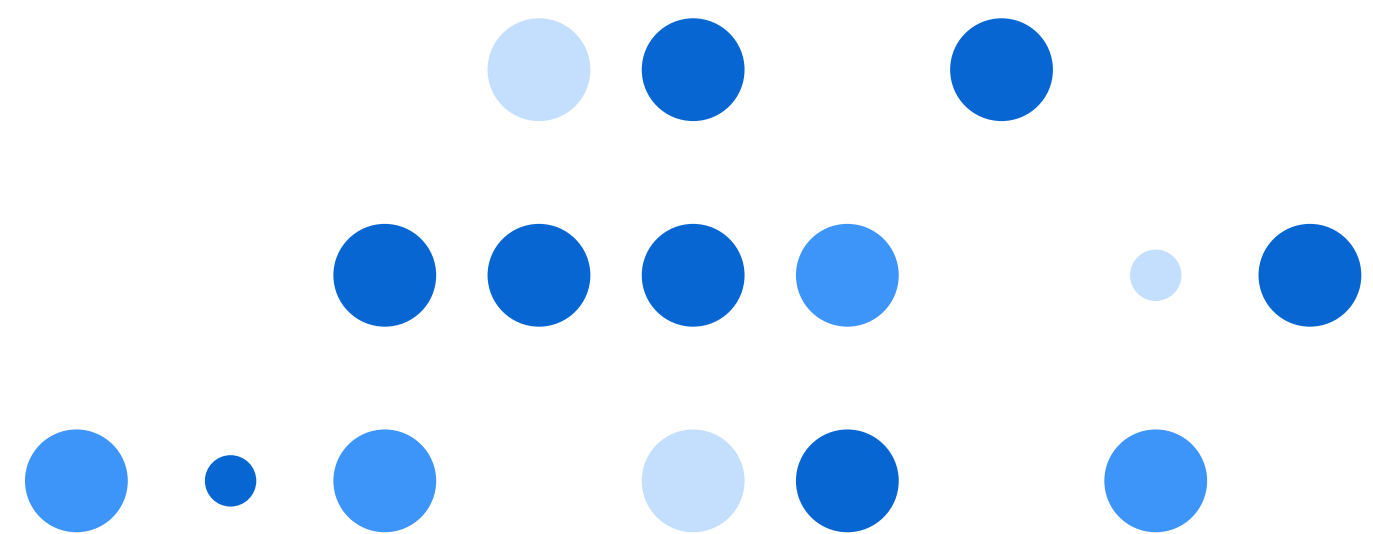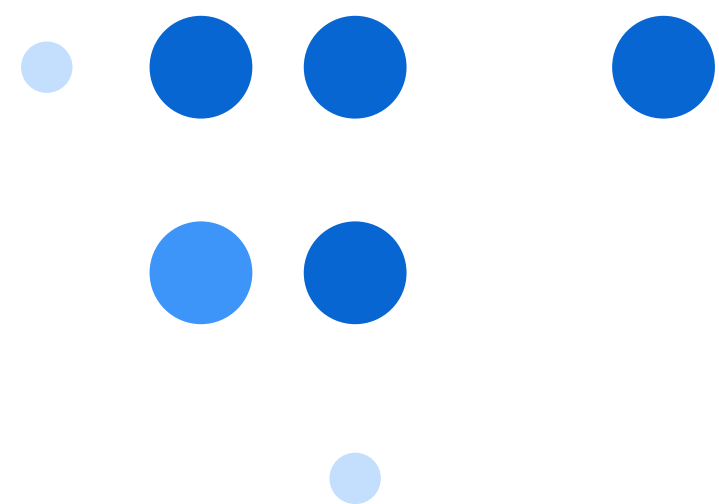# Enabling trusted AI and data-driven decisions at scale

How SAS® Viya® unlocks business insights in a digitally transformed IT landscape

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articles

01

Data and AI-driven decisions: A key source of competitive advantage

In the age of digitization, using digital technology to radically transform how your business operates and serves customers has become ubiquitous. The fact is, every organization now relies on data and technology to operate more efficiently, innovate faster and deliver value to customers. And as more companies adopt new technologies like generative AI, the pace of digital innovation and value realization will only accelerate.

At the heart of digital transformation is the need for businesses to accelerate and improve their decision making processes. The goal is clear: make the optimal decision at every moment of every customer, employee, partner and supplier interaction. This requires trusted, data-driven and automated decisioning at scale. It's widely recognized that data-driven decisions backed by analytics are superior to those that aren't, which is why there's so much investment going into solutions that can store and protect enterprise data and turn it into faster, better decisions across the enterprise.

