



# The modern data pipeline: Fast, frictionless, and automated

Build data momentum. Empower your teams.  
Unlock strategic innovation.

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# Accessible, trusted data accelerates the journey from insights to actions.

The data boom continues unabated. More than **60 zettabytes** of data was created and replicated in 2020,<sup>1</sup> and new data creation through 2025 is predicted to more than double the amount of data generated since the dawn of the digital era.<sup>2</sup>

With so much data being generated, making strategic decisions backed by trusted data has never been more important. McKinsey Global Institute says that data-driven organizations are 23 times more likely to acquire customers, 9 times as likely to retain customers, and 19 times as likely to be profitable.<sup>3</sup> Recent research by Snowflake, How to Win in the Data Economy, shows that only 40% of business and technology leaders surveyed had a fully developed data strategy, and 41% have missed out on strategic business opportunities because of poor data management.<sup>4</sup>

Data can be a powerful business asset—one that can accelerate strategic decisions, fuel innovation, and communicate opportunities to your teams and customers. But many organizations still find it a challenge to harness their data and provide reliable and actionable insights. Common barriers to the success of data and analytics strategies revolve around the lack of a data culture, friction within the data pipeline, and delays in taking data-driven actions. Let's look at each of these in more detail.

**60+**  
zettabytes

Data created and replicated in 2020.<sup>5</sup>

**83%**

of CEOs want to create a more data-driven organization.<sup>6</sup>

**52%**

of organizations have yet to appoint a Chief Data Officer or similar role.<sup>7</sup>

**25%**

of organizations have a strong data culture.<sup>8</sup>





# Data alone won't make you data driven.

## You need to establish a data culture.

Although most companies (97%) have invested in the people and technologies needed to collect, analyze, and store more data,<sup>9</sup> few can claim to be truly data driven and even fewer can claim to have a data culture. Only one in four consider themselves to be data driven, and fewer than one in five believe they have established a data culture.<sup>10</sup> In fact, close to 90% identified data culture as their greatest challenge.<sup>11</sup>

In a data culture, everyone in the organization can work with the data they need and there is a fundamental shift in the way people think about and act on their data.



The most senior executives of data-driven organizations are much more likely to mandate powering innovation with data-driven insights. Other defining characteristics of data-driven organizations are using data to inform all or most of their decisions and effectively using data to advance their strategic business goals. These organizations also report stronger financial performance over the past three years compared with less data-forward counterparts.<sup>12</sup>

**97%** or more of survey respondents reported their organizations were investing in data initiatives.<sup>13</sup>

**26%** report that they have created a data-driven organization.<sup>14</sup>

**19%** indicate that they have established a data culture.<sup>15</sup>



Many organizations underestimate data transformation timelines and struggle against the inertia of legacy systems, cultures, skill sets, and mindsets.

### Companies with a strong data culture:

- Align data and analytics to business outcomes.
- Prioritize data in decision making and business processes.
- Encourage sharing and community, uniting over a shared mission to lead with data.
- Focus on democratization, making data more accessible to nontechnical business people.

Traditional data pipelines are filled with friction that impacts the quality of data and the speed and productivity of data and analytics talent. Data and analytics workers

spend between 25% and 50% of their time collecting, preparing, and quality-controlling data<sup>16</sup>—time they'd prefer to spend growing their skills or focusing on more fulfilling work like developing business insights, validating market opportunities, and refining business data value through machine-learning (ML) models.

Moreover, friction leads to mistakes that can cost your organization time and money. A recent Gartner report found that poor data quality costs companies about \$12.9M per year.<sup>17</sup>

**\$12.9M**

Average annual costs of  
poor data quality.<sup>18</sup>





# Minimize friction in your data and analytics pipelines.

By investing in the right strategies and technology, organizations can reduce friction, boost data quality, deliver better insights, and free their people to do more impactful work.

