



Pushing the Boundaries of Innovation: Speed, Scale, and Transformation in the Cloud



Index

SECTION 1 | INTRODUCTION

- | | | | |
|-----------|---|-----------|---|
| 04 | Innovation and Your Organization | 10 | Thousands of Businesses Are Innovating Using AWS |
| 05 | Why Innovation Matters | 11 | You Can Start Innovating Today |
| 07 | A Roadmap for Innovation | 12 | AWS customer stories |
| 09 | Our Commitment to Our Customers | | |

Index

SECTION 2 | AWS CUSTOMER STORIES

13 BMW Group

21 Philips

15 AstraZeneca

23 Siemens

17 Deliveroo

25 Volkswagen Group

19 ENGIE

INTRODUCTION

Innovation and Your Organization

What does innovation mean for your business?

At Amazon Web Services (AWS), innovation is about exploring possibilities. It's about creating new routes to growth, finding undiscovered paths to greater efficiency, and serving customers in smarter and more inventive ways.

Innovation is more than technology. It's your people. And your culture. And the environment you build that allows a simple idea to transform into a brilliant solution for your customers.



INTRODUCTION

Why Innovation Matters

Digital transformation is vital for your business to succeed and thrive in today's competitive market. And innovation is at the heart of this process, helping you grow, increase efficiency, and deliver better services, while keeping customer and company data safe. Innovation is also key to achieving sustainability goals—challenges such as decarbonization of operations to water conservation are addressed through technologies that drive sustainable transformation.

→ Innovation Is Customer-Centricity

Competition in all market segments is increasing and customer needs are changing. Ultimately, everyone expects more from businesses. Regardless of what industry you serve, staying ahead of customer demands means connecting

with them and understanding what their pain points are. Innovative companies build an internal culture that works from the customer backwards to gauge their needs, rather than designing a product or service and then finding their market.

→ Innovation Is Experimentation

Failing is part of the innovation process. Which is why having an infrastructure that makes it easy to rapidly build, validate, and test, is a cornerstone of the innovative organization. Building this into your culture as well as your environment is key. With the freedom to experiment and continually learn, refine, and reinvent, your teams can quickly get to solutions that have a positive impact on every aspect of your business.



INTRODUCTION

→ Innovation Is Speed

Time to value is a critical metric for innovation. Many organizations that choose AWS are looking to accelerate the time it takes them to get great ideas to market. Whether that's using [machine learning \(ML\) services](#) to get deeper insights faster. Or [serverless computing](#) that delivers resources on-demand rather than in days, weeks, months, or years. All elements of your infrastructure play a role in creating the agility your company needs to move fast and tap into new opportunities.

→ Innovation Is Scalability

Thanks to digitization, any business today can reach customers in any corner of the world. Cloud computing supports organizations of any size



WHY INNOVATION MATTERS

to scale their operations. This means access to [local data centers](#) that help meet data residency requirements, having the capacity to run large-scale applications globally, and being always-on in any geography.

“ In today's era of volatility, there is no other way but to re-invent. The only sustainable advantage you can have over other is agility, that's it. ”

Jeff Bezos
Amazon founder



INTRODUCTION

A Roadmap for Innovation

At AWS, we help organizations at different stages of their innovation journeys use cloud services to accelerate digital transformation. Three key elements are common to their success. They're elements we champion in our own business too.

→ Customer Obsession

Delivering a unique customer experience is a central driver for businesses. For AWS, this means developing services that make it easy to innovate. For you, it could mean personalizing services by better understanding customer behavior through data. Or designing a feature that makes life more seamless. Or developing sustainable solutions that set the standard for your industry and make a difference to the planet.



Leading innovators relentlessly monitor, iterate, and continuously improve their customers' experiences. And data is a key component in this process, which is why [harnessing the power of artificial intelligence \(AI\) and ML](#) is essential.

Customer obsession in many ways starts with data obsession, so building a data-driven business that treats data as a differentiating asset is a significant step in unlocking customer-centric innovation.

→ Culture of Innovation

Creating a culture of innovation starts from leadership. It requires motivating each employee around a common set of understandings and operating principles, and instilling a sense of urgency to achieve greater things each day.



INTRODUCTION

Innovation is about more than technology—and therefore it's about more than technical roles, teams, or departments. As our own story as well as our customers' stories show, successful digital transformation is borne from an ethos of innovation and experimentation company-wide. Empowering employees to come up with the ideas that could transform your business. Putting data into the hands of every department. Giving talent the freedom to explore and experiment with new technology. The culture you encourage will dictate whether your talent have the tools, time, and trust to accelerate your innovation objectives.

→ Continuous Learning

Having the right talent and skills is critical in the innovation journey. As technology development



A ROADMAP FOR INNOVATION

and adoption move faster, skills have become less fixed and more fluid. It's no longer about knowing one core technology inside and out, but exploring new technologies as they emerge and mature. Innovative leaders prioritize learning across their organization. This can involve offering incentives that motivate staff to learn new skills and contribute to innovation, and providing easy access to the latest technologies for experimentation and exploration.



INTRODUCTION

Our Commitment to Our Customers

We work with our European customers to securely bring their most sensitive and regulated data to the cloud, making innovation possible on a large scale. Our products and services positively transform people's lives by democratizing technology so that it can be used to drive a better, more sustainable society.