As organizations digitally transform, analytically driven decision making is becoming a critical differentiator.

~50%
of major new business systems use real-time context data to improve decisions.

50%
of the analytics budget used by breakaway companies will embed analytics in core workflows and decision making processes.

69%
of the decisions made during a customer engagement are estimated to be completed by smart machines by 2030.

Well-governed data- and AI-driven decision making processes are central to successful digital transformation and have become a key source of competitive differentiation. And in the near future, GenAI will become an indispensable technology used to drive confident, automated decisioning across the enterprise. But to succeed, you must empower your data scientists, business analysts, IT professionals and leaders to rapidly build trusted models and govern them effectively – all at scale.

The question is, how? This is no small task.

For example, whether you're driving thousands of decisions a second without human intervention or augmenting human-led decisions with insights from GenAI, ask yourself:

• How will you operationalize analytics in ways that make this effort sustainable over time?

• How will your teams protect, prepare and access massive volumes of data, scale analytics, surface insights and drive consistent, trustworthy decisions?

• How will you enable decision transparency and continuous model governance so that all models – potentially thousands – deliver trusted results over time?

This e-book explores these questions and helps you chart a clear path forward.
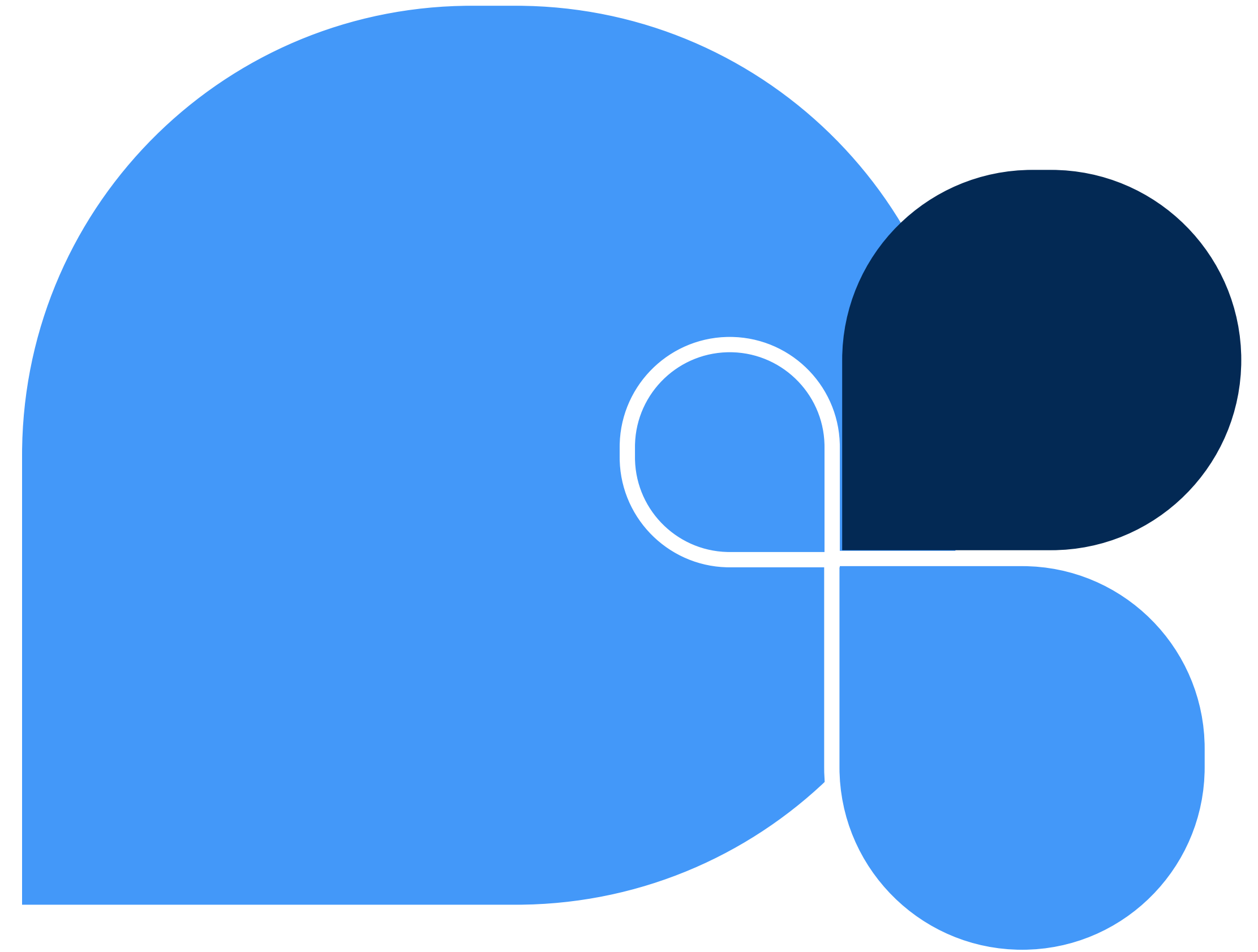
The realities of today's digital transformation are pushing organizations across all industries to expand and accelerate their operational decision making processes, using technology in concert with human potential to realize the highest value.

