation

WRITTEN BY: LIBBY HARGREAVES
PHOTOGRAPHY BY: ZEKE DOWNES

When Rob Turner joined Deliveroo as Chief Procurement Officer, the procurement function was failing to deliver the expected value. The multinational delivery company strives to connect consumers with restaurants and merchants through a hyperlocal marketplace for quick, convenient delivery.

Rob brings 30 years of procurement and operations experience, having worked in manufacturing operations before moving into procurement in 2001 with PepsiCo. His first CPO role with Tarmac gave him the platform to lead procurement and supply chain, including M&A activity during a joint venture with Lafarge. This path led him to become one of the youngest CPOs in the FTSE 250 of the time. Later, he led procurement transformation at John Lewis, including a full-scale digital and operating model change with Coupa, before later building the procurement capability of the Amazon Fresh store programme.

Now, he applies his procurement expertise and transformation experience in a fast-paced environment at Deliveroo. Here, Rob spearheaded a rapid, full-scale cost and digital procurement transformation that included implementing Coupa's source-to-pay (S2P) system and a company-wide risk management platform in just 13 months.

This transformation contributed to a wider improvement within the business, resulting in an 8% increase in revenue and adjusted EBITDA climbing 46% to £96m (US$130m). With major initiatives already in motion and the business on a strong growth trajectory, 2026 is set to be a pivotal year for Rob – a chance to fully realise the benefits of his work.

ROB TURNER

CHIEF PROCUREMENT OFFICER

Rob leads the company's global procurement and supply chain function, with a mandate to deliver value, strengthen resilience, and enable growth that is both profitable and sustainable. Rob has led the repositioning of procurement as a strategic enabler within Deliveroo, driving digital transformation and embedding more integrated, data-driven ways of working. His focus is on building partnerships across the business to create efficiencies, unlock innovation, and support Deliveroo's continued improvement in financial performance.

AN INSPIRING PROCUREMENT LEADER

MARIAM LATIF

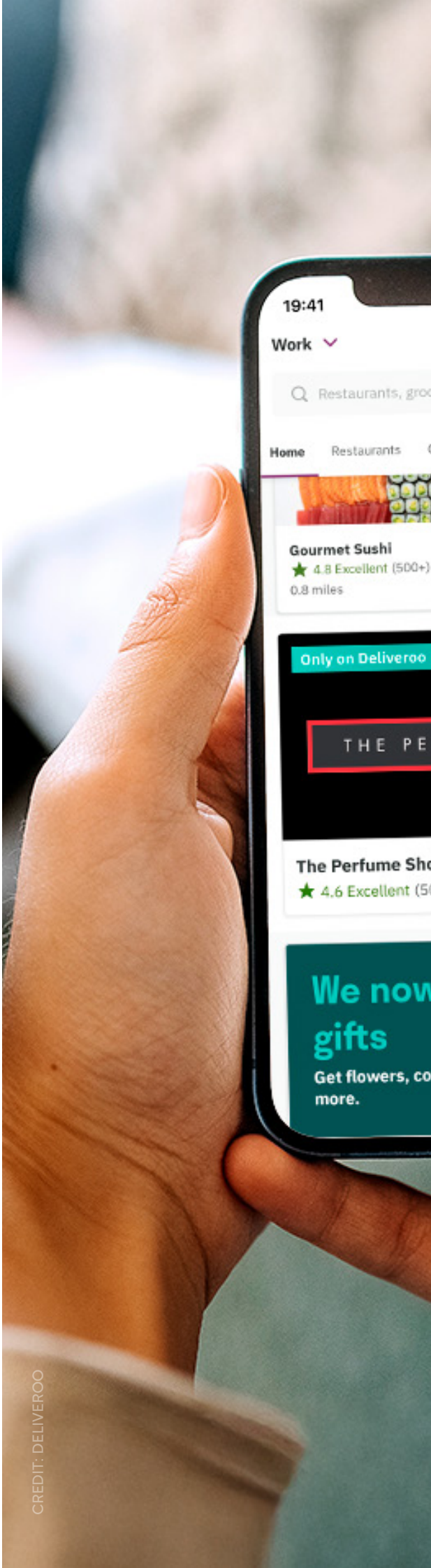
Mariam Latif heads technology procurement at Deliveroo and explains that she joined the company because of Rob himself: “I want to make sure that I’m working with people that I feel share similar values to me, that have similar visions to me, that I feel that will lift me and to show that I can get the most out of my day.”

SUE JO

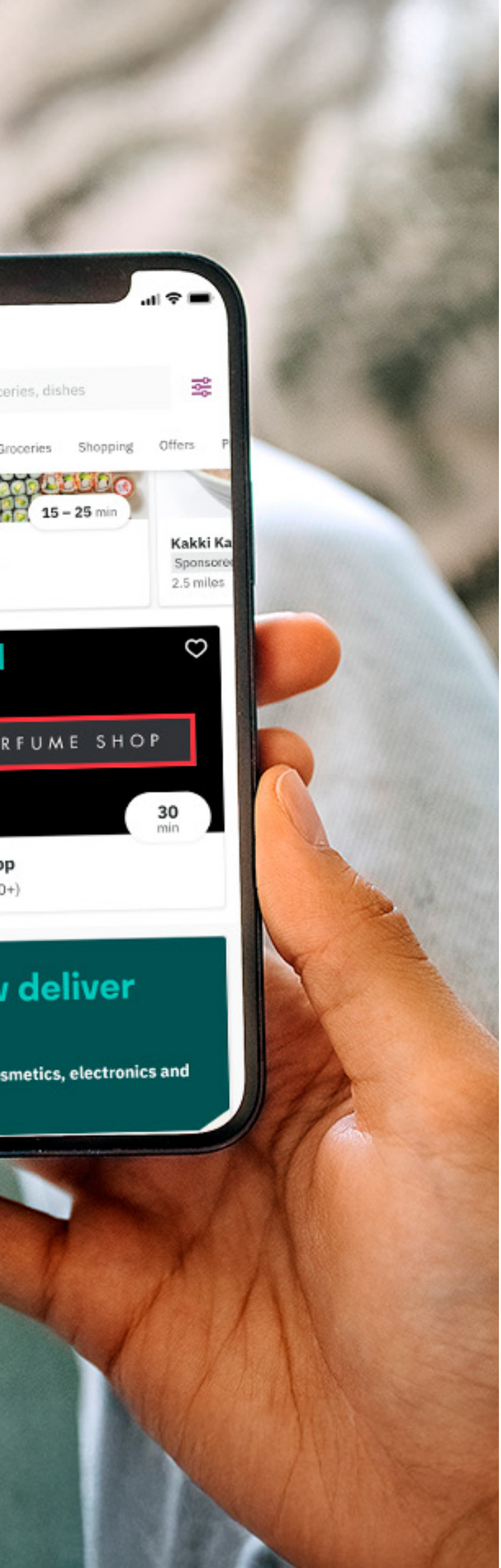
Sue Jo, Technology Procurement Manager at Deliveroo, adds: “It’s been an incredible journey working with Rob. He took the time to deeply understand the business before shaping a bold vision for transformation. That shift in perception is a major win. It reflects not only the value we’ve delivered but also the cultural change we’ve helped drive. Looking ahead, I’m optimistic.”

SCOT MATTHEWS

Scot Matthews, who leads marketing procurement and delivery, echoes this, adding that the future of procurement at Deliveroo is bright with Rob: “We are already embracing AI in a number of ways. We have more to do. We’ve definitely moved away from a transactional relationship with our stakeholder groups, and we’re now moving into a phase of much more business alignment.”



CREDIT: DELIVEROO



Transforming digital procurement

Over two-and-a-half years, Rob worked hard to redefine Deliveroo's procurement role to one that delivers better value for both Deliveroo and its suppliers.

"Principally, it was all about understanding business needs and business requirements," he recalls. "Procurement, when I joined, was not the trusted partner the business needed it to be.

"My journey has been to almost rebuild from scratch, to reinvent, to build a reputation as a problem solver and to deliver flawlessly."

The programme addressed third party costs, governance, process redesign and digital enablement of source-to-pay.

With PwC's support, a diagnostic phase validated hypothesised savings opportunities and built a credible business case, allowing procurement to move from fixing tactical issues to enabling growth.

Focus on early wins helped build trust, enabling early involvement in shaping commercial outcomes. The team surpassed its initial £26m (US$35.1m) target in seven months and is on track to deliver a cumulative £53m (US$67.6m) in validated savings – all within 18 months of beginning the cost transformation.

"Procurement at Deliveroo is now involved earlier, trusted more widely and actively shaping commercial outcomes," explains Rob.

A significant element of this transformation was the implementation of Coupa within the business. Deliveroo's 13-month global Coupa deployment evolved into a full reset.

PwC's Rowan Lipscombe: Procurement Drives Transformation

PwC's Rowan Lipscombe explains how modern procurement drives innovation, manages risk and creates value through technology and sustainability initiatives

Rowan Lipscombe, Director at PwC and a leader within its UK procurement practice, has seen the evolution of procurement firsthand through work completed with clients across an array of diverse sectors including technology, aerospace and energy and utilities.

Drawing on more than two decades of industry experience before joining PwC, Rowan has driven large-scale transformation programmes focused on both cost and carbon reduction, positioning procurement at the heart of organisational reinvention.

Beyond traditional cost control

The days when procurement success was measured solely by cost savings are firmly behind us. "No longer is procurement just a cost control function, it's now a driver of innovation, transformation, and managing supply chain risk and resilience."

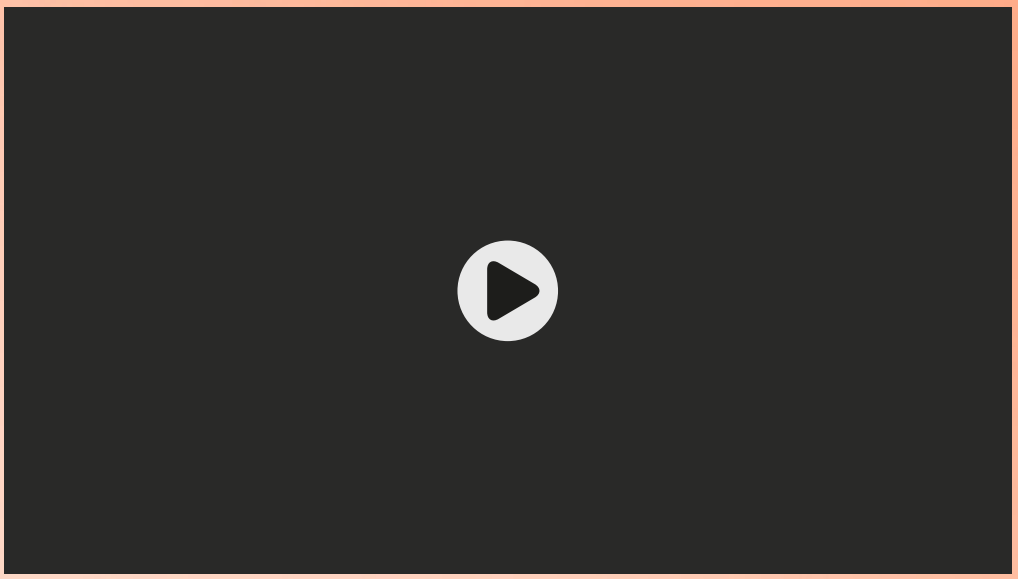
This shift reflects the complex challenges facing businesses today. In what Rowan describes as a "VUCA (Volatility, Uncertainty, Complexity and Ambiguity) world", organisations must navigate disruption from multiple angles – AI, climate change and geopolitical shifts all demand new approaches to business resilience and growth.