→ Protecting data

Trust is the bedrock of the customer-centric business, and how you handle your most critical and sensitive asset—your data—is the foundation of that trust. Data protection, sovereignty, and security needs are complex, requiring advanced controls and features to navigate successfully. We provide the services, tooling, and resources so you can control how your data is used, determine

who has access, and how it is encrypted. And we support these capabilities with the most flexible and secure cloud computing environment available today. This not only helps you establish the crucial element of trust between your organization and your customers, but it also underpins every innovation and customer experience you create with that data.

→ Achieving sustainability goals

Sustainability is an urgent priority for all organizations. Whether it's increasing efficiency and reducing waste through sustainable business practices, or finding solutions to specific problems within your industry—innovation is key.

This means applying cutting-edge technologies to use data in new ways, ingesting, analyzing, and managing it at scale. AWS provides the capabilities across AI, ML, IoT, and data analytics that help you develop, design, and implement solutions that allow you to achieve your organization's sustainability goals.




INTRODUCTION

Thousands of Businesses Are Innovating Using AWS

At AWS, we're continually developing new services on behalf of our customers to help them accelerate their speed of innovation and deliver value to their own customers. We are trusted by thousands of organizations around the world, many of them leaders in their fields. From automotive manufacturers to global pharmaceutical firms, businesses of all sizes are using AWS to unlock the power of data, allowing their talent to experiment on-demand, and applying analytics to solve customer pain points.

→ **BMW GROUP**

→ **AstraZeneca** 

→  **deliveroo**

→  **ENGIE**

→ **PHILIPS**

→ **SIEMENS**

→ **VOLKSWAGEN FINANCIAL SERVICES**



INTRODUCTION

You Can Start Innovating Today

Using AWS, you can build a culture of innovation that inspires your teams to turn ideas into opportunities. Offering [more than 200 fully featured services from data centers globally](#), AWS is used by millions of customers—from startups to enterprises—to increase agility and innovate faster.

We are maintaining a fast pace of innovation to deliver powerful tools and fully featured services that are accessible to everyone in your organization. Solutions like machine learning and serverless technology, which empower your people.

With industry-leading cloud services, your teams can solve the pressing problems of your industry and explore the boundaries of innovation to support your customer-centric business.

INNOVATE WITH AWS >

Contact us to learn more about innovation in the AWS Cloud



AWS customer stories



BMW Group Puts Data—and the Power to Innovate—into the Hands of Its People

Terabytes of data from sensors in millions of vehicles drives insight and innovation across BMW.

An international manufacturer of premium automobiles and motorcycles, [BMW Group](#) is behind some of the best-known brands in the automotive industry, including BMW, MINI, and Rolls-Royce. The business wanted to get on the fast-track to innovation. For this, it needed a more agile, scalable infrastructure that would support users across the globe and empower teams to create exceptional, connected experiences.

From establishing a microservices-based infrastructure to underpin its next-generation Unified Configurator Platform. To migrating its



data lake to the cloud to unlock the power of data. And using machine learning to streamline processes and predict customer needs. BMW Group is using AWS enterprise-wide to transform its operations by democratizing data and giving its teams the tools to drive internal efficiencies and personalize services for customers.

The Foundation of a Data-Driven Business

A significant step in BMW Group's transformation was the migration of its Cloud Data Hub (CDH) to AWS. The data lake—which collects and combines terabytes of data from sensors in millions of vehicles, as well as operational systems and data warehouses—is the engine that drives insight across the group.