02
Digging into the challenge of operationalizing analytics at scale

As the Chief Technology Officer at SAS, Bryan Harris, noted, "In today's world, global disruption is increasing, and information overload is far exceeding human capacity. To overcome these challenges and remain resilient, the best answer is often a combination of multiple analytic techniques and technologies."

Without a centralized decisioning platform in place, dealing with disruptive changes is a tremendous challenge. Your teams must combine business rules, real-time event detection, decision governance, analytics and AI to automate and manage real-time interactions and next-best actions across thousands and millions of daily operational decisions. These include augmented and automated decisions. Augmented decisions occur when humans use data- and AI-driven insights to make faster, more informed decisions. For example, doctors can make more confident diagnoses by analyzing granular patient data. Automated decisions occur when a machine makes decisions for a high-volume transactional system. For example, this happens when banks use automated decisioning models for customers applying for credit cards.
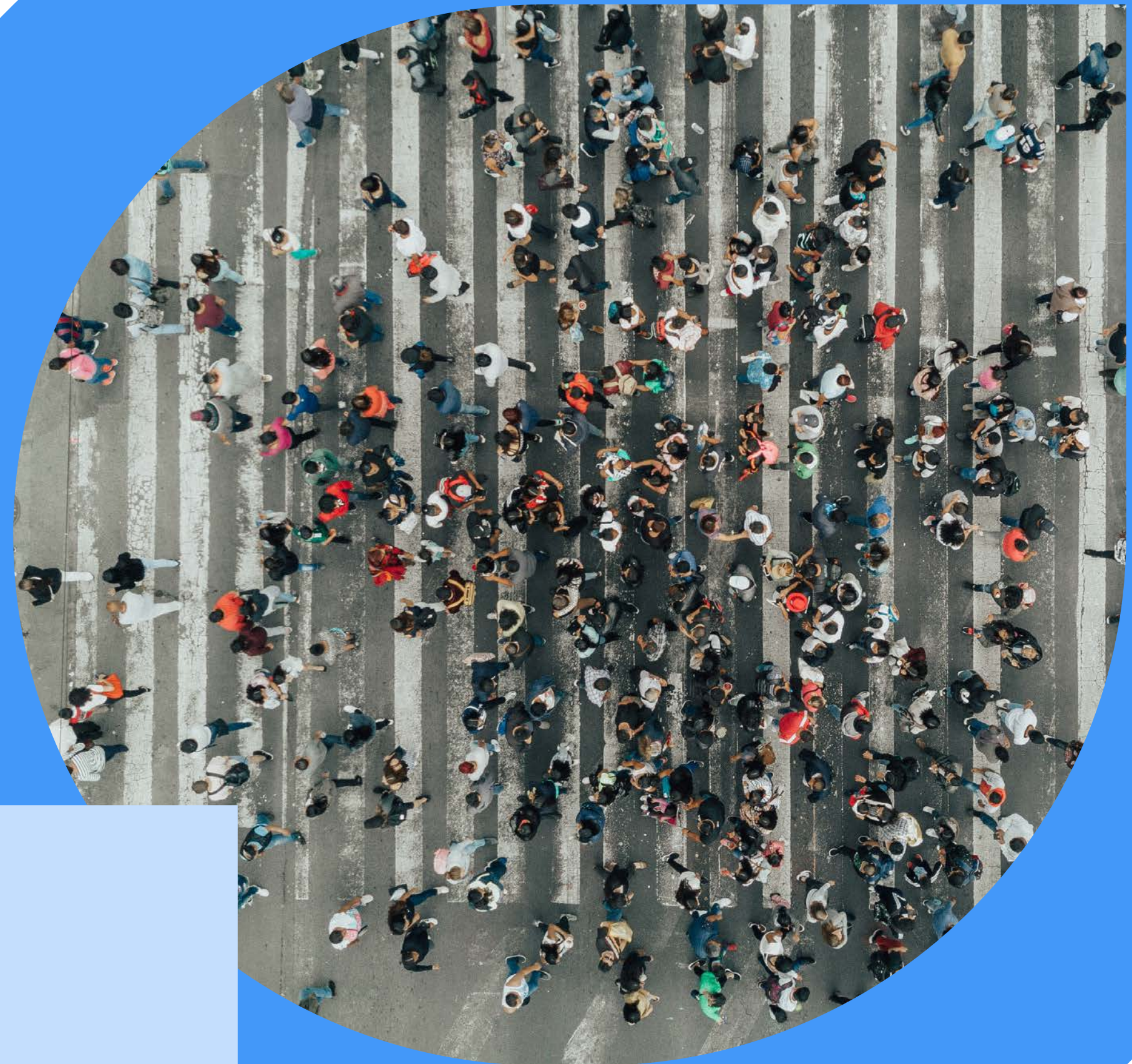
03
Decision intelligence overcomes key barriers to success