"It used to be cost savings. Now that's no longer going to differentiate you. That's business as usual," Rowan adds. Procurement value creation is "measured through speed to market of new products, risk and resilience of the supply chain, sustainability imperatives and bringing in supplier-led innovation as well."

Technology as a transformation catalyst

PwC's approach to procurement transformation works alongside the modern expectations now on procurement. Rather than focusing purely on automation benefits, the firm emphasises how technology serves as "a catalyst for new ways of working and helping to drive compliance and adoption."

Its work with Deliveroo demonstrates this philosophy in action. Working with the food delivery giant from the early stages of its procurement transformation, PwC helped, using deep spend analytics to identify opportunities across its cost base, but also its operating model and technology as well.



This enabled Deliveroo to move beyond reactive procurement towards what Rowan calls “enabling growth, embedding Coupa real-time data, which allowed them then to significantly contribute to their EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortisation) improvement.”

The value in motion framework
PwC’s approach to value creation centres on what it terms “value in motion”, which aims to address how mega trends are reconfiguring industries and value pools.

This framework focuses on three key areas: igniting innovation in business and operating models, competing on new sources of advantage including technology and trust and turning obstacles into enablers through improved governance and strategic investment alignment.

For procurement specifically, this translates into “moving from reactivity into insights” – leveraging data, digital platforms and transformation to inform predictive decision-making whilst building enterprise-wide return on investment.

Future priorities: AI and sustainability
Looking ahead, Rowan signposts two critical areas demanding procurement’s attention. Sustainability presents significant opportunities, she says, particularly given that “procurement has some of the biggest levers to drive improvement for Scope 3 emissions through supplier collaboration.”

Equally important is the emergence of intelligent orchestration powered by AI. “The shift to intelligent orchestration is underway and AI is enabling predictive insights, real-time risk sensing and new operating models,” Rowan explains.

However, Rowan adds that successful AI implementation must be paired with trust, highlighting PwC’s trust-based transformation equation where “productivity gains are being responsibly deployed and there’s always a human in the loop to ensure ethical outcomes.”

As procurement continues its evolution from cost controller to strategic enabler, organisations that embrace this broader value creation agenda will be best positioned to navigate an increasingly complex business environment.

Learn More >

Called Project Penne, it aimed to embed policy and governance into the S2P platform. Using "adopt best practice, adapt Deliveroo," the team's processes were simplified, compliance became embedded and manual checks were reduced.

Deliveroo adopted an "out-of-the-box" Coupa configuration for 94% of the build, which, Rob explains, was part of a strategy to "embrace simpler, more scalable ways of working".

The discipline needed to execute such a project, on a fixed deadline and with a limited budget is a testament to Rob's approach: "In the very early stages, the transformation had principally been viewed as a technology upgrade". He also brought in a trusted former colleague, Paras Sood, who knows Rob's ways of working, to help drive programme performance and act as his voice when pressure on time was high.

"However," he explains "it quickly became clear there was an opportunity to go much further – a full reset of our source-to-pay operating model."

Coupa now delivers a single source of truth, lifecycle transparency and readiness for new developments, something that was key for Rob.

"This now forms the core platform foundation that we can build on – adding supplier risk monitoring, better onboarding, contract discovery, SaaS licence management... all in one environment," he adds.

This enables a more rapid route to maturity, and to industry-leading practices such as the development of a virtual helpdesk and AI driven intake – both of which will significantly improve the user experience.

"We wanted to use the deployment as a forcing function to improve how we operate. That meant adopting Coupa's best-practice configuration wherever possible and adapting our business to the system – not the reverse."

The project was beyond successful, finishing on time and on budget, leaving behind a lean, guided workflow designed to improve adoption rates and reduce complexity – ensuring future upgrades will be rolled out more quickly and less costly.

Rob Turner appeared on the Procurement Stage of Procurement & Supply Chain LIVE London in September. He was joined by by experts from Coupa, Diebold Nixdorf and Lufthansa to discuss high-level strategy.

HOW ZERO9 DELIVERED PROCUREMENT TRANSFORMATION FOR DELIVEROO

Zero9's four-pillar approach parachutes seasoned experts into businesses like Deliveroo, delivering significant cost savings and procurement transformation

As businesses grapple with rapid change and increasing pressure to deliver cost efficiencies, traditional consulting models are being challenged by more agile, flexible approaches.

Zero9, a specialist talent solutions business operating within the procurement space, is leading this charge with a unique four-pillar approach that's already delivering significant results for major clients including Deliveroo.

A comprehensive talent solution

Zero9 operates across four distinct pillars designed to address different aspects of procurement transformation.

The first focuses on strategic hires – permanent roles such as CPOs, heads of function and category directors. The second pillar, project delivery, involves embedding teams of experts to drive change within organisations. The third offers advisory and strategic services as an alternative to traditional consultancy work, while the fourth provides fractional services – a pay-as-you-go model offering flexible expertise and advice.

Angharad Kenward, Managing Partner at Zero9, explains: "There's a huge amount of transformation going on in the market. The workforce is changing, and how you engage people and bring them in is definitely starting to evolve.

"Our offering essentially allows clients to parachute great people in to deliver transformation."

Flexible resources for modern challenges

The 'parachuting' approach represents a significant departure from conventional consulting models.

Rather than providing generic expertise, Zero9 taps into what Angharad describes as a "vast network" to bring in specialists with deep category knowledge who can deliver change at pace.

"The ability to flex up and down, change your offering and really deliver at pace is what our project delivery offering is all about," she adds.

This level of flexibility proves particularly valuable in today's volatile business environment, where requirements can shift rapidly and organisations must respond accordingly.

The model offers resource augmentation capabilities alongside more traditional consulting setups, providing everything in between to meet specific client needs.

This adaptability has proven crucial in Zero9's ongoing partnership with Deliveroo.

Building the Deliveroo partnership

The collaboration between Zero9 and Deliveroo emerged from an existing relationship between Angharad and Rob Turner, the food delivery company's CPO.

When Rob joined Deliveroo, the pair began discussing how Zero9 could support the evolution of its procurement function, which was facing significant challenges around cost reduction and efficiency improvements.

"There was a big need for cost out and general transformation," explains Angharad. "Our offering allowed Rob to have that flexibility to parachute people in with deep category expertise."

The project, now running for approximately 15 months, has allowed Deliveroo to maintain a flexible approach to team structure while accessing specialist knowledge in critical areas.

Delivering deep expertise

What sets Zero9 apart in the Deliveroo engagement is its ability to provide seasoned professionals with genuine category expertise.

The project has required deep experience in areas such as logistics, supply chain technology, and professional services – knowledge that traditional consulting models don't always deliver.

Angharad continues: "We were able to put in people with 20-plus years of experience who could not only deliver at pace, but use their knowledge and background to support Deliveroo in driving costs out really efficiently. We could also help upskill and bring in knowledge from external markets and other industries, so the team felt like it was maturing and making progress."

The results for Deliveroo have been significant, both in terms of actual savings delivered and the value proposition offered by Zero9's pricing model. The ability to swap team members in and out according to changing business requirements has provided additional strategic value.

A unique market position

Zero9's positioning reflects a gap in the market that Angharad identified when founding the business.

With a combined network developed over the course of 40 years between the founding partners, Zero9 offers something no other organisation can match.

Angharad concludes: "We're able to de-risk the future of a procurement function by making sure the people brought into the organisation are exactly what they need: high calibre and able to deliver."

Learn More in

CHOOSING THE RIGHT PARTNERS

When selecting the partners Deliveroo would work with during the transformation, Rob focused on finding the right "fit for pace, culture and future growth".

He explains why each partner was selected:

Coupa: Following an extensive RFP and assessment, where we had considered best of breed and integrated end to end solutions, we chose Coupa for its best-in-class source-to-pay platform plus the efficiency and effectiveness of an end to end solution versus marginal gains from a platform stack that would have been much more complex to manage with a very lean team. The structured data model and core integrated source to pay platform also creates us the foundation aligned with our ambitions in AI and automation.

KPMG: As system integrator, KPMG brought speed, rigour and a strong best-practice design stance. Their ability to deliver an "out-of-the-box" Coupa build was essential to meeting our ambitious timeline. We jointly determined key design principles; I held the Deliveroo team to them whilst I charged KPMG with holding me to account if I started to stray from them.

CREDIT: DELIVEROO

pwc ROSSUM ZERO9 stripe

PwC: PwC supported us in our cost out programme diagnostic, shaping the business case and early mobilisation. They further supported in our technology workstream with SaaS vendor rationalisation and in mobilising Coupa's Sourcing Optimisation toolset (CSO) to drive transformational returns on more complex sourcing projects.

Rossum: We introduced Rossum to enable intelligent invoice ingestion and processing, improving efficiency and data capture without adding complexity for suppliers.

Zero9: Our partner supporting us with experienced interims, enabling us to access the right experience at the right time. This ensured we had the right balance of skills for the programme and an ability to pivot at speed if the priorities changed. Their agility helped us maintain momentum in the cost out programme.

Stripe: Our payments partner, Stripe, enables seamless and scalable disbursements, critical to delivering a high-quality customer experience globally. This is an example of a relationship transformed from tactical to strategic by the procurement transformation programme.

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The importance of change management

Preparing, equipping and supporting employees to successfully adapt to change was vital to the project's success.

Rob explains: "The biggest opportunity was cultural, not technical."

From the outset, risk and compliance were embedded in the transformation. For example, intake processes now include risk profiling, ensuring sourcing or legal workflows drive efficiency in the latter elements of commercial processes.

"The result is a system that drives compliance by design, not by enforcement," Rob says.