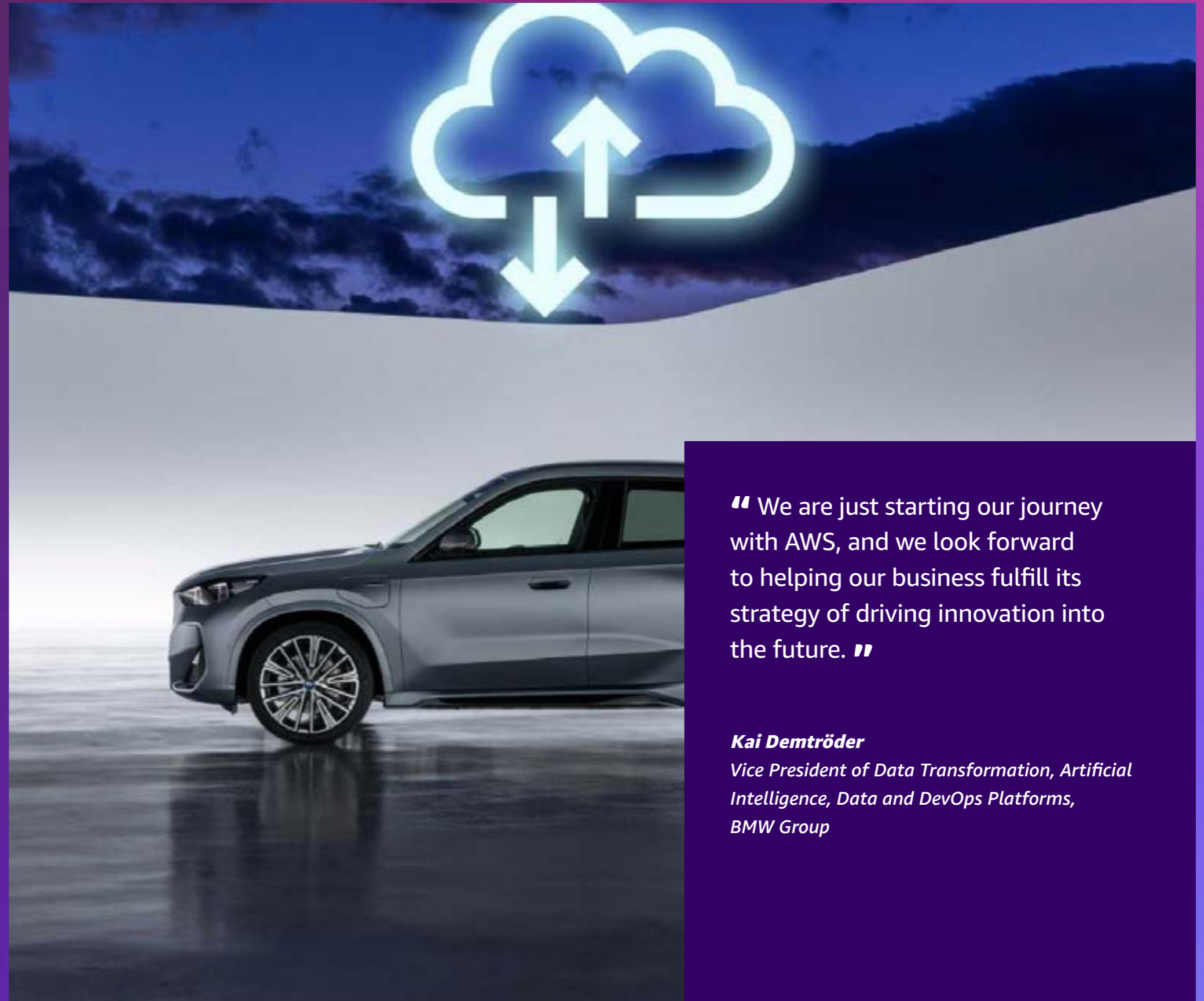


On-premises, however, it lacked the scale and accessibility to support the growing demands of internal and external stakeholders. This meant data remained buried, new initiatives were hampered—and innovation stalled.

By moving to the AWS Cloud and using services such as [Amazon Athena](#), [Amazon Kinesis Data Firehose](#), and [Amazon SageMaker](#), BMW Group is now able to drive new services, experiences, and insights.

Kai Demtröder—BMW Group’s vice president of data transformation, artificial intelligence, data and DevOps platforms—says, “To stay innovative, we are focusing on creating new digital and connected experiences and driving change in our value chain toward improving both efficiency and effectiveness by enabling data-driven decisions.”

[Read More](#)



“ We are just starting our journey with AWS, and we look forward to helping our business fulfill its strategy of driving innovation into the future. ”

Kai Demtröder

Vice President of Data Transformation, Artificial Intelligence, Data and DevOps Platforms, BMW Group



AstraZeneca Transforms Pharmaceutical Research, Development, and Delivery

Powering drug discovery through data analytics at scale that will see 2 million genomes analyzed by 2026.

[AstraZeneca](#) discovers, develops, and commercializes prescription medicines in oncology and biopharmaceuticals, including in cardiovascular, respiratory, and immunology fields. It serves millions of patients across 145 countries and 70 markets.

As a leader in this fast-moving industry, speed is vital. From research, development, and drug discovery, to getting life-changing medicines to patients and commercializing new therapeutics. AstraZeneca's innovation strategy is driven by data and artificial intelligence (AI). The company

uses AWS across its international operations to speed up, simplify, and streamline everything from critical data processing to identification of medications.

Using ML to Accelerate Drug Research, Medicine Identification, and Commercial Modelling

AstraZeneca transformed its research and development (R&D) process by building a flexible platform with the [Amazon Machine Learning Solutions Lab](#). As Rui Wang, head of compute and core engineering, R&D IT data & analytics, says, "The AWS team provided extensive support throughout our journey," spanning from architectural design to knowledge and training.