What's required is a single interface from which your business and IT professionals can access centralized data and natively integrate, manage and deploy SAS and Python analytical models, custom code and business rules with identical logic for both batch and real-time web service execution. This enables faster deployment and confidence in the integrity of analytically-driven decisions.

At SAS, we call this the Decision Intelligence approach. Only this approach – supported by our modern platform, SAS Viya, designed to manage the complete data and AI life cycle – can empower your organization to operationalize automated decision making at this level of scale. This platform gives your business and IT teams a shared, collaborative, no-code/low-code workspace that makes it easy to:

- Protect data, especially sensitive and PPI data, so it can be safely discovered by approved users and unable to be accessed or compromised by unapproved users or bad actors.

- Rapidly build and orchestrate analytic and GenAI models that can evolve with competitive landscapes and customer expectations.

- Manage and easily integrate with a wide range of trusted data sources and endpoints.

- Make every decision transparent, traceable, bias-free and trustworthy.

- Apply high-performance analytics and GenAI technologies so models can continuously monitor and update decisions as business needs change.

- Operationalize model governance to ensure models deliver consistent, traceable and transparent decisions over time.

The right platform enables well-governed, rapid scaling of trusted models.

Doing all this manually and using ad hoc tools works when your business just has a few models. But as you build and deploy hundreds and even thousands of models across your business, you need a new, scalable approach to operationalize decisioning. Otherwise, your ability to harness data and AI as part of your digital transformation will be hindered by challenges such as:

- **Lack of automation to achieve analytic scale:** When analytic models are manually designed, built, integrated and managed, they are often irrelevant by the time they are ready to go live. And as more models are deployed, it gets harder to manage them effectively.

- **Lack of unified, flexible data and a modeling platform:** When data scientists work in departmental silos – haphazardly creating models and connecting them to data sources and systems – the resulting chaos can lead to users getting different versions of the truth.

- **Lack of governance:** As businesses base more decisions on the outcomes of analytic models, many are lacking solid processes for monitoring and governing these models to guarantee their quality, detect model drift, lower risk and more.

- **Low developer productivity:** Organizations are often short on developer and data scientist talent. These resources can be spread too thin across too many projects and domains, excessively complex projects, integration demands and more.

- **Rising costs and performance issues:** In the cloud, time is money. Model training time and data volume, as well as performance issues, can drive up the cost of ownership in the cloud to unaffordable levels, as well as delay time to insight.

- **Integration difficulties:** When integrating models with data sources and systems is done ad hoc, the output may not necessarily reflect the story of the data, resulting in a lack of transparency or even ethical issues.

- **Model trust issues:** When models are built manually, it's extremely difficult to provide the high levels of explainability and transparency that users need to understand how models work and trust their outputs.

04

The SAS Viya platform: Centrally managing the data and AI life cycle to do more work faster

SAS Viya is the foundation that breaks barriers holding back businesses like yours from operationalizing automated, intelligent decisioning across the enterprise. As a cloud-native data, Data and AI platform, SAS Viya makes it possible to:

- Integrate teams and technology, enabling all users to work together successfully to turn critical questions into trusted decisions.

- Realize significant productivity gains when using AI.