## Reduce the complexity of managing large volumes and variety of data.

Data engineers collect data from countless sources including IoT devices, logistics systems, emails, documents, customer management systems (CMS), and databases. Handling such vast quantities and varieties of data requires advanced skills and manual scripting to format the data for storage and analysis. Reducing the complexity of managing data loads decreases the burden on expert resources and improves data quality.

## Perforate data silos.

Despite the mountains of data already flowing through data pipelines, valuable data remains locked away in data silos, documents, legacy systems, and custom or web applications. New and valuable insights can be unlocked if they are centrally stored and easily accessible.

## Continuously improve data quality.

Data-driven decisions are only useful when drawn from good data. By reducing human error and continuously checking data for duplicates, completeness, and correctness, data becomes more reliable and trusted by consumers; decision making is easier when using relevant data instead of intuition alone.

## Avoid disruption caused by change.

Data drift, unexpected and undocumented changes to data structure, semantics, and infrastructure can break processes and corrupt data, causing disruption and friction within data and analytics. By developing and adhering to a data governance framework, organizations can identify data drift early and take corrective action to avoid disruption.

## Close the gaps between insights and actions.

Friction extends beyond data visualization, affecting downstream business processes and delaying action by consumers of analytical insights. Delays often occur when there is a separation between applications requiring action and insights that guide decisions. Closing the gap between insights and actions enables employees to act faster, reduce mistakes, and avoid disruptions.

Transforming into a data-driven organization isn't easy. It requires a strategic investment in both a data culture and the supporting technologies to free data and analytics pipelines from friction, improve the ways people make decisions, and ultimately, realize more value from data.





## Best-of-breed technologies remove friction and support a data culture.

A leading-edge technology stack supports a better data culture, effectively democratizes data and analytics, and removes friction from the data pipeline.

The key to success is to leverage an ecosystem that has already devised connectors, frameworks, quickstarts, and architectures that have been tested in the field. By taking an ecosystem approach, you can use best-of-breed technologies that include data lakes and data warehousing, artificial intelligence (AI)/ML, data analysis and visualization, security, governance, and automation. It is important to ensure that these technologies natively connect and integrate with each other to reduce the cost and complexity of scaling data and analytics across your organization. Leading-edge data and analytics leverage multiple leading solutions and can be combined to achieve several outcomes.

### **Increase speed, agility, and scale in the cloud.**

Employees from every corner of the business need access to trusted, governed data that is optimized for analytics to innovate, discover new opportunities, and make data-driven decisions.

The elastic compute power of a modern cloud data platform is required to bring data together from across the organization, keep information secure and accessible for employees to analyze, and discover insights that drive timely action.

40%

of I&O teams will use AI-augmented automation in large enterprises, resulting in higher IT productivity with greater agility and scalability.<sup>19</sup>

59%

of global workers said they'd like data input and data set creation to be automated.<sup>20</sup>

### **Optimize data value with clear, self-service analytics and visualizations.**

Although many organizations have made investments in their data foundation, they still rely on prebuilt reports from an intelligence team and often find that these reports do not answer real-time business questions accurately and at the speed that the business needs.

Intuitive analytics and visualization tools empower employees to explore data previously inaccessible to them. Using self-serve visualization tools, employees can share insights with ease, drive strategies, and find more meaning and connection in their work.

### **Automate data pipelines and turn decisions into immediate action.**

A large amount of manual work drives most data pipelines. From collecting and preparing data for analysis to testing and updating data in the data cloud, manual work costs time and introduces mistakes.

Automation is a valuable tool to reduce manual work, speed up data pipeline operations, drive better quality data, and avoid disruptions. Moreover, automation triggered from where decisions are made reduces effort and human errors that occur when navigating between systems and performing tasks manually.

### **Spark continuous innovation with artificial intelligence and machine learning.**

Turn mountains of historical data into decision-ready information that drives new, smart ways to engage your customers and employees. Use ML models to upgrade legacy decision engines within your analytics and applications and drive new, bottom-line value from data you already have.