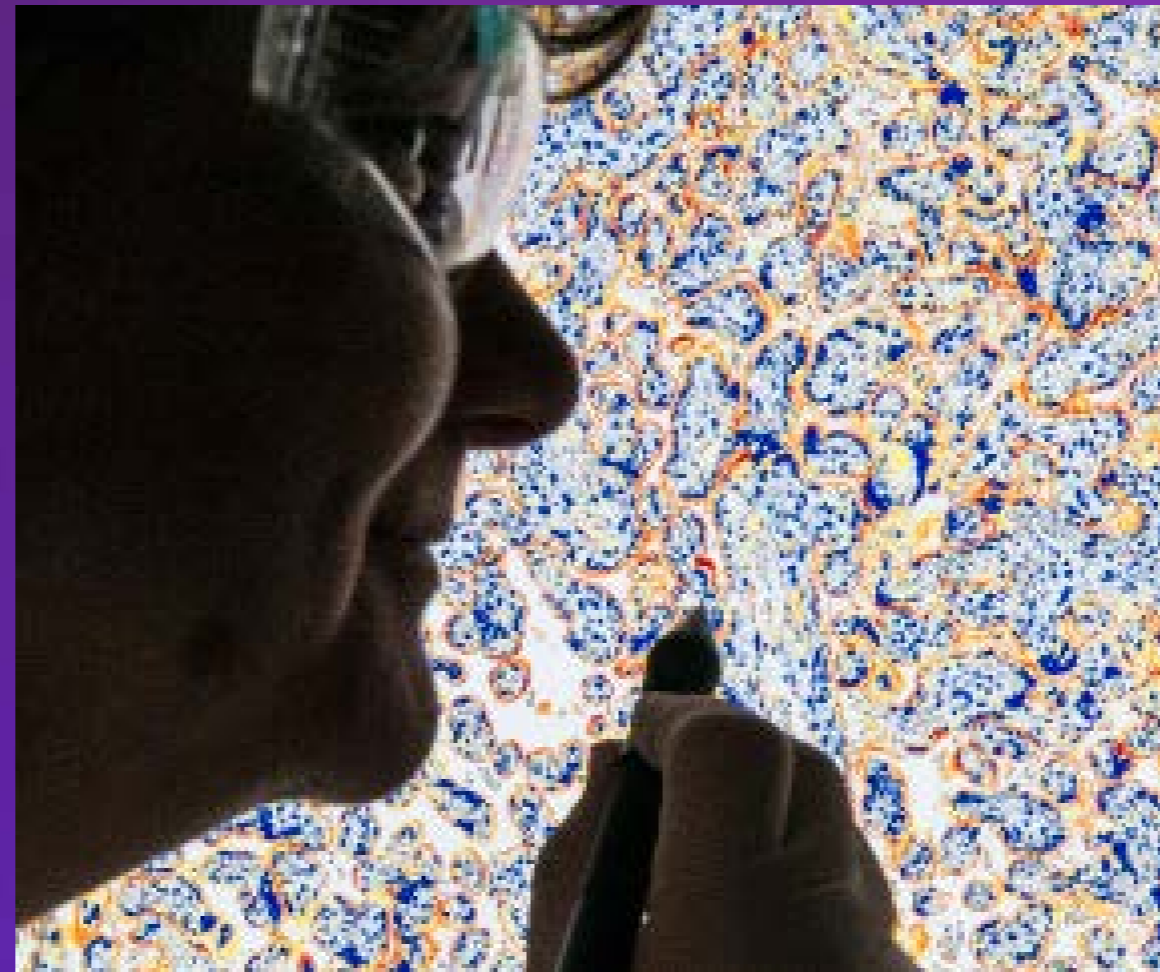
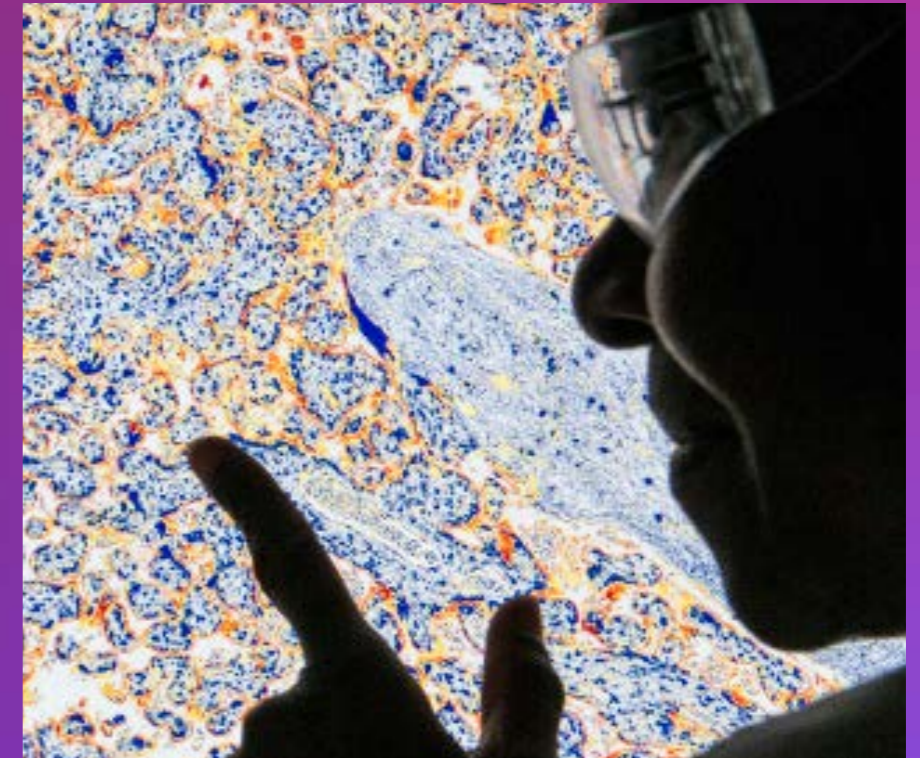
With its industrialized ML platform, AstraZeneca is speeding up its drug discovery processes and getting medicines to market quicker. In addition, using [Amazon SageMaker](#), AstraZeneca can turn commercial data into insight by giving the company's 100-plus data scientists the tools they need to prepare, build, train, and deploy ML models quickly to rapidly analyze data at scale.

AstraZeneca now has the business insight to make new treatments a commercial reality in a shorter time. This is helping to ensure better healthcare outcomes because life-changing medications get to patients faster.

51 Billion Tests in 1 Day

In a landmark project, AstraZeneca produced a rapid, efficient genomics bioinformatics pipeline that can run analysis at scale using AWS. Slavé

Petrovski, vice president, head of genome analytics and informatics, Centre for Genomics Research, R&D, AstraZeneca, says, "We've provided genetics input into more than 40 of AstraZeneca's drug discovery projects in 2020 using these capabilities." The global pharmaceutical organization is now on course to realize its goal of analyzing 2 million genomes by 2026.



“ AWS understands how we unite to support our research and development and brought the right services and the architectural guidance that helped us accomplish these incredible things. ”

Anna Berg Åsberg
*Vice President of Research and Development IT,
AstraZeneca*

[Find out how AstraZeneca is breaking the boundaries of science and changing patients' lives using data, AI, and ML.](#)



[Read More](#)



Deliveroo Innovates with Insight

Culture of innovation is the impetus for new service delivery and 650 percent growth a year at Deliveroo.