- Improve performance while uniquely lowering the total cost of ownership in the cloud.

- Enable trustworthy decisions that are explainable and transparent.

Figure 1 provides an overview of how SAS Viya makes all this possible. This comprehensive platform allows you to centrally manage data, develop models and deploy insights – all while closely governing your models. Continuous model monitoring and retraining, when needed, ensure the decisions that you automate and support are the best decisions possible, all the time.
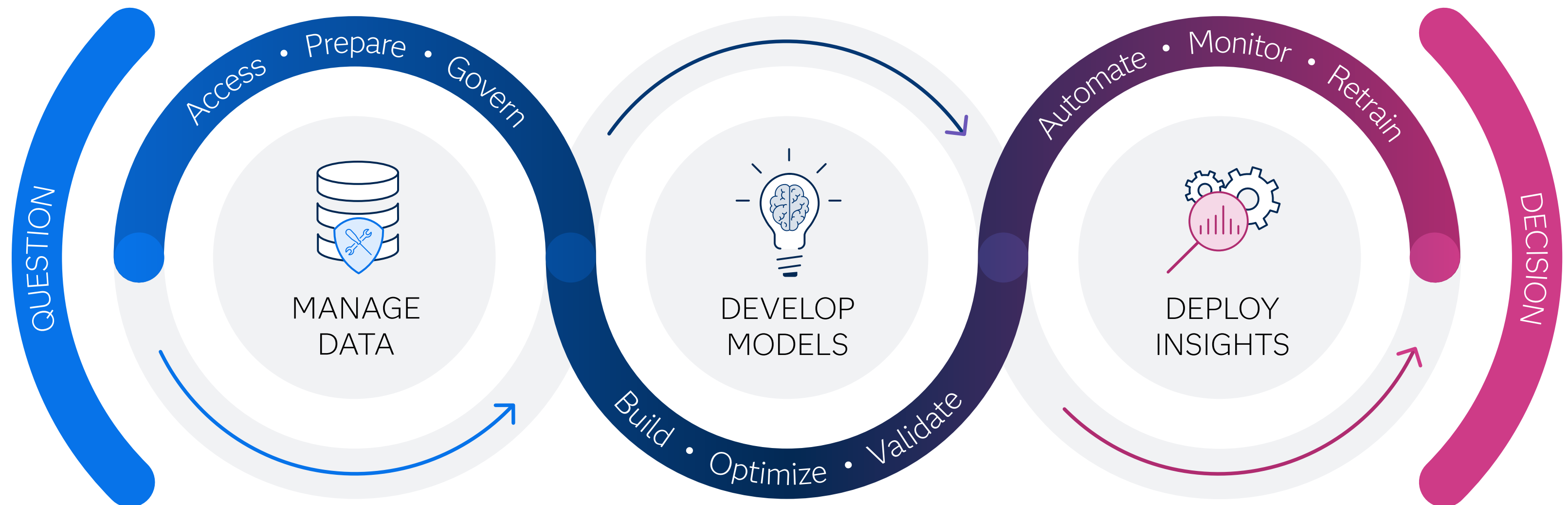

Figure 1: SAS Viya streamlines and accelerates the Data and AI life cycle so you can deliver trustworthy, data-driven decisions at scale.

Protect, manage and access data

Data management in Viya is a crucial component that enables developers to efficiently handle and govern data within the Viya environment. The platform provides centralized tools for data loading and profiling, data cleansing and preparation, data governance and asset management and REST APIs for data management.

Data management also lays the foundation for secure GenAI orchestration by enabling you to:

• Publish prompts to a prompt history and catalog table, which are then governed and used to facilitate the discovery of sensitive and PII data.

• Adopt best practices (such as data minimization, anonymization and encryption) to ensure user privacy is not compromised.

• Address and mitigate data privacy, data scarcity and bias challenges by generating synthetic data to protect privacy.

Collaborate and innovate faster

In the world of AI, models deployed into production are the singular proof point of productivity. Viya helps you get more models deployed by streamlining the entire data and AI and life cycle across data pipelines, model development, management and deployment, and the execution of automated and augmented decisions. Viya does this using automation and end-to-end AI and analytic capabilities, empowering your organization to hit deadlines, focus on business outcomes and innovate faster.