Running Coupa while delivering an accelerated cost-out programme required shared leadership, in addition to the utilisation of both internal and external resources for scalability.

"Clarity of purpose was critical... we kept messaging tight, made quick decisions and managed risk proactively."

£53m

cumulative savings as a result of Deliveroo's procurement transformation that have been reinvested in business performance

This approach to adoption required overturning some outdated perceptions of procurement. To do this, "Coupa Experience" sessions were developed and delivered – 78 in total – as well as superuser networks and gamified training.

"You don't just switch on something like this," he advises. "Some practices are cultural and systems alone don't change culture."

Rob's expertise and care in this area ensured those in the procurement team and beyond could focus on the "why" behind the change.

ROB TURNER'S DOS AND DON'TS

- **Do** start with a clear mandate – Know what success looks like before you begin.
- **Do** anchor every decision to value – Whether digital or operational, stay outcome-focused.
- **Do** adopt best practice "out of the box" – Avoid legacy customisation and tech debt.
- **Do** invest in your team's capability early – Confidence drives adoption.
- **Do** embed risk and compliance into workflows – Make the right thing the easiest thing.
- **Do** co-own savings with Finance – Trust and transparency matter more than claims.
- **Do** communicate constantly and credibly – Change fails when people don't understand the 'why'.
- **Do** sequence major programmes intentionally – Resource and decision interlocks must be managed.
- **Do** choose partners that scale with you – Ecosystem thinking is critical for longevity.
- **Do** treat digital transformation as a cultural shift – Technology is only part of the equation.
- **Don't** overcustomise systems – It delays progress and embeds the past.
- **Don't** let perfection delay momentum – Fast execution with strong governance wins.
- **Don't** centralise every decision – Empower teams with frameworks, not bottlenecks.
- **Don't** assume compliance will follow implementation – Build it in from day one.
- **Don't** talk about procurement in procurement language – Speak the language of the business.
- **Don't** go it alone – Partner wisely, both internally and externally.
- **Don't** lose sight of people in the process – Culture, capability and clarity drive success.
- **Don't** chase technology for its own sake – Focus on what problem it solves.
- **Don't** forget the optics – Credibility is earned through consistent delivery and visibility.

Building a digital ecosystem

Speaking with other CPOs, Rob sees varied readiness levels across different sectors. It's clear many procurement professionals lack end-to-end technical understanding of S2P and that many organisations don't leverage procurement's position within the business.

"Too often, procurement professionals work in silos," he explains "some focus only on sourcing, others only on contract management. But with modern, integrated systems, you can't afford to see these areas in isolation. Decisions made upstream – in sourcing, contracting or data entry – directly shape downstream outcomes like efficiency, automation, and the buying experience."

He stresses that a digital ecosystem must solve defined business problems.

"Procurement sits across the organisation. We are in a unique position to join those dots."

"Don't just go get technology for technology's sake," he warns. "If that's not aligned to what your business needs, then you're unlikely to be solving the right problem."

He continues: "The knock-on impact is that, without clear purpose, adoption is likely to be even more challenging."

“Procurement needs to evolve from enforcing policy to developing processes and deploying systems that drive better outcomes by default”

Rob Turner,
Chief Procurement Officer,
Deliveroo

A true digital ecosystem, in his eyes, is “a principle-led, problem-focused architecture… built to solve real business challenges, with every component working in unison, strengthening the whole”.

The future of procurement

Procurement is entering a phase of optimisation, focusing on continuous improvement, data enrichment and simplification. By building team capability, more time is spent in other areas of the business, driving wider value.

At the same time, future value will be driven by partnerships for innovation and new commercial models, just as Deliveroo’s integrated digital ecosystem spans intake, sourcing, contracts, onboarding, P2P, payments, analytics and document processing. This enables real-time risk, cost and compliance management.

“Without that, you’re stuck in manual mode,” emphasises Rob. “Procurement needs to evolve from enforcing policy to designing, deploying and using technology that drives better outcomes by default.”

Looking ahead, he sees a shift from “transactional automation to intelligent orchestration” as predictive analytics, real-time risk sensing and AI-assisted negotiations take a more central role, but technology must be paired with mindset change.

For Deliveroo, the next 18 months are about embedding change, unlocking ecosystem potential and building the capabilities to lead in intelligent spend management.


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has been stopped
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ON THE PUMP
1 Select Rewards
2 Select TD Rewards
3 Select Loyalty ID and enter your alternate ID
ON THE PHONE
4 Open the Twice Daily Rewards and Select Pay
5 Select Fuel Up and Enter your PIN
6 Enter Pump Number and Confirm Number
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SAVE
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Ethanol Information
Additional information about ethanol blended gasoline may be found inside the store.
All gasoline products contain up to 10% ethanol by volume.

IDENTITY: THE UNSEEN FRONTLINE OF MODERN CYBER WARFARE

Sparked by breaches like **Colonial Pipeline,** a strategic shift to Zero Trust is now essential as a Cisco study shows identity defences are failing

WRITTEN BY: MARCUS LAW


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NO SMOKING
PERSONS USING DISPENSERS WITH HOLD-OPEN LATCHES MUST REMAIN AT THE REFUELING POINT DURING REFUELING
IT IS UNLAWFUL TO DISPENSE GASOLINE INTO UNAPPROVED CONTAINERS
WARNING - FIRE HAZARD
BUY 3, SAVE
WITH SPEEDY REWARDS®
10¢ Per Gallon
ON GAS
the RED BULL
DIESEL
UNLEADED
UNLEADED PLUS
PREMIUM
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GASOLINE
SURE can

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This was the real-world result of a single compromised password. In May 2021, long lines formed at gas stations across the US Southeast, with the panic caused not by a natural disaster, but by the shutdown of the Colonial Pipeline.

The entry point for the hackers was shockingly simple. Testifying before the US Senate, then-Colonial Pipeline CEO Joseph Blount confirmed the hackers gained entry via a single legacy VPN account that lacked basic, modern security. “In the case of this particular legacy VPN, it only had single-factor authentication,” he told senators. One password, without a second check, led to a declared state of emergency.

This is the new cybersecurity frontline. While many imagine cyber warfare as complex code breaking, the reality is often simpler and more devastating. A recent Cisco study, its 2025 State of Identity Security report, confirmed this is the primary battleground today, with the company revealing that just 33% of IT leaders trust their current security infrastructure to prevent an identity-based attack.

The collapsed perimeter and the zero trust mandate

The concept of a secure corporate network perimeter is an illusion. With cloud infrastructure, countless SaaS applications and a global remote workforce, the network edge is everywhere and nowhere.

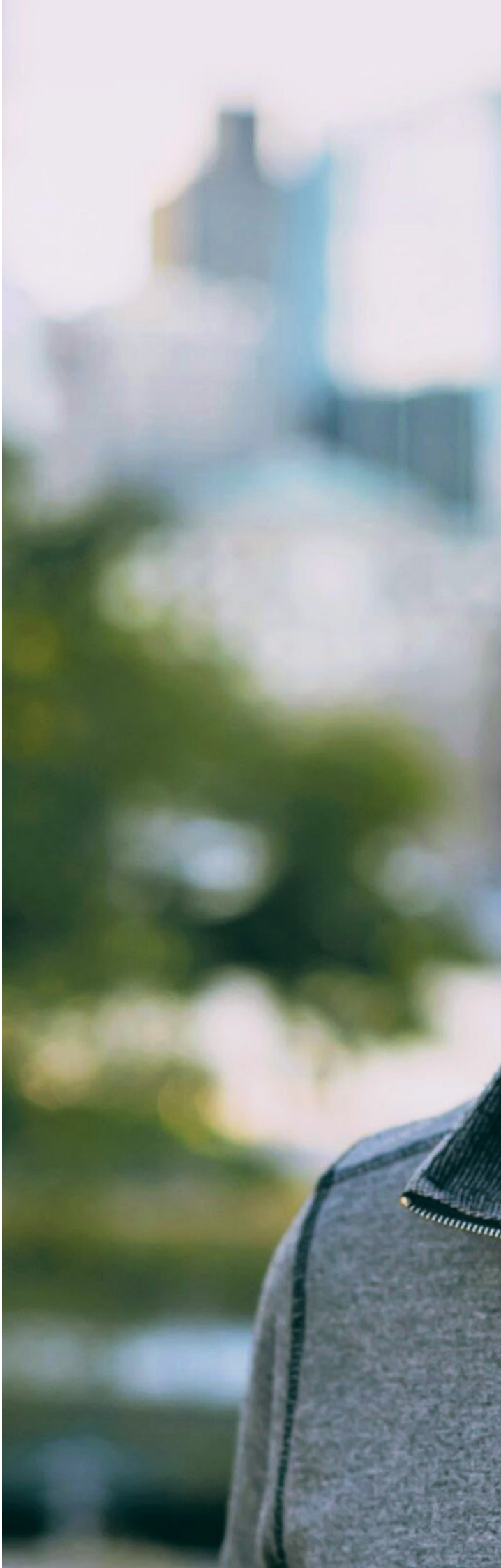
As Matt Caulfield, Cisco's VP of Identity & Duo, notes from the report: "94% of leaders believe that complexity in identity infrastructure decreases their overall security." This complexity is the fog of modern cyber war, creating blind spots that attackers are quick to exploit.

The necessary response is a radical shift in security philosophy "The days of organisations having the luxury of a 'trust but verify' approach are over," comments Jeetu Patel, formerly Executive Vice President and General Manager of Security and Collaboration and now President and Chief Product Officer at Cisco. "In today's complex and hyper-distributed world, organisations must 'never trust and always verify,' taking a Zero Trust approach to security."

The SolarWinds attack serves as a stark blueprint for this failure of trust. Nation-state actors compromised the software build process of SolarWinds' Orion platform by embedding malicious code into legitimate software updates, gaining trusted access to the networks of up to 18,000 customers, including US government agencies. The attack's brilliance was in its subversion of identity and trust: turning a verified software update into a master key.

94%

Leaders who believe that identity complexity decreases their overall security



MATT CAULFIELD

TITLE: **VP OF PRODUCT, IDENTITY & DUO**

COMPANY: **CISCO**

INDUSTRY: **CYBERSECURITY**

LOCATION: **SAN FRANCISCO BAY AREA, US**

Matt leads product strategy for Cisco's identity security portfolio, including Duo Security. He focuses on developing solutions for secure access and multi-factor authentication in modern enterprise environments.

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Jeetu Patel, President and Chief Product Officer, Cisco

Lapsus$: The human element as an attack vector

While nation-states exploit software supply chains, financially motivated groups like Lapsus$ exploit the human supply chain. In 2022, the group successfully breached identity management giant Okta. Their method was not a complex technical exploit, but a simple, effective compromise of a third-party contractor's account.