Food delivery firm [Deliveroo](#) has grown from a 20-person startup in 2013 to an enterprise company with hundreds of engineers today. It works with more than 140,000 restaurants, 10,000 grocery partners, and 150,000 riders, delivering meals in around 800 cities across Europe and Asia.

As its business grew at rapid pace, Deliveroo looked to AWS to help it scale quickly and effortlessly in order to meet demand. Having reduced food delivery times by 20 percent and cut costs with its agile infrastructure, Deliveroo turned its focus on innovation through insight. Using [ML and data analytics services](#), it can constantly improve



delivery logistics and services, as well as take the customer experience to new levels with personalized recommendations and offers.

Building a Culture That Accelerates Growth

Deliveroo's founder and CEO Will Shu ensures the organization's core value—"think big"—is shared by everyone across the business. This culture of innovation has helped Deliveroo launch new services and drive growth of more than 650 percent a year. [Serverless computing](#) underpins the company's continual service improvement and expansion. Shu says, "AWS has helped us grow by letting us focus on our vision of being the definitive food company. From scalable infrastructure to sophisticated solutions, we have powerful tools to make this happen."

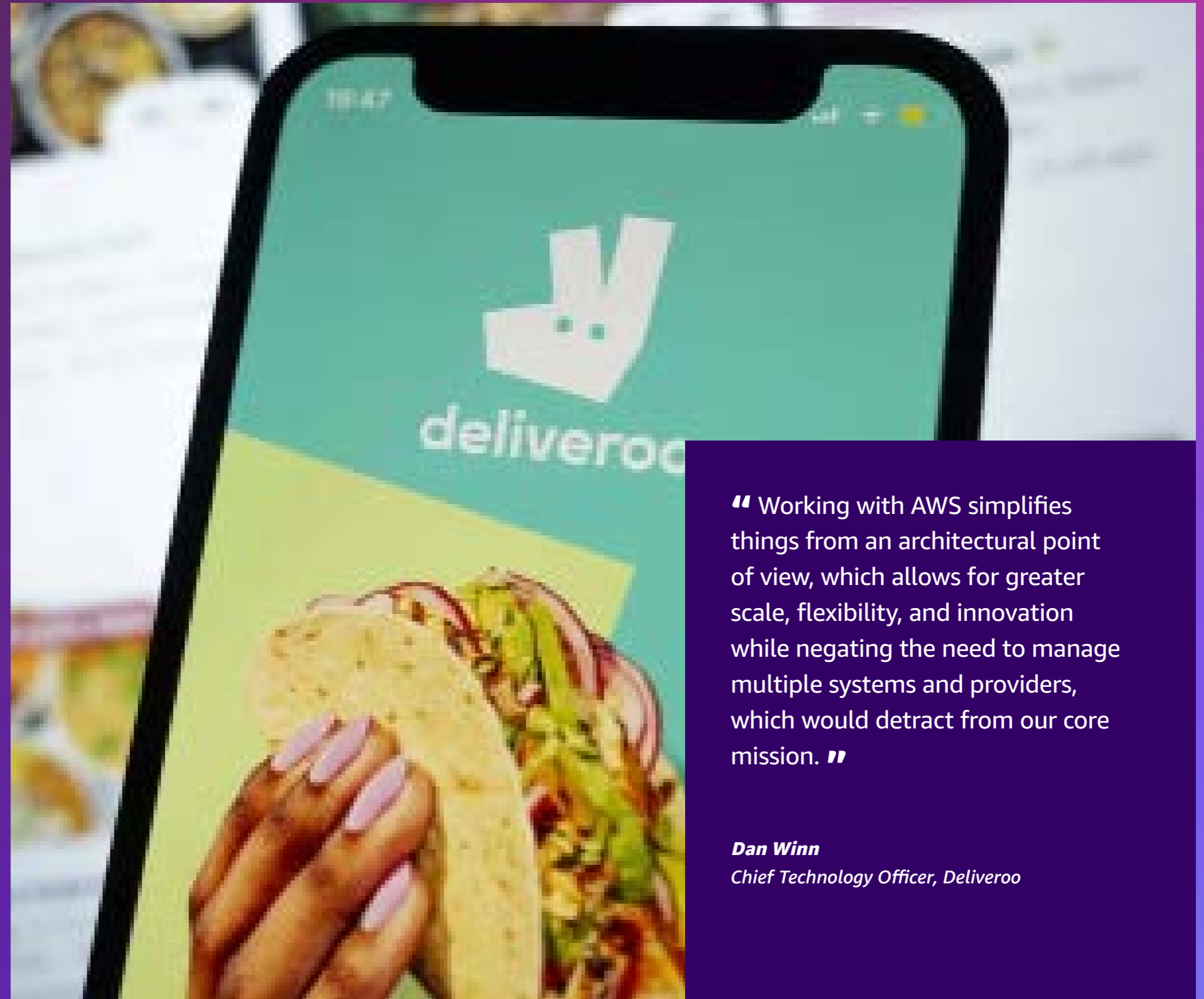




Better Customer Care, Smarter Decisions, and Ongoing Innovation

Deliveroo uses ML and AI tools including [Amazon Connect](#) and [Amazon Transcribe](#) powered by data to provide a more seamless experience in its contact center. ML is being put to use across its wider operations too. Business leaders now have the information they need to make data-driven decisions on whether to enter a new market, for instance, or launch a new product. With accessible tools making data available to all, Deliveroo's growing talent base can educate themselves faster, experiment, and innovate more.