Viya also integrates with numerous programming languages and data sources so your organization can get more value from its broader ecosystem

and existing investments. The platform enables collaboration across business roles and skill sets so your organization can rapidly improve its AI maturity and gain a competitive advantage. Simply stated, Viya is the unifying force that delivers significant productivity gains in the development of AI. Additionally, you can access these capabilities and benefits on your terms – in the cloud of your choice, on the edge, and through APIs, all with flexible pricing and contracting terms that work for your business.

Empower everyone to do more faster

Viya provides a shared space where data scientists, business analysts and IT professionals can collaborate, learn from one another and develop new skill sets so they can do more faster than ever before. There's no "right way" to work in Viya, as users are free to write custom code using SAS or open source or drag-and-drop their way to developing new, best-in-class AI models. Flexibility extends to open data formats and the ability to combine multiple approaches – from statistics to computer vision – on one platform.

Build models that provide results you can trust

SAS understands that trust in AI-driven models starts with accuracy and precision throughout the entire data and AI life cycle – across data pipelines, model development and management and deployment, all the way through the execution of automated and augmented decisions. That's why Viya embeds governance into the entire model development and management process. The platform supports automated data and model lineage tracking, robust model management, and embedded model interpretability, fairness and bias monitoring functionality. At any time, users can automatically

The SAS Data Ethics Practice builds ethical considerations and best practices into our technology roadmap.

generate repeatable explanations of data and models in simple human language so they can understand how AI models support decisions that are explainable, transparent and fair.

Give people fast, easy access to the right analytics and AI

As business has moved into real-time, decision makers need analytic insights and AI-generated answers at their fingertips. Viya makes this possible, giving people frictionless access to what they need when needed. For example, they can instantly access powerful machine learning for specific short-term projects and use cases. Compute environments – both cloud-native and cloud-agnostic – are fully portable across on-premises, hybrid and multi-cloud environments. And analytics can be executed anywhere using APIs, either in a containerized or self-managed infrastructure.

Accelerate innovation and value realization

To achieve your digital transformation goals, you must reduce costs and improve time-to-insight to get value faster. By deploying in the cloud, your organization can get up and running quickly with solutions tuned to your requirements. SAS-managed offerings can also support faster, easier deployment of future projects with shortened lead times for the introduction of new applications, which translates into improved business value and productivity.

Equally important, you can innovate faster with new GenAI technologies. For example, you can integrate GenAI models with decisioning workflows into existing business processes, AI and ML applications and data sources. You can also combine complex math with GenAI for a conversational experience

with data and AI while preserving industry regulatory compliance. And you can use SAS' AI governance advisory services for ideating, experimenting and operationalizing GenAI in a responsible way.

Have a single point of contact and leverage their expertise

Viya allows you to consume the data and AI you need on your terms. Agility in Viya is enhanced through our SAS-managed offerings in the cloud. By optimizing the SAS environment, you can dramatically increase the throughput of analytics, improve your ability to quickly respond to business issues and free up analysts to produce more insights. And with SAS, you can do this under one roof, with one point of contact supporting your SAS solution.

Enhance governance

Viya also enhances governance of both advanced AI and machine learning models, as well as GenAI models. For example, you can use built-in workflows to validate the Large Language Model (LLM) life cycle from a regulatory, model risk and fine-tuning perspective. You can also enhance reporting with integrated dashboarding powered by BI tools that monitor LLM's performance and use case KPIs. And you can increase regulatory compliance with human-in-the-loop feedback mechanisms.

SAS is a leader in AI decisioning platforms

Forrester states that "SAS seamlessly integrates world-class analytics for decisioning" and cites SAS' strengths in "comprehensive data capabilities, decision intelligence technologies, user experience, breadth of authoring tools and ModelOps." SAS attained the highest score of any evaluated vendor in the strategy category. SAS Intelligent Decisioning – the SAS Viya AI decisioning solution evaluated by Forrester – scored 4.90 out of 5 overall.

Source: The Forrester Wave™: AI Decisioning Platforms, Q2 2023

05

SAS Viya at work:
Real stories, real results

Ultimately, SAS' primary technology "North Star' is to help businesses scale human productivity and decision making today. Viya is the foundation we've built for a future where data and AI capabilities are a click away so everyone can outpace tomorrow. Let's explore a few examples of how customers are winning with SAS Intelligent Decisioning enabled by Viya.

Government:

A modern data, AI, and IoT platform powered by Viya 4 helps Rijkswaterstaat move from reactive to predictive infrastructure maintenance.