This highlights the acute risk of the extended enterprise, a concern echoed by the 86% of leaders who worry about inadequate security controls for contractors and third parties, according to Cisco's research.

JEETU PATEL

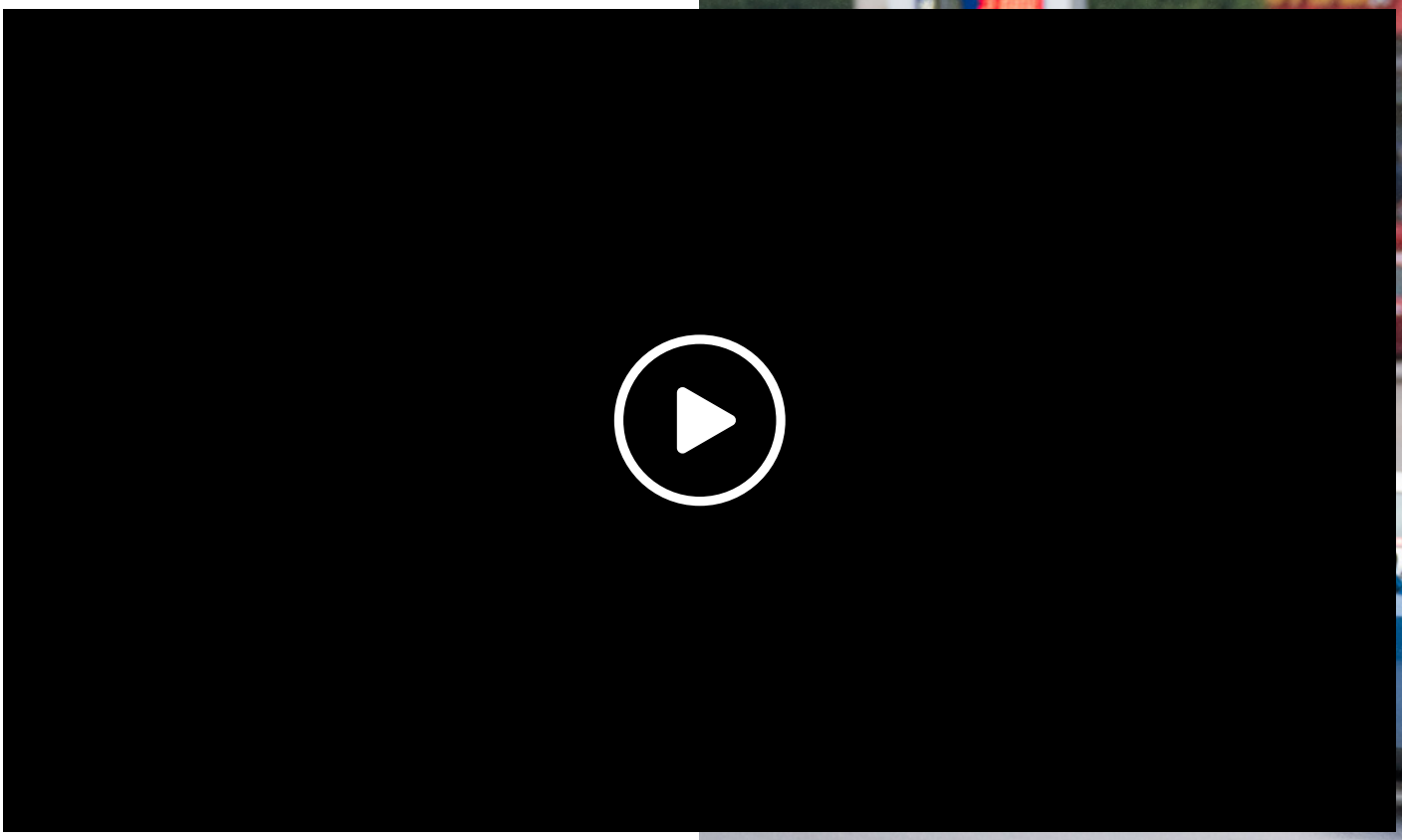
TITLE: **PRESIDENT AND CHIEF PRODUCT OFFICER**

COMPANY: **CISCO**

INDUSTRY: **TECHNOLOGY**

LOCATION: **SAN JOSE, CALIFORNIA, USA**

Jeetu is President and CPO at Cisco, driving the vision and development for the company's entire product portfolio, with a focus on delivering secure, integrated customer experiences.



The statistics on failure are damning, with the report finding that weak or missing Multi-Factor Authentication (MFA) accounts for 36% of all identity breaches.

Furthermore, attackers are now augmenting these human-centric attacks with technology. Caulfield points out that "44% of leaders consider AI-driven phishing one of the top identity threats for 2025," turning social engineering into a highly scalable, automated weapon.

The strategy-implementation gap

While the industry has a clear roadmap for strengthening identity security, the Cisco report reveals significant gaps between strategy and execution. Foundational tools for Identity Governance and Administration (IGA) are becoming standard, yet the deployment of broader Identity Security Posture Management (ISPM) solutions remains limited, with only 32% of IT teams having implemented them.

This gap is most evident in the push for stronger authentication. There is a clear industry trajectory towards a passwordless future, which leaders like Microsoft CEO Satya Nadella describe as moving "to a fundamentally more secure foundation." However, the reality on the ground is different. Adoption of the current gold standard, phishing-resistant FIDO2 hardware tokens, remains critically low at just 19% of companies, with leaders citing token management complexity and cost as major barriers.

74%

IT leaders who admit identity security is often implemented reactively after a breach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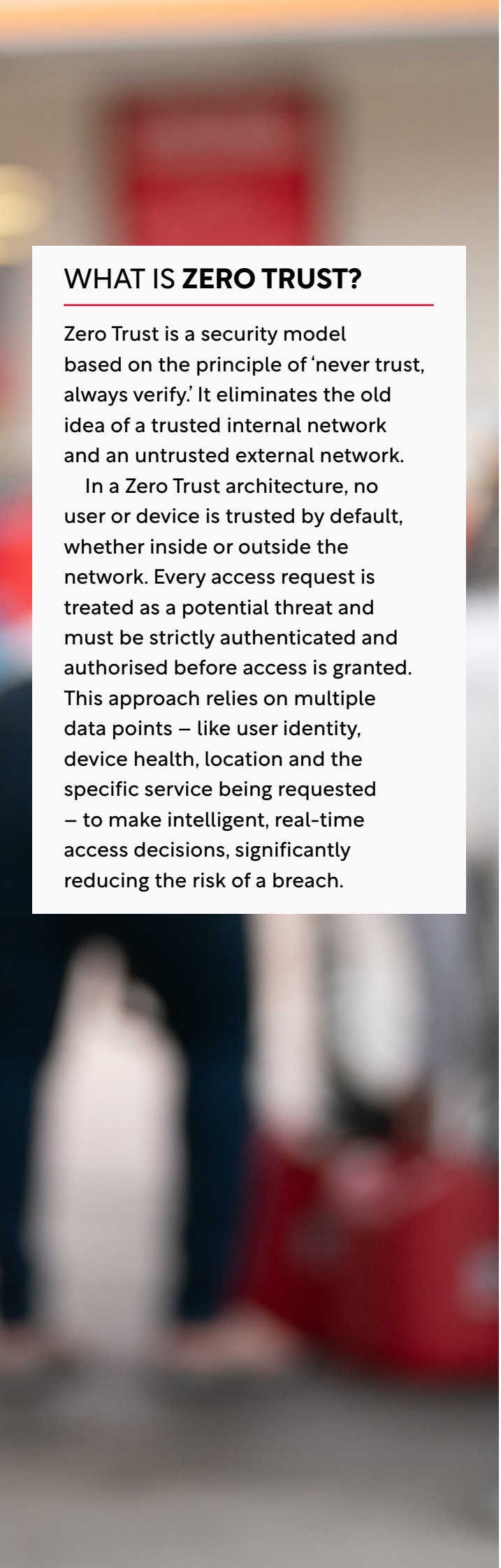

WHAT IS **ZERO TRUST?**

Zero Trust is a security model based on the principle of 'never trust, always verify.' It eliminates the old idea of a trusted internal network and an untrusted external network.

In a Zero Trust architecture, no user or device is trusted by default, whether inside or outside the network. Every access request is treated as a potential threat and must be strictly authenticated and authorised before access is granted. This approach relies on multiple data points – like user identity, device health, location and the specific service being requested – to make intelligent, real-time access decisions, significantly reducing the risk of a breach.

"ORGANISATIONS MUST 'NEVER TRUST AND ALWAYS VERIFY,' TAKING A ZERO TRUST APPROACH TO SECURITY"

Jeetu Patel,
President and CPO,
Cisco

Similarly, while 87% of leaders consider Identity Threat Detection and Response (ITDR) to be crucial, its effectiveness is often undermined by poor data integration. The report found that only 52% of organisations have fully integrated their identity and device data streams, hindering the real-time visibility needed for an effective response. The root of these issues is often a reactive culture; a significant 74% of IT leaders acknowledged that identity security is typically implemented following a security breach or to meet compliance mandates, rather than as a proactive strategy.

As Matt Caulfield concludes, this mindset is no longer viable: "At Duo, we know that managing who accesses what, from where and on which device is not just a daily challenge – it's a strategic imperative."

CENTRALRETAIL

BRIDGING VIETNAM'S SU MODERNISAT

WRITTEN BY:
LIBBY HARGREAVES

PRODUCED BY:
JONATHAN CARR

UPPLY CHAIN
ION GAP

Central Retail in Vietnam is reshaping supply chains by focusing on centralisation, foundational skills and a people-first approach to support retail growth

Vietnam's supply chain industry is facing a crisis of execution; the theory of modern logistics is well-known, but putting that knowledge into practice remains just out of reach for some. The industry must pivot from outdated, traditional processes to a modern, efficient model to capture future growth.

Central Retail in Vietnam (CRV), part of Thailand's Central Retail Corporation, is hoping to lead this transformation through education, by raising standards, strengthening supplier relationships and driving both centralisation and collaboration. Bringing nearly 40 years of experience, CRV's Chief Supply Chain Officer Mike Reid – or bác Mike, as he has become affectionately known – believes focusing on people is the way to achieve these goals across the region.

"First and foremost, I'm passionate about my team, people, building teams and developing teams – and just as passionate about retail supply chain," he says.

Mike's journey to CRV includes senior roles in the UK and across 12 Asian markets, including in China, Hong Kong, Singapore and Thailand, before arriving in Vietnam.