[Read More](#)



“ Working with AWS simplifies things from an architectural point of view, which allows for greater scale, flexibility, and innovation while negating the need to manage multiple systems and providers, which would detract from our core mission. ”

Dan Winn
Chief Technology Officer, Deliveroo



ENGIE Innovates on AWS to Drive Global Sustainability Goals

Machine learning powers 1,000 predictive models that drive €800,000 savings a year and help ENGIE get closer to zero-carbon goals.

One of the largest utility providers in France and a global player in the transition to zero-carbon energy, [ENGIE](#) serves millions of customers and has a presence in five continents. Sustainability—for its business and its customers—is the organization's key focus. ENGIE looked to AWS to help speed innovation, drive insight across departments, and harness ML to gain efficiencies and cost savings at its power plants.



The Data That Drives Zero-Carbon

ENGIE's Common Data Hub data lake is the force behind the company's digital transformation. Built on AWS and using services such as [Amazon Redshift](#), [Amazon Kinesis Data Streams](#), and [Amazon SageMaker](#), the hub lets ENGIE business units easily ingest, store, share, and consume datasets through a secure, unified platform.

By analyzing data using the Common Data Hub, staff can support the organization's sustainability goals with comprehensive real-time insight into operations. This has led to more accurate energy-production predictions and the delivery of new services to customers.





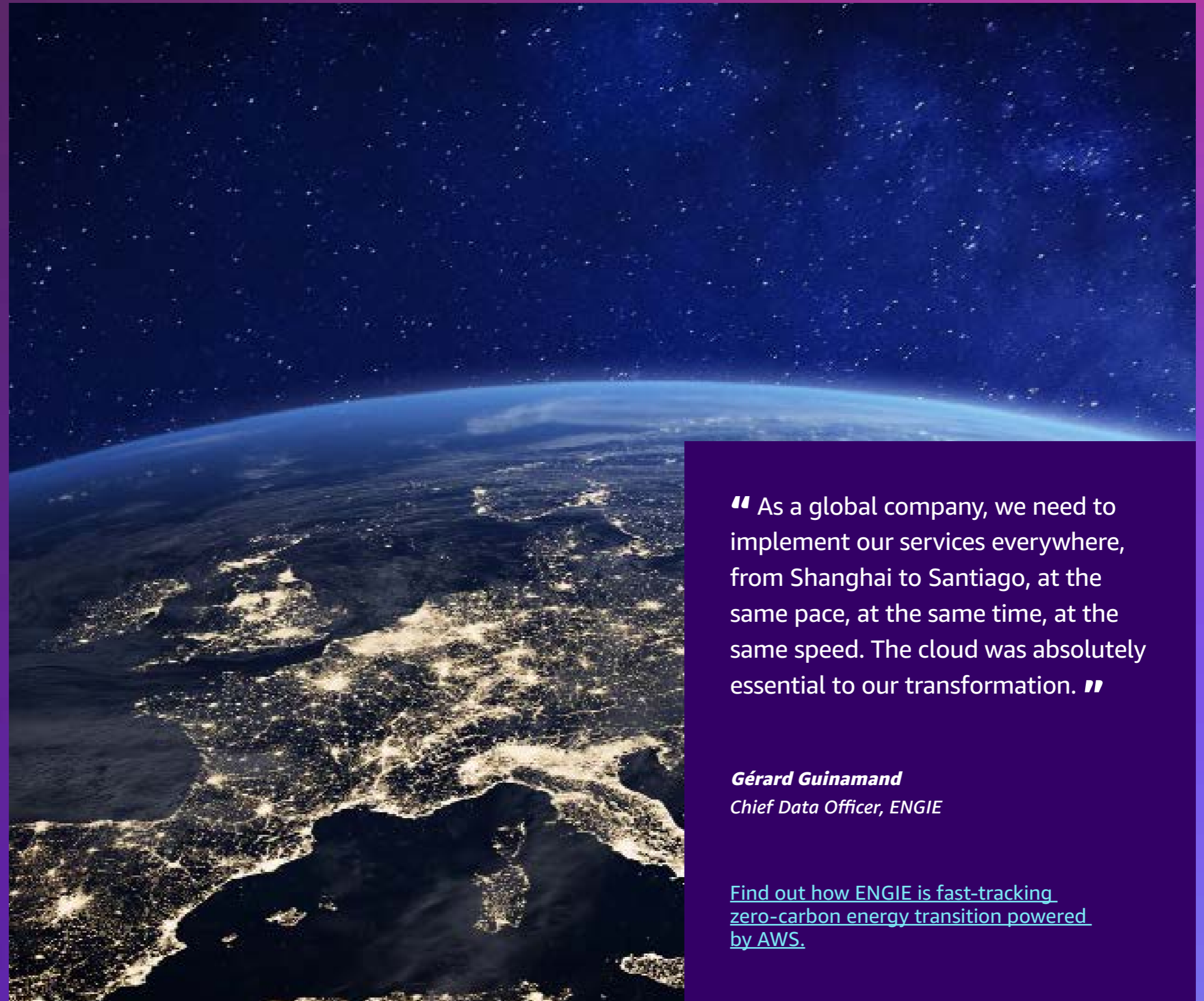
A Business-Wide Transformation

In addition to getting closer to its sustainability objectives through data, ENGIE has streamlined financial processes using [SAP S/4HANA on AWS](#)—a move that’s helped it produce precise and consistent insights in every part of the organization.

“From utility and energy services to production to distribution to sales, we focus on the big picture and strive to be a leader in the energy-decarbonization transition,” says Thierry Langer, chief information officer of the finance division at ENGIE.

The business is also using [machine learning on AWS](#), developing more than 1,000 predictive maintenance models and connecting 10,000 pieces of equipment at ENGIE power plants. This is driving an estimated €800,000 savings a year.