The opportunity

Rijkswaterstaat has been responsible for the Netherlands' roads and waterways since 1798. They have just under 400 dashboards covering subjects ranging from very important, socially relevant topics – such as how many kilometers of asphalt are in use and what is the condition of that asphalt – to purely internal dashboards. Previously, they mainly reported on what had happened. Now, forecasting is the ambition – for example, to enable predictive maintenance on assets, which are full of IoT sensors that measure deviations from the normal behavior of a variety of components like bridges, floodgates and tunnels.

How Viya helps

Given the vast and continuously growing number of dashboards and their increasing importance, Rijkswaterstaat's analytics platform must be easily accessible and user-friendly for all employees. SAS Viya helps Rijkswaterstaat get more done with a faster, more productive Data and AI platform.

Realizing the benefits

Now they can control virtually every process in the organization with data. By transitioning to SAS Viya, they are ready for the future.

Read the case study to learn more.

"We control virtually every process in our organization with data, so it is essential that we work with an analytics platform that is user-friendly and accessible to everyone. By transitioning to SAS Viya, we are ready for the future."

Manufacturing:

Georgia-Pacific uses SAS Viya on Amazon Web Services to improve efficiency, reduce downtime, optimize logistics and predict customer churn.

The opportunity

As one of the world's leading makers of tissue, pulp, packaging, building products and related chemicals, Georgia-Pacific was at the center of COVID-19 supply chain breakdowns that led to empty grocery store shelves. To navigate widespread disruption, management needed to make faster, better decisions with data and advanced analytics, prepare for the next-generation workforce, optimize manufacturing processes with models and navigate rapidly changing market conditions.

How SAS Viya helps

Georgia-Pacific deployed advanced analytics and AI solutions powered by SAS Viya on Amazon Web Services as part of a broad digital transformation. The company generates about a terabyte of data that goes through thousands of ML models – all centrally governed – that generate **results decision makers can trust**. These models **elevate everyone** by helping them make the best decisions – from the shop floor to the boardroom – and achieve the best outcomes.

Realizing the benefits

With SAS Viya, management can **innovate faster** and use data to find the optimal balance of speed and quality to maximize profitability. The platform has increased overall equipment efficiency by 10%, optimized logistics so products get where they are needed most, and reduced unplanned downtime by 30%. ML models recalculate the next-best production process to save products from being downgraded or scrapped. And AI-powered computer vision watches production lines to detect problems for early remediation.

To learn more, read the full case study.
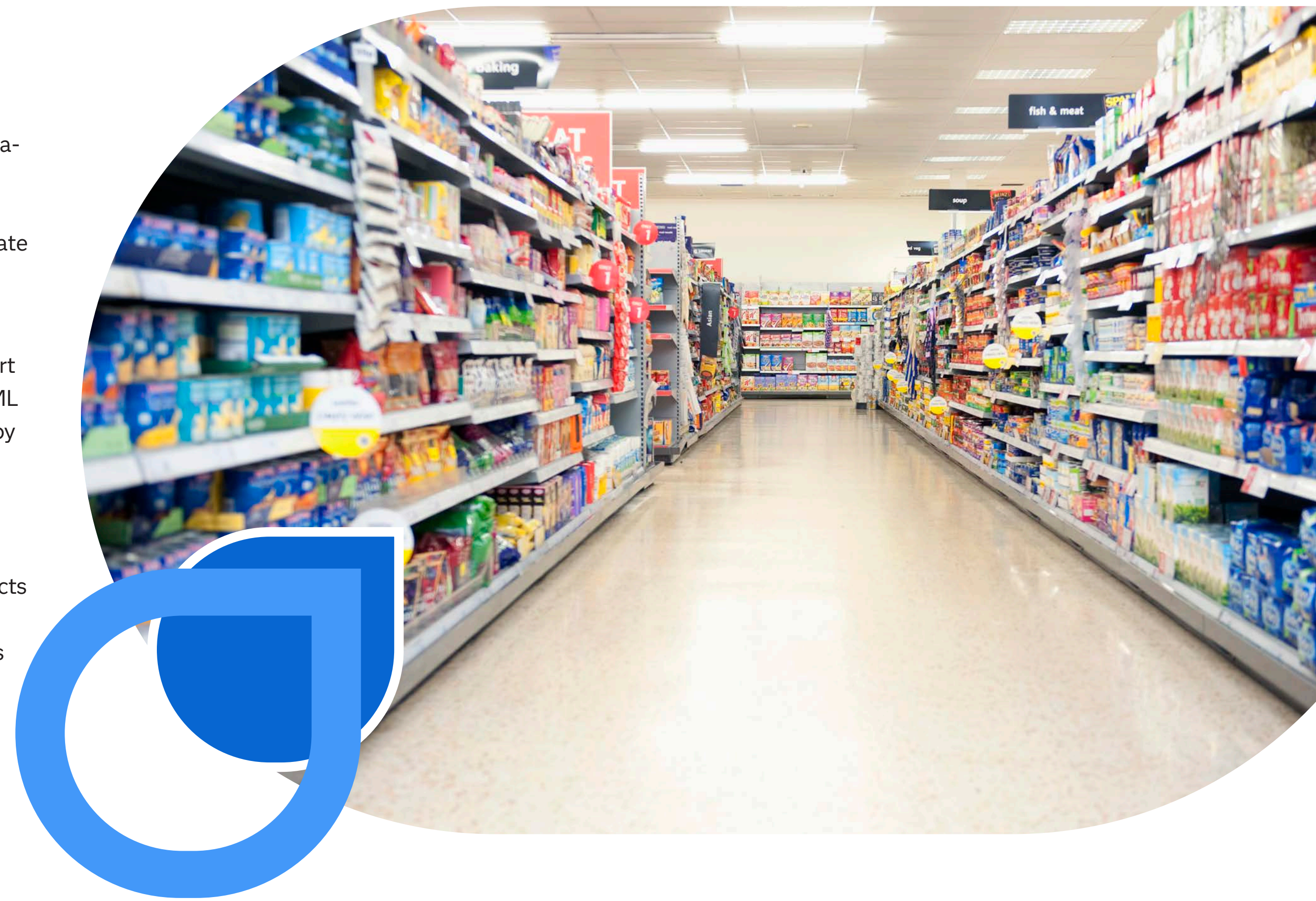
"The advanced analytics enabled by SAS allows us to find the optimal balance of speed and quality to maximize profitability. We're constantly pushing the envelope of what's possible with analytics."