XIT
RETAIL

“First and foremost, I’m passionate about my team, people, building teams and developing teams – and just as passionate about retail supply chain”

Mike Reid,
Chief Supply Chain Officer,
Central Retail in Vietnam

“You never know when you set out where you’re going to end up,” he adds. “I embrace a mindset to go and gather new experiences, meet new people and sometimes find new environments to apply what I love doing, with fresh challenges and different teams.”

This has given Mike a wealth of experience with different cultures and different ways of leading and landing transformative change. Now, CRV operates more than 330 stores and welcomes in excess of half a million daily visitors.

“Last week, I was in Yen Bai for a new hypermarket opening,” he reflects. “The store was absolutely bouncing. That’s what’s really special – reaching people far from the big cities with a modern retail offer.

“We put the customer first,” Mike continues, “and we put service before cash, and cash before cost.

“If you take care of customers, you win their loyalty, then you win the volume and, ultimately, the efficiency game follows.”

This approach extends to CRV’s internal operations. Mike explains that the CEO is focused on cross-functional collaboration, breaking down silos and other people-led shifts. For him, this is a reflection of Vietnam’s welcoming culture: “It’s probably the easiest place I’ve been to build teams.”

He adds that most people, especially the younger generations, are “genuinely engaged to listen, learn and apply new skills and new ways of operating.”

While other cultural differences across Asia and beyond do shape the way retailers do business, Mike prefers to focus on common ground: “Everyone loves an opportunity to get on and everyone loves to enjoy themselves at work. If you treat people the way you expect to be treated, you won’t go far wrong.”

As Vietnam’s retail sales rise – up 10.6% in 2025 according to the National Statistics Office – CRV’s people-first approach is setting it up for a future of continued growth.

Closing the modernisation gap

There is increasing awareness in Vietnam of modern supply chain principles, such as centralisation and digitalisation, but, like many regions, the area faces a gap between theory and practice.

Mike highlights an uncomfortable truth for some: technology can’t simply replace foundational processes.

MIKE REID

CHIEF SUPPLY CHAIN OFFICER

Mike is a Transformational Supply Leader, passionate about building supply chain capability and delivering world-class results. He has outstanding experience in logistics, demand planning & ecommerce fulfilment for hypermarkets, supermarkets, health & beauty stores, conveniences stores & general merchandise retailers in 13 different markets across UK & Asia.

"I want to talk to them about delivering their goods on time, on pallets and in proper packaging with the correct bar code," he says. "The robots won't work if we don't have barcodes in the system, if the supplier's trucks don't turn up on time or they don't deliver what we order. Some major FMCG suppliers regularly fail to deliver more than 30% of orders."

This reliance on technology over process, coupled with a lack of modern training, leaves major gaps.

"Teams here haven't been exposed to the right sort of training – basic root cause analysis, the five-whys and other problem-solving skills and routines…that's what we take for granted," he goes on. "That foundational skillset has been missed by the younger generation."

CRV's answer is its Supply Chain Academy, where comprehensive training meets on-the-ground work. Staff gain expertise in the entire supply chain: warehouse management, transport logistics, load security, temperature

control and rigorous store checks. The programme then builds on this foundation, introducing strategic skills like problem-solving, change management and advanced demand planning – ensuring attendees have an overview of both basic forecasting and modern, data-driven methods.

"If there's a problem, we don't just talk about it. We take the team straight to the source, the warehouse or the store, to conduct root cause exercises together in real-time," notes Mike.

"We're trying to change an industry and build up supply chain as a real modern profession in Vietnam"

Mike Reid,
Chief Supply Chain Officer,
Central Retail in Vietnam

Some other flaws exist in Vietnam's supply chains, as Mike explains: "There's not a lot of collaboration or coalition between suppliers and retailers."

He says they have a fear of losing control, stopping them from embracing centralisation, but argues "the direct to store model actually dilutes the control, undermines availability and loses sales."

Another issue is trust with logistics providers. "Traditionally, Logistics Service Providers have endured short-term procurement and price-led transactional processes," Mike says. "The focus is on a narrow part of the value chain, rather

than on developing long-term, sustainable, and efficient supply chain solutions."

Mike explains that he worked hard to correct this imbalance: He explains: "We're prepared to commit for the longer term and build partnerships where both parties can truly win."

He adds: "FM Logistic and GEODIS are just two great case studies where we have successfully transitioned from a transactional approach to a true partnership model to remove supply chain bottlenecks and create end-to-end value."

Crucially, this commitment extends to joint investment in shared equipment, such as roll cages and plastic crates, which directly improves product freshness, load stability and transport efficiency for everyone.

For Mike, chasing automation without strong foundations would be another big mistake. So, what's CRV's solution?

"Let's first of all start with suppliers delivering what we order, on time, in full, so that we can deliver what our stores want when they need it."

10.6% RISE

IN VIETNAMESE RETAIL SALES IN 2025

Building modern retail foundations

A centralised distribution centre improves local conditions, reduces environmental impact and boosts national supply chain efficiency.

Mike asserts: “It’s going to take key industry leaders in Vietnam to wake up to the fact that coalition, collaboration and centralisation are absolutely essential for Vietnam’s prosperity.

“Most people wouldn’t be able to imagine running a chain of hypermarkets without a centralised supply chain,” he says. However, in Vietnam the logistics inefficiency is clear: “Compared to Thailand, Vietnam has twice as many trucks registered… yet hauls half the payload.”

Mike warns that, without addressing structural constraints, suppliers will miss growth opportunities: “The direct to store delivery model does not work, yet many large suppliers that should know better than to cling to that outdated way of working. Their constrained supply chain is holding the country back, holding their business back.”

For him, this is as much about people as it is about operations.

“The robots won’t work if suppliers don’t deliver what we order”

Mike Reid,
Chief Supply Chain Officer,
Central Retail in Vietnam


CENTRAL RETAIL
SUPPLY CHAIN
#ONETEAM

"We're trying to change an industry and build up supply chain as a real modern profession in Vietnam," he adds.

The P&G partnership: a blueprint for change

CRV has put its modernisation theory into practice through its landmark collaboration with P&G and other suppliers.

Mike explains: "Previously, CRV had not put in place the foundations... we didn't connect the systems, we didn't have the right routines in place; people don't know what they don't know. We had to collaborate differently."

With P&G, the difference was a shared commitment to change.

"They said, 'we'll do this with you'. P&G have got a hunger for trying to do things differently and challenge the status quo in Vietnam."

Starting with mini go! stores, CRV improved delivery frequency by shifting from direct store shipments to centralised DC-based fulfilment.

"Almost immediately on-shelf availability started to improve," says Mike, "and the stores saw sales going up."

The result was a smooth transition across formats and regions with


GO!
LOUIS COFFEE


FM LOGISTIC
CENTRAL
PARTNERSHIP FOR A BETTER SUPPLY CHA
ĐỐI TÁC CHIẾN LƯỢC VÌ CHUỖI CUNG ỨNG
TẠI VIỆT NAM
FROM
COLLABORATI
TRANSFORM

"no disruption to stores, without any negative consequence. This actually made work for team members in stories easier."

One central element to the transition was transparency: "We developed a dashboard that can give suppliers visibility of in-store out of stocks for each of their SKUs in each of the stores every day."

The aim was not blame, but clarity – in other words, "Whatever is wrong, let's take action to fix it."

This improvement to data led to more reliable ordering and clearer root cause analysis. The hope is that P&G's example will now encourage other suppliers to follow.

Mike expands: "We found someone willing to take that step and now I don't think they could imagine a different way of doing business."

A vision for Vietnam's supply chains

Ultimately, CRV wants to lift the entire industry's standards, with ambition extending well beyond its own operations.

"Success breeds success," says Mike. "The more people see it working, the more willing people will be to get on board."

CRV's focus on training, collaboration and foundational excellence lays the groundwork for a retail supply chain that is efficient, resilient and ready for future growth.

Mike concludes: "That can only help Vietnam grow when more people start to enjoy the benefits of modern retail."

How Google Clo and Wiz are Reshaping Multi Cloud Security

By pairing with Google Cloud, Wiz builds a cloud-native security solution that scans risks in minutes and scales easily for global enterprises

WRITTEN BY: MAYA DERRICK

WIZ

+

Google Cloud

Cloud-based infrastructures promise enterprises huge benefits – from on-demand resources to global scalability and embedded resilience. However, layering security effectively across these shifting environments has proven a challenge. For fast-rising cloud security startup Wiz – which was acquired by Google's parent company, Alphabet, for US$32bn in March 2025 – the mission is clear: provide total visibility into all risks, without adding complexity.

Despite only being founded in 2020, Wiz has quickly become one of the world's most in-demand cybersecurity providers, offering an agentless, graph-based cloud-native application protection platform (CNAPP). Companies deploying Wiz gain the ability to instantly scan their cloud environments – whether virtual machines, containers or serverless services – and visualise attack paths that connect seemingly minor misconfigurations into major risks.

"With the Wiz Security Graph, we provide full visibility and context into every cloud resource and the relationships between them to uncover the toxic combinations of risk that create attack paths in your cloud," says Oron Noah, Director of Product Management at Wiz.

WIZ

HEADQUARTERS: NEW YORK, US

NUMBER OF EMPLOYEES: 3,000

Wiz Co-Founders
(left to right)
Yinon Costica,
Assaf Rappaport,
Ami Luttwak,
Roy Reznik

Building for multi-cloud from the start

After launching its initial product, Wiz immediately gained attention from large organisations operating across multiple cloud platforms. If Wiz was to meet this demand, it had to mirror their reality – multi-cloud, hybrid and distributed infrastructures. The company turned to Google Cloud not only as a core infrastructure partner but as a gateway to scale its growth.

"We support our customers wherever they are," says Yinon Costica, VP of Product and Co-Founder of Wiz. "One of our largest customers operated a multi-cloud infrastructure and we knew that we had to adopt the same approach. With Google Cloud, we built the foundation for a security solution that could cater to the variety of cloud environments. We also benefit from our Google Cloud Marketplace partnership to reach new Google Cloud customers."

The decision was motivated not just by customer need but by the flexibility of Google Cloud's developer tools. Wiz quickly established its security platform within Google Cloud,

Google Cloud

HEADQUARTERS:
NEW YORK, US

NUMBER OF EMPLOYEES:
3,000

taking advantage of Kubernetes – the open-source container technology originally developed at Google – to ensure portability across environments.

"The way that Google Cloud implements Infrastructure-as-a-Code principles meant that we worked very quickly," says Scott Sumner, Cloud Services Provider Alliance Manager at Wiz. "We were up and running within a month."

Google Cloud also offered unique tools to simplify and strengthen security. "The Identity and Access Management Recommender tool is a unique bonus of Google Cloud," Scott adds. "We can share an incredibly rich level of detail with our customers and surface information that can very quickly identify vulnerabilities."