[Read More](#)



“ As a global company, we need to implement our services everywhere, from Shanghai to Santiago, at the same pace, at the same time, at the same speed. The cloud was absolutely essential to our transformation. ”

Gérard Guinamand
Chief Data Officer, ENGIE

[Find out how ENGIE is fast-tracking zero-carbon energy transition powered by AWS.](#)

PHILIPS

Philips Helps Its Customers Personalize Cancer Care and Improve Health Outcomes

Advancing precision medicine at the point of care by giving customers access to healthcare-specific cloud services.

A leading health technology firm, [Philips](#) is focused on enhancing people's health and realizing better patient outcomes. The organization, established in 1891, has gone from developing cost-effective incandescent light bulbs to medical X-ray imaging, personal care electronics, and, more recently, innovative technological solutions for health and well-being.

The company's HealthSuite Platform, developed on AWS, sits at the heart of the Philips' customers' innovation. It helps them develop solutions and deliver treatments with insight through access to



services including scalable Internet of Things (IoT) services, and data management and analysis.

Unlocking the Potential of Digital Health

An early adopter of the cloud and a business that's quick to use advanced technology, Philips built its HealthSuite Platform to make it easier for customers to unify and analyze complex datasets. The platform provides an orchestrated collection of ready-to-use cloud platform services that its customers can use to drive their innovation and discovery.

"Customers choose what they need and pay only for what they use, similar to the AWS model," says Dale Wiggins, vice president and general manager of HealthSuite Platform at Philips. "By running Philips HealthSuite Platform on AWS, we're able to provide our customers with the power, security, and flexibility of AWS services with the healthcare-specific added value we've built on top."

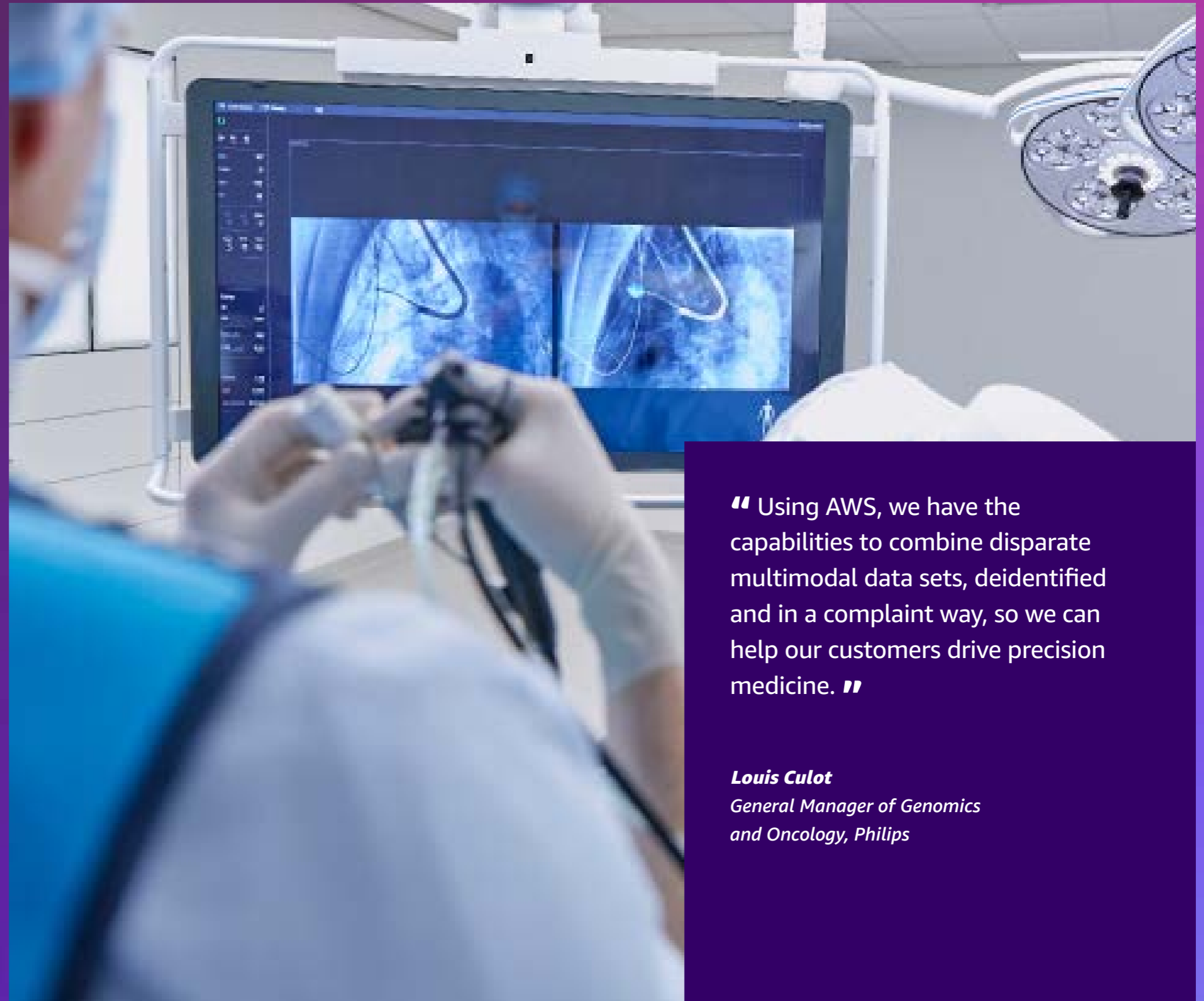


PHILIPS

Personalizing Cancer Treatments

The HealthSuite Platform—which uses AWS capabilities including leading-edge compute services, specialized data management, and AI and ML analytics—has powered numerous advances for Philips' many customers over the years. A key area is precision medicine—whereby the genetics, environment, and lifestyle of a person is assessed to identify the most appropriate treatments and therefore deliver better results. Using HealthSuite Platform, Philips' customers can gain insight from vast and diverse datasets, simplifying clinical decision-making, driving precision medicine at the point of care, and improving cancer patient outcomes through personalization.