Roshan Shah, Vice President of Collaboration and Support Center Operations, Georgia-Pacific

Banking:

Shawbrook Bank uses SAS Viya on Microsoft Azure to enhance its application of analytics, mitigate risk and meet customers' evolving needs

The opportunity

To succeed today, banks must embrace digital transformation to mitigate risk, meet regulatory demands and attract and retain savvy customers in a highly competitive market. Shawbrook Bank, based in the United Kingdom, is doing just that by transitioning from an on-premises data center to the cloud to improve the agility and scalability needed to manage that migration. Given the complexities of this initiative, Shawbrook chose to implement SAS Viya 4 on Microsoft Azure.

How SAS Viya helps

Viya would allow the bank to tackle data wherever and however it's delivered – on-premises or the cloud – and have the right connectors in place to quickly get it to modelers, users and business intelligence people, regardless of where they are. Second, the bank could take insights from that data, make fast decisions and take action immediately, rather than having to wait for a performance report. And by using the visual analytics capabilities of Viya, users can explore data and create and share smart visualizations and interactive reports through a single, self-service interface.

Realizing the benefits

With SAS Viya in place, Shawbrook can test and validate models before they're put into production, deploy models into business processes in a few clicks and easily monitor the performance of models regardless of the language used to create them. The bank has a centralized, searchable repository for all models, providing visibility into its analytical processes for traceability and governance. And most importantly, Shawbrook can maximize productivity, as people spend less time waiting for insights and more time acting on them.

To learn more, read the full case study.

"The new modeling techniques will give us an edge in terms of understanding the performance of customers better than we did before. We can choose to support more customers with their borrowing needs for the same risk, or we can actually choose to have less risk with what we do today. Having that optionality and improving that resilience in the business is really important."

Paul Allton, Chief Prudential Risk Officer, Shawbrook Bank

Learn more

SAS is committed to building the most comprehensive data and AI platform on the market today with next-generation AI that solves all the challenges you currently face across the complete analytics life cycle.

As a cloud-native data and AI life cycle, Viya enables you to centrally create, deploy, operationalize and manage automated and augmented decisioning solutions at scale so you

can derive insights and take action that results in business impact. Tactically, creating paths to decisions can also take many different forms, whether it's creating decision trees, using prebuilt data models or developing custom workflows. With Viya, all are possible through collaborative means, which ensures your people can get more work done faster and easier than ever before.

To learn more about how your business can operationalize
SAS Intelligent Decisioning with Viya, visit **sas.com/viya**.

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To contact your local SAS office, please visit: **sas.com/offices**