Demonstrating security at speed

For Wiz, security must not come at the cost of agility. Unlike traditional security agents that burden infrastructure, Wiz connects natively to customers' cloud environments using API-only architecture.

"By using API-only connectors, rather than deploying agents, we can seamlessly scan our customers' infrastructure with zero friction to the instances and no management overhead," Oron explains.

This efficiency has proven particularly valuable for regulated industries like finance and healthcare – Wiz can scale from lightweight connections across open infrastructure to fully embedded deployments in highly sensitive

2020

Wiz was founded by Assaf Rappaport, Yinon Costica, Roy Reznik and Ami Luttwak, all veterans of Microsoft and Israel's elite Unit 8200 intelligence unit

2022

Achieved fastest SaaS startup milestone, scaling from US$1m to US$100m ARR within 18 months of launch

EARLY 2024

Reached US$350m ARR, securing 45% to 50% of Fortune 100 companies as customers

WIZ

LATE **2025**

Wiz aims to hit US$1bn ARR, expanding multi-cloud capabilities and customer base worldwide

EARLY **2025**

Alphabet, the parent company of Google, announced the US$32bn all-cash acquisition agreement to purchase Wiz

LATE **2024**

Secured US$500m ARR and became one of the fastest-growing cybersecurity startups globally

environments, all without slowing operations or limiting compliance.

Automation has been just as pivotal. Google Kubernetes Engine and related managed services enable a small team at Wiz to deliver enterprise-scale solutions. “We go to market very quickly with Google Cloud,” Oron says. “We can put our energy into developing new tools that respond to our customers’ specific needs.

“The automations we get with Google Cloud are very important for us. Say a customer acquired a new company and expanded their Google Cloud environment as a result. We would automatically have scanned their cloud and be able to uncover risks within minutes, instead of days or weeks.”

WATCH NOW
See and secure your Google Cloud environment with Wiz

Responding to global threats

Wiz’s ability to react quickly has been tested repeatedly. In December 2021, a severe vulnerability in the

Wiz employees

Log4j Java logging library shook the security community, leaving enterprises scrambling for solutions. Wiz immediately integrated detection into its platform, helping both customers and new prospects triage their risks.

"We were able to identify and visualise the Log4j vulnerability very quickly for new customers," Scott explains.

This sheer speed has fuelled Wiz's reputation. Within only a few years of launching, the brand has become one of the fastest-growing cybersecurity startups globally, already working with a significant roster of Fortune 500 companies.

Wiz's trajectory is rooted not just in technology but in partnerships. Its close integration with Google Cloud services ensures the platform evolves alongside new cloud innovations.

"We've got a great relationship with several product teams at Google Cloud," Oron says. "It means we can onboard new tools into our platform and make them visible to our customers. They can also learn from us about how we use their tools. We'd like to keep working side by side with Google Cloud, enhancing both sides of the partnership."

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Building Resilie Infrastructure for the AI Era

WRITTEN BY:
MATT HIGH

PRODUCED BY:
LEWIS VAUGHAN

nt

Vineet Kapoor on how the managed services provider helps enterprises navigate hybrid cloud transformation and build foundations for AI adoption

Regardless of industry, services or area of expertise, there's one perennial question facing business leaders: how do you stay agile in a constantly changing market? That's a hard enough task on its own. Add in legacy technologies, complex hybrid cloud transformation programmes and the need to harness AI, and the ability to flex and adapt quickly becomes even more pressing – and more difficult.

Tackling the challenge alone won't bring successful transformation. That's why partners like Ensono exist. The Illinois-headquartered company is an expert technology advisor, innovation partner and managed services provider that serves organisations across industries and geographies looking to optimise, evolve and innovate.

It does so through an approach centred around 'relentless allyship', a philosophy that brings together broad experience and deep expertise managing sophisticated IT environments with transparency, flexibility and a client-centred culture dedicated to disrupting the status quo.

Ensono applies this focus via a wide range of hybrid IT transformation services across mainframe, private cloud and public cloud with the

Vineet Kapoor,
Senior Vice President
of Global Infrastructure,
Ensono

goal of helping enterprise clients innovate, grow and operate seamlessly in both legacy and modern environments.

"Our three-step approach sets us apart in how we create a path from legacy to modernisation," says Vineet Kapoor, SVP of Global Infrastructure. "We're not a typical consulting company. We don't come in, talk about spreadsheets, PowerPoints or strategies and then leave the client with a bunch of paperwork.

"We start with a very roll-up-our-sleeves approach to the work, solving the problems at hand right away to give the client the space and capability to focus on their organisation's biggest priorities," he says. "Our goal is to start delivering measurable outcomes from day one.

"Then we focus on creating a plan for generating real and sustainable value for IT and their business, getting them on the path to modernisation," Vineet explains. "Finally, we work together to build a longer-term and forward-thinking strategy around legacy decoupling."

The critical success factor: aligning technology goals to business outcomes

This last element of Ensono's approach – helping clients decouple components where they are heavily dependent on legacy infrastructure – is central to its modernisation philosophy and crucial for enabling businesses to unlock value and become future ready.

"Think about the investment that companies have made in their legacy infrastructure over the years," says Vineet.

VINEET KAPOOR

SENIOR VICE PRESIDENT OF GLOBAL INFRASTRUCTURE

Vineet Kapoor, Senior Vice President of Global Infrastructure, brings over 30 years of industry experience. He has led complex infrastructure portfolios and established high-performing teams across multiple geographies, ensuring optimal talent deployment and cost efficiency. His career includes leadership roles at Aon, JP Morgan Chase, General Electric and Ericsson. Vineet has extensive expertise in public cloud initiatives, overseeing large-scale transformations on Azure, AWS and GCP. His work is focused on aligning strategic objectives with operational execution, enabling sustainable business outcomes. Kapoor's global perspective and technical depth continue to advance the organisation's infrastructure capabilities and its competitive position in the market.

"Taking them from legacy to modern on a pure technology path is only one aspect of transformation. More importantly, and where our capabilities come in, is giving them the flexibility to de-link their old dependencies and build a foundation upon which they can innovate."

Recognising that a wholesale, one-size-fits-all transformation rarely yields results, Ensono's core focus is on creating a hybrid cloud transformation strategy that allows legacy infrastructure

> **“AI adoption is such a deep-rooted conversation with all our clients – it’s where nearly every discussion about transformation and strategy starts”**

Vineet Kapoor,
Senior Vice President
of Global Infrastructure,
Ensono

to continue operating efficiently and effectively, while adoption of modern platforms progresses at pace.

“On one hand, you’re looking at a legacy technology that runs mission-critical workloads and has to continue to operate,” says Vineet. “On the other hand, adoption has to be fast. Our role is to create a hybrid path for clients that delivers a seamless journey to transformation. Successful transformation is not just about keeping the lights on, it’s about how you drive growth and spur organisation-wide innovation.”

Vineet knows this reality as well as anyone. With over 32 years’ experience in the tech sector, his career has

panned leadership roles at major organisations including Aon, JPMorgan Chase, General Electric, Ericsson and more.

"I've learned over the years that the critical success factor is aligning technology to business outcomes," he says. "In order to do that you need to foster resilient teams, embrace change and be open to technology and IT becoming a strategic enabler rather than a support function – this is a key evolution I've seen over my career.

"This is what we help to drive at Ensono. Our focus is on finding ways to deliver scalable and future-ready solutions that empower our clients so that we can innovate together."

Addressing the challenges related to legacy infrastructure

The impact of legacy infrastructure on an organisation's ability to transform and innovate extends beyond technology itself, says Vineet. Technology debt is closely tied to workforce availability, relevant skills, rising costs and governance challenges."Workforce is one of the biggest challenges for clients today," he explains. "With sprawling infrastructure estates that span mainframe, private and public cloud, it's difficult to find talent that can manage both legacy and modern environments. When it comes to mainframe talent, for instance, the average age of professionals in the industry is 55."


203
IBM
z16

To address this, Ensono has made workforce development a strategic priority. Through initiatives like the Mainframe Academy, Ensono is cultivating the next generation of mainframe engineers, equipping early-career professionals with the skills to support critical systems while helping clients bridge the growing talent gap created by an aging workforce. This programme not only sustains essential mainframe expertise but also ensures continuity as enterprises modernise.

Vineet describes this combination of technical capability and talent enablement as Ensono's "superpower" in the mainframe and hybrid IT space. "We bring together the right tooling, processes and people, helping clients optimise legacy systems, integrate cloud platforms and modernise at a sustainable pace."

This holistic approach acknowledges that not all workloads belong in the cloud, nor should all remain on-premise. "If you don't have the right workload placement strategy, you risk higher costs, loss of governance and control, even if you're innovating faster," Vineet adds. "A hybrid approach allows clients to make smarter, data-driven decisions about where workloads run best, ensuring flexibility while maintaining the stability of their core systems."

Balancing agility, governance and cost control

Any transformation requires a delicate balancing act. In particular, Vineet highlights how moving fast while maintaining compliance,

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security and cost discipline requires an effective strategy that enables resilience and scalability under uncertainty.

Ensono brings a well-tested portfolio of capabilities to this challenge spanning automation, policy-driven controls, cost optimisation tools and more, which enable governance and financial discipline.

"We deliver modernisation strategies that preserve business continuity while also unlocking new opportunities," Vineet says. "Whether that means refactoring workloads, migrating to cloud native platforms or enabling AI adoption, we're always pragmatic and outcome driven.

"The question isn't 'How can we adopt AI?'. It's 'What can we do with it and how can we experiment and innovate?'"

Vineet Kapoor,
Senior Vice President
of Global Infrastructure,
Ensono

"It's all about establishing the foundation that's absolutely necessary, then enabling the client to have the flexibility to go in the direction they want to, particularly when it comes to things like AI adoption. As we think about maintaining operational agility, our focus is on creating resilient, well-governed architectures that allow data and workloads to move securely and intelligently, laying the groundwork for scalable innovation and AI readiness."

Data mobility is the foundation for AI success

While the move to cloud delivers advantages for Ensono's clients, the company's strategy goes further, helping organisations build robust, scalable foundations that future-proof their environments. These foundations are essential for unlocking the full value of data and enabling the adoption of emerging technologies like AI.

When it comes to AI deployment, Vineet emphasises that data readiness is paramount. Seamless data movement across hybrid environments forms the backbone of AI success, ensuring that organisations can access, manage and govern their data wherever it resides.

Ensono offers several key services related to data, including data strategy, engineering and management and solutions for AI and machine learning. When working with clients, the company takes a different path to many providers by focusing first on where and how data is organised, before addressing tooling requirements.