[Read More](#)



“ Using AWS, we have the capabilities to combine disparate multimodal data sets, deidentified and in a compliant way, so we can help our customers drive precision medicine. ”

Louis Culot

*General Manager of Genomics
and Oncology, Philips*

SIEMENS

Siemens Helps Its Customers Transform Through Cloud Technology

Speeding application access from 4 months to 2 days and accelerating customers' time to value from industrial IoT.

A global leader in electrification, automation, and digitization, [Siemens AG](#) has been at the forefront of innovation across multiple industries for 175 years. It uses AWS to support its ongoing innovation, continually transforming its own operations and services, and offering new solutions to its customers—from implementing AI into its cybersecurity platform to bringing industrial IoT (IIoT) to manufacturing plants.



Delivering an Industry-Leading Application in the Cloud

Using AWS, Siemens migrated its on-premises EnergyIP meter data management (MDM) application to the cloud to be able to deliver its benefits faster and more cost-effectively to more customers. By hosting EnergyIP in the cloud, smaller companies, for example, could gain the scale that up to now only large enterprises could afford. “By having a multitenant cloud solution,” says James Travers, a business analyst for Siemens, “we hoped to attack some of those cost drivers and open up new areas of the market.”

With EnergyIP available in the cloud, customers can get up and running with the application in just 2 hours—a process that took up to 4 months for on-premises deployments. Thomas Cook, a leader in Siemens's EnergyIP product marketing team, says, “We want our products to evolve and be where the customers are going.”



SIEMENS

Greater Transformation for More Businesses with IIoT

As a leader in the industrial industry and with the aim of helping customers further their own transformation journeys, Siemens works to provide easy, cost-effective access to solutions that put innovation in more companies' hands.

"Making our software more accessible, more scalable, more flexible is really where our collaboration with AWS has been transformational to our business—and to the business of our customers," says Tosh Tambe, vice president software as a service portfolio, Siemens.

An example of this is MindSphere. A cloud-based, open IIoT operating system built on AWS,

the platform accelerates customers' time to value from IIoT by providing them with the ability to ingest and process data from almost any physical, web, or on-premises system.

Kathleen deValk, chief architect and head of global architecture for MindSphere, says, "By saving our customers so much time and effort in implementing their IIoT solutions, MindSphere on AWS puts digital enterprise transformation within the reach of any company in the industrial space."

[Read More](#)



“ The collaboration between Siemens and AWS is taking our customers that much closer to a much more seamless operational model and enabling their businesses to operate more smoothly through IT/OT convergence. ”

Tosh Tambe

*Vice President Software as a Service Portfolio,
Siemens*

[See how Siemens is shaping the fourth industrial revolution using IIoT and data analytics to accelerate digital transformation.](#)

VOLKSWAGEN

GROUP

Volkswagen Group: A Cloud-First Approach That Inspires Automotive Innovation

Delivering a potential €1 billion in supply chain savings by creating a unified global architecture for more than 120 factories.

An innovator in the automotive industry for more than 80 years, [Volkswagen Group](#) is the largest car maker in Europe. It produces some of the world's most iconic automotive brands, including, Audi, Lamborghini, and Porsche.

The group's cloud-first approach is helping to transform its operations and achieve its goal of becoming a leader in software-driven automotive innovation. The Volkswagen Industrial Cloud on AWS is a driving force in this.



Connecting 124 factories with 1 Global Architecture

Volkswagen Industrial Cloud—the group's cloud-based digital production platform—uses [AWS IoT services](#) to connect data from all machines, plants, and systems across more than 120 factory sites.

With a 30 percent increase in productivity, 30 percent decrease in costs, and potential €1 billion supply chain savings, the platform is streamlining automotive manufacturing and logistics processes to provide a better foundation for Volkswagen Group's ongoing innovation.

“The implementation speed that we get from AWS methodologies—and the flexibility and culture—helped us accelerate this project,” says Dr Martin Hoffman, group CIO, Volkswagen AG.



VOLKSWAGEN

GROUP

Innovation Across All Volkswagen Businesses

While production and manufacturing innovation are a big part of the Volkswagen Group story, the organization is also pushing boundaries in other areas through the many companies under its umbrella.

This ranges from [MOIA](#) using serverless to deliver its ridesharing solutions. To commercial vehicle manufacturer [Scania](#) making transport more sustainable in the cloud. And [WirelessCar's](#) telematics services that turn connected car data into insights, digital services, and revenues to accelerate digital business models for car manufacturers.

The list goes on. And so does Volkswagen Group's innovation on AWS.

[Read More](#)



“ We will continue to strengthen production as a key competitive factor for the Volkswagen Group. Our strategic collaboration with Amazon Web Services will lay the foundation. ”

Oliver Blume
CEO, Porsche AG

TAKE THE NEXT STEP >

Learn how leading organizations in Europe across industries trust
AWS to drive innovation at every level of their business



© 2023. Amazon Web Services, Inc. or its Affiliates. All rights reserved.