250+
CLIENTS

"A lot of providers are thinking about creating AI tooling without considering those key aspects," Vineet says. "We're building AI tooling and have been very successful in doing so, but a lot of what we're building is being deployed in our own environments and then across about 200-plus clients. It's then tested rigorously so we can demonstrate clear value."

The company invests heavily in creating frameworks that help clients organise data, recognising that well-organised data reduces dependence on specific technologies.

"If you can organise the data and create successful frameworks on which these AI tools can be deployed, we feel that clients will see better value as opposed to just bringing a tool in and then trying to figure out what to do with it," Vineet affirms.

Data mobility – or fluidity – is a core enabler for this strategy, and innovation on a larger scale. Managing hybrid environments and creating seamless data movement whilst enabling real-time analytics requires substantial cross-platform integration.

"Innovation thrives on data mobility," Vineet explains. "You can't think about innovating something if your data isn't mobile in the sense that you can extract it, process it, analyse it and then feed it back into the system in perspective of the use case."

Rather than building massive data warehouses, Ensono focuses on creating connectivity, secure data pipelines and intelligent orchestration. This orchestration ensures data flows securely between infrastructure components including mainframe, private cloud and public cloud environments.

"If you're able to get that orchestration you can ensure that data is flowing securely between infrastructure components like mainframe, private cloud and public cloud," says Vineet, "it becomes very easy to unlock both innovation and operational efficiencies. We've built some great AI-enabled tooling that allows us to do that more easily."

Partnerships, collaboration and the future

No successful transformation is delivered alone. Ensono works with a strong partner ecosystem that plays a central role in delivering value to its clients.

The company works with Dell Technologies, as well as IBM, AWS, Azure, Google and Broadcom.

"Our partner ecosystem is absolutely critical," Vineet notes. "We focus on where we add the greatest value and lean on our technology partners for what they do best. It's about how quickly we can adopt, integrate and deliver those innovations to our clients. Across all our partnerships, trust, transparency and shared innovation are key. It's not just about technology, it's about co-creating solutions that deliver measurable impact for our customers."

"Our relationship with Dell Technologies is a good example of this," he adds. "It plays a vital role in how we're able to deliver very robust and scalable infrastructure, providing the hardware foundation for many of our core infrastructure products, particularly our private cloud. That gives us high performance server and storage capability and helps with some of the hyper-converged platforms that we are looking at in the future."

Operating environments are getting increasingly complex, with the pace of technology innovation and adoption not slowing. In particular, Vineet considers accelerated AI adoption a key trend for the immediate future, representing a fundamental market shift.

3,800+
ASSOCIATES

"It's not just a board conversation anymore," he states. "AI has become the foundation of nearly every client conversation. It's where discussions around transformation and strategy begin. Once that shift happens, the focus quickly moves from adoption to acceleration, driving innovation and growth at scale.

"That means deeper integration with multi-cloud strategies, a growing emphasis on stability and cyber resilience, greater attention to compliance and governance and underlying infrastructure, and a continuous focus on data agility. The question leaders need to be asking isn't 'How can we adopt AI?', it's 'What can we do with it and how can we experiment and innovate?'."

Within this context, Vineet says Ensono will focus heavily on how to unlock the potential of the data running on legacy infrastructure, make it more mobile and continue to empower innovation for clients.

"In order for that AI adoption to occur, there has to be a deeper focus on integration of multi-cloud strategies," he notes. "Our focus is on scaling, modernisation and enhancing client experience, bringing everything together to provide value and successful outcomes."

WHITE PAPER

unicorne

Managing AWS Cost Optimisation in the Gen AI Era

WHITE PAPER WRITTEN BY:
MARCUS LAW

PRODUCED BY:
OLIVER REEK

MANAGING AWS COST OPTIMISATION IN THE GEN AI ERA

Generative AI has changed how organisations manage AWS spending, demanding new approaches to resource-level analysis

EXECUTIVE SUMMARY

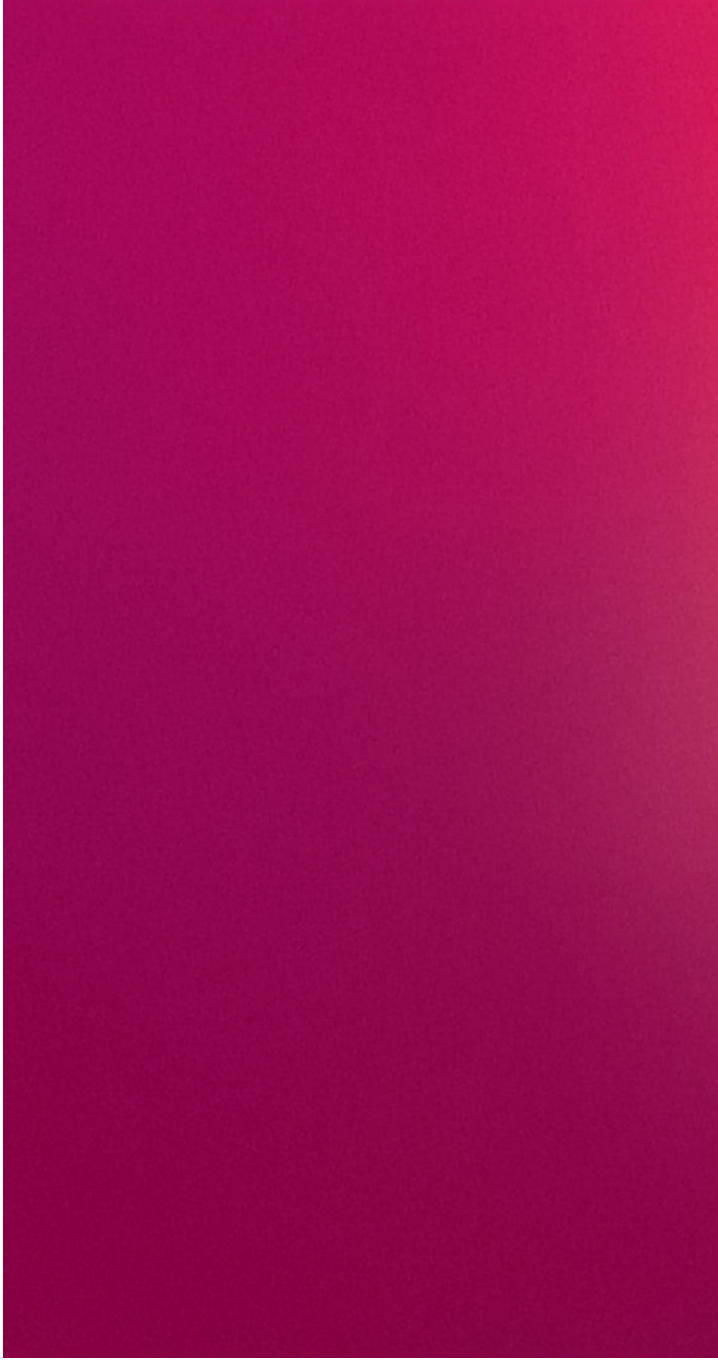
A startup's AI chatbot goes from $4,000 in month one to $47,000 by month three. A development team 'saves' $200 on database costs only to add $900 in Lambda expenses. An infrastructure audit reveals 847 EBS from instances deleted years ago, quietly draining $2,100 every month.

Cloud costs have become technology's silent crisis: the budget line that spirals whilst everyone assumes someone else is watching it. The arrival of Gen AI has transformed a manageable problem into an urgent one. The question facing CTOs today isn't whether to optimise but how to do it without killing innovation velocity.

75%
of enterprise workloads remain on premises

70%
of Fortune 500 companies run on software from 20 years ago

66%
administrator productivity increase after migration to AWS



Despite cloud computing's maturation, a significant portion of enterprise workloads remain on-premises. According to AWS, 75% of enterprise workloads remain on premises, with 70% of Fortune 500 companies still running on software written over two decades ago.

Two concerns drive this hesitancy: unpredictable costs and security governance. Organisations that have spent decades managing physical infrastructure understand their capital expenditure models and the shift to operational expenditure, where costs can scale unexpectedly, represents a loss of control that leadership teams find uncomfortable.

When data centres sit within your building, security boundaries feel tangible. Moving to the cloud requires trusting a shared responsibility model that can feel abstract.

Yet these concerns obscure a bigger risk: competitive stagnation.

The case for AWS migration

The data tells a clear story. Modernising on AWS enables streamlined operational practices that lead to measurable results: infrastructure costs drop by an average of 20% through elastic scaling and elimination of over-provisioned capacity, and administrator productivity increases by 66% as teams automate routine maintenance and patching.

Time-to-market improves dramatically. New features reach production 43% faster through rapid provisioning and deployment. Staff can redirect 29% more of their focus toward innovation rather than maintaining infrastructure. Security incidents decrease by 45% through AWS's shared responsibility model and continuous updates. But these benefits only materialise with proper cost governance. Without disciplined FinOps practices, the elasticity that makes cloud powerful transforms cost savings into budget overruns.

ÉRIC PINET

CEO AND CO-FOUNDER, UNICORNE

Eric Pinet is CEO and Co-Founder of Unicorne, an AWS Advanced Tier Partner based in Quebec City specialising in cloud-native application development and infrastructure optimisation. Since founding the company in 2018, Eric has led Unicorne, helping startups and SMEs optimise their AWS cloud investments. Under his leadership, Unicorne developed Stable, a SaaS platform providing intelligent cost optimisation recommendations and resource-level insights for AWS environments. With a strong focus on FinOps practices, Eric and his team of AWS-certified experts enable organisations to reduce cloud spending while maintaining performance and reliability.

The cost crisis

AWS releases thousands of updates annually, each carrying cost implications that even experienced teams struggle to track. Database engines reaching end-of-support and triggering RDS Extended Support, S3 storage class mismatches as usage patterns shift, and increased application logging or metrics queries can seem individually minor but are collectively significant.

Modern applications run across distributed architectures where everything connects to everything else, and costs interact in non-linear ways.

Load balancers, auto-scaling, cross-region transfers and detailed logging create interdependencies where optimising one component inadvertently increases costs elsewhere.

"With thousands of updates each year, even seasoned teams can't keep up," says Éric Pinet, CEO of Unicorne, a company that specialises in AWS transformations. Before founding Unicorne in 2018, Éric spent eight years managing development teams of up to 125 people. "Add to this the complexity of interdependencies and costs become impossible to predict without the right tools."

Today, the company's SaaS offering, Stable, constantly monitors enterprise AWS infrastructure from Lambda functions to ElastiCache clusters, providing real-time, smart alerts and savings recommendations.

A four-level framework for optimisation

Éric's team developed a framework over years of managing infrastructure across multiple organisations. The approach prevents teams from jumping to complex architectural changes whilst overlooking easy wins that deliver immediate impact.

Level 1: Quick wins (days)

These require no downtime, architectural changes or code deployments.

THREE MISCONCEPTIONS THAT PREVENT OPTIMISATION

1. **THE DOWNSIZING TRAP:**
"Downsizing can slow workloads so much that they end up costing more," Éric warns. An undersized database creates bottlenecks, causing applications to retry requests and spawn processes.
The solution isn't about making resources smaller but about matching capacity to actual demand, plus a reasonable buffer.

2. **THE PROJECT MENTALITY:**
Another misconception is that optimisation is a one-time project.
"Like security, it must be continuous," Éric says.

3. **THE NATIVE TOOLS ILLUSION:**
"There's the belief that AWS's free tools are enough," Éric adds.
"They can be helpful, but they are generalist and often late. We've consistently found savings of 30% or more through deeper analysis."

Reserved instances, savings plans and spots instances can reduce costs 30–70% for consistent workloads, while unused resource cleanup identifies orphaned snapshots, unattached EBS volumes, forgotten AMIs and idle load balancers. Storage class optimisation moves rarely accessed S3 data to cheaper tiers, and region cost arbitrage takes advantage of regional price differences for non-latency-sensitive workloads.

"We've seen clients cut 37% off their cloud bills in just three months by following this sequence," Éric shares. "In one case, 60% of the savings came from the quick wins alone, implemented in the first week."

Level 2: Low-hanging fruit (weeks)

Once quick wins are implemented and teams see tangible results, they're ready for optimisations requiring brief maintenance windows or minor code changes. Right-sizing instances address over-provisioning, where utilisation analysis often reveals 40-w60% idle capacity.

"We've seen immediate savings of 20% simply by switching from x86 to ARM-based Graviton2 processors," Éric reports. Lambda memory optimisation requires testing but can produce dramatic results. "Right-sizing Lambda memory has produced reductions of up to 85%: one client saved $38,000 annually this way," he says.

Level 3: Architectural changes (months)

With momentum established, teams can tackle optimisations requiring substantial engineering effort. Serverless migration

KEY TAKEAWAY

Time-to-market improves dramatically. New features reach production 43% faster through rapid provisioning and deployment. Staff can redirect 29% more of their focus toward innovation rather than maintaining infrastructure. Security incidents decrease by 45% through AWS's shared responsibility model and continuous updates

"We've consistently found savings of 30% or more through deeper analysis"

ÉRIC PINET,
CEO,
UNICORNE

"With thousands of updates each year, even seasoned teams can't keep up"

ÉRIC PINET,
CEO,
UNICORNE

KEY TAKEAWAY

Resource-level analysis of a development database can be game-changing. Unicorne found switching from hourly backups with 90-day retention to daily snapshots in development and more reasonable production policies saved one client $2,000 per month

eliminates idle capacity costs for appropriate workloads, while database engine changes can have major impact.

"Aurora Serverless often looks attractive but can cost up to seven times more than a dedicated RDS instance," Éric describes. "By switching back, one client saved 75% – nearly $20,000 per year."

Level 4: Strategic commitments (ongoing)

Enterprise discount programmes provide tiered discounts for organisations spending more than $500,000 annually. FinOps culture embeds cost awareness into engineering through real-time dashboards, tagging for accountability and budget alerts that make costs visible to everyone.

Why resource-level analysis matters

Most teams rely on AWS Cost Explorer to understand their spending. The tool shows service-level totals (RDS, S3, Lambda, CloudWatch), but these

numbers only tell a partial story. Éric uses one client as an example. "Their RDS costs had climbed to $12,000 a month," he says. "A service-level report would simply say 'RDS: $12,000', which doesn't help you understand what to do."

Resource-level analysis revealed the full picture. By breaking it down at the resource level, Unicorne discovered that 30% of the cost came from snapshots alone. "Their policy was taking hourly backups and storing them for 90 days," Éric shares. Hourly backups with 90-day retention for a development database was excessive. By moving to daily snapshots in development and more reasonable policies in production, the client saved more than $2,000 a month. Further investigation uncovered a synchronisation job transferring data unnecessarily between regions, saving another $900.

"In total, they reduced their bill by $3,800 each month: 32% of the original cost," Éric says. "That kind of detail is invisible without resource-level visibility."

How Stable operationalises this framework

Stable emerged from the company's experience managing cloud infrastructure for clients. "By supporting clients through managed services, we gained first-hand knowledge of how to optimise cloud environments under real constraints," Éric says. "Without that experience, Stable could never have existed. We don't sell theory, we deliver proven solutions tested with real companies, on real budgets and with real business stakes."

The platform provides resource-level AWS cost analysis with prioritised recommendations based on implementation effort and business impact. Stable focuses specifically on AWS, with particular attention to serverless architectures and AI workloads.

Features include transparency over automation – no 'auto-fix' buttons that create infrastructure drift – as well

as actionable resource-level insights, rather than service-level aggregates, and optimisation recommendations prioritised by quick wins versus long-term architectural changes.

The Gen AI layer of complexity

Traditional infrastructure costs scale linearly: provision more capacity, pay proportionally more. AI workloads behave differently and the disconnect can catch even sophisticated teams off guard.

In a traditional setup, businesses can predict the monthly cost of an EC2 instance. With Gen AI, usage can scale unpredictably into billions of tokens, and expenses accumulate much faster than expected.

KEY TAKEAWAY

Quick wins requiring no downtime deliver immediate savings visible in the next billing cycle. One client cut 60% of total savings in the first week through reserved instances, unused resource cleanup and storage optimisation. Momentum builds trust for larger changes

Most implementations resend the entire conversation history with every exchange to maintain context. Éric calls this "conversation creep", where a 10-turn dialogue doesn't cost 10 times a single exchange but something closer to 55 times (1+2+3+4...+10).

"Outbound tokens are several times more expensive than inbound ones, images cost more than text and audio can be even pricier," Éric notes. "Teams miss the hidden costs of integration – vector databases, caching systems and security guardrails – that all scale directly with usage."

Teams can also overlook the huge variations in pricing between models, where two models with apparently similar performance can vary in cost by a factor of 10. Anthropic Claude costs roughly 10 times more than Amazon Nova, for example, yet for many use cases the less expensive model performs adequately. Using less expensive models for routine queries while reserving premium models for complex reasoning allows organisations to balance cost and quality effectively.

Building FinOps maturity

When cloud costs spiral unexpectedly, the financial impact is only part of the problem. Teams become cautious about experimentation, leadership hesitates on new initiatives and development velocity decreases.

"The real damage isn't just the money lost, it's the loss of confidence," Éric explains. "When a CTO hesitates to invest further in AI or cloud, the company risks

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SERVERLESS COST MANAGEMENT

Serverless is a double-edged sword. “It offers great scalability, but cost predictability suffers,” Éric observes. “Unlike traditional instances, every millisecond of execution and every megabyte of memory counts. Small inefficiencies multiply rapidly.”

Consider API Gateway. Each request incurs charges, and at scale, these add up. A traditional Application Load Balancer costs a flat monthly rate plus modest data transfer fees. API Gateway charges per million requests. For high-traffic APIs, the crossover point comes sooner than most teams expect.

Cold starts present another hidden cost. When Lambda functions sit idle, they shut down. The next request triggers a cold start, with initialisation taking time and costing money. There are several methods to optimise these costs including reducing the size of the bundles that make up the Lambda source code, adjusting memory/CPU size, or by using Low Latency Runtimes.

It works well for intermittent workloads but provisioned containers are typically more cost-effective for steady production traffic.

falling behind whilst competitors keep innovating. The role of cost optimisation is not to slow down innovation but to ensure it's sustainable."

Rebuilding trust

To rebuild trust, the first step is to restore visibility with alerts and budget segmentation. This means real-time dashboards, alerts at 75% and 90% of monthly budget segmented by environment and resource-level tagging enforced through automation.

The second is to establish strong controls, such as quotas and mandatory tagging. Deploy budget quotas per environment, automatic shutdown of non-production environments after hours and approval workflows for large instance types.

The third is to demonstrate results quickly with easy wins. "Once the team sees savings in action, they regain the confidence to keep moving forward," Éric says.

Governance as Code

Cost governance requires the same 'as code' approach that transformed infrastructure management. "Cost governance as code is becoming essential," Éric observes. "It mirrors the philosophy of DevOps and Infrastructure as Code. Governance must be built into automated processes."

That means enforcing tagging rules, blocking oversized instances in development, and shutting down non-production environments after working hours directly within automated

THREE ESSENTIAL MEASURES

If a DevOps team could only implement three cost optimisation measures, Éric offers clear guidance.

"The first priority is to equip the team with proper visibility," he says. "Without the right tools, it's simply not possible to understand the impact of infrastructure changes."

The second is to configure real-time alerts at 75% and 90% of the monthly budget, segmented by environment: development, staging and production. Development overspending often indicates inefficient testing practices, staging spikes might signal forgotten load tests and production surprises require immediate investigation.

"The third is to enforce strict tagging and automatic shutdown of non-production environments after working hours," Éric says.

Development and staging environments running 24/7 waste approximately 70% of their costs outside business hours.

For a team with $20,000 in non-production infrastructure, this single change saves $14,000 annually.

deployment tools to ensure alerts are raised before they are even deployed to the infrastructure.

From crisis to competitive advantage

Executed properly, cloud cost optimisation helps teams transform from crisis to competitive advantage. Organisations that master this discipline achieve predictable budgets that enable confident investment in innovation. Engineering teams gain freedom to experiment without fear of runaway costs. Infrastructure scales efficiently with business growth rather than outpacing it.

The path forward requires three commitments: visibility through resource-level analysis that reveals exactly where money goes, governance through automated policies that prevent waste without blocking progress and culture through embedding cost awareness into daily engineering practice.

"My most important piece of advice is to treat cost optimisation the same way you treat security," Éric says. "It is not a project with an end date. It is a continuous discipline that must be woven into the daily practices of every team."

The organisations that succeed understand that cloud computing's promise – 20% cost savings, 43% faster time-to-market and 29% more focus on innovation – only materialises when paired with disciplined cost governance. They treat cloud cost management not as a constraint but as an enabler of sustained innovation velocity.

Learn more at stableapp.cloud

> "My most important piece of advice is to treat cost optimisation the same way you treat security"
>
> **ÉRIC PINET, CEO, UNICORNE**

KEY TAKEAWAY

DevOps teams should prioritise three measures: proper visibility tools for understanding infrastructure changes, alerts at 75% and 90% of monthly budget segmented by environment and automatic shutdown of non-production environments after hours saving 70% of overnight costs

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