60%

of existing models built on traditional data will be replaced by context-driven analytics and AI models.<sup>21</sup>





# Keep your data scalable and secure across cloud environments.

Having data and analytics in the cloud removes barriers to access and trust while strengthening data governance. This influences important behavioral changes in how people use data to collaborate, innovate, and solve business problems. It ultimately improves organizational agility and resilience.

## **Control data management costs.**

If powerful data fuels your enterprise, the cloud boosts efficiency. The cloud is a cost-effective way to harness data with an OpEx model rather than a locked-in CapEx strategy.

## **Accelerate data consumption.**

Promoting a data culture requires leadership to make strategic and operational decisions based on data-driven insights that can easily be extracted from different applications. For example, leaders can use operations data to identify inefficiencies in supply chains, manufacturing processes, and fleet operations. They can also build machine-learning models that use detailed customer data to make new, personalized, real-time sales recommendations. The benefit of the cloud is that it provides elastic computing power to handle fluctuating demands for data storage, access, and analysis.

## **Govern data access and quality.**

To strengthen a data culture and promote effective data use, organizations must provide secure access to authorized business users. Cloud-based data architectures enable centralized storage, management, and governance at scale, supporting data democratization. Cloud services include features for governance and data management supported by automated policies. When users can easily tap into useful, clean, and accurate data, they work more efficiently and are more likely to trust the data's quality when making decisions.

## **Promote data discovery, access, and innovation.**

The cloud helps organizations augment and contextualize their data by seamlessly incorporating third-party data sets into different applications and work streams where people spend most of their time. With combined data collection and greater access, employees across departments and levels get the same opportunities as data analysts to discover and contribute insights that move the needle for the business.



# Transform how you use data with visual and intelligent self-service analytics.

For most businesses, data analysis is provided via business intelligence reports created by skilled data scientists and analysts. These prebuilt reports often are not flexible enough to answer business questions at the speed required, or they may lack business insight.

Business teams hold domain knowledge that data science teams may not always tap into. At the same time, data scientists are often used for ad-hoc work, rather than focusing on complex and more mission-critical company problems that require rigor and statistical analysis.

A new approach that Tableau calls “business science” describes the use of artificial intelligence and machine learning in analytics products to lower the barrier of using data science techniques, enabling business users and analysts to make smarter decisions faster.<sup>22</sup>

## **Democratize data science.**

By using a business science approach to analytics, employees throughout the organization can interact with dashboards, visualize trends, drill down to discover actionable insights, and share insights with ease.

Employees can build reports or enhance prebuilt reports by adding their own visualizations and analysis, allowing them to answer their unique business questions with intelligence.

## **Visualize data.**

Internal stakeholders and customers—that are often not data scientists—need to understand the output of analytics. Visual analytics provides new insights and tells a data story that internal stakeholders and customers can understand and that prompts action.

## **Augment analytics with the power of AI.**

Analytics powered by AI and ML expand human ability to interact with data at a contextual level, allowing employees to explore data previously inaccessible to them, ushering in an additional level of advanced analysis, such as predictive analytics.

## **Query data with natural language.**

An organization can reduce data literacy barriers by using AI-supported natural language to interact with data. Users ask questions in natural language; the system understands the intent and context, then generates an answer in data visualizations and graphs.

## **Generate insights.**

AI can speed up insights by automatically generating new views, analyses, and insights based on user selections and natural language searches. The output can include charts and visualizations, visual stories that describe key findings, and even written executive summaries with narrative insights that change as users explore the dashboard.

## **Take immediate action where you make decisions.**

Turning decisions into actions is the last mile of the analytics pipeline; it’s where employees act upon the analysis produced by their analytics. One-click calls to action, alongside related analytics dashboards, leverage information from analytics and trigger automated business processes that accelerate time to action and reduce errors.



# Boost productivity and speed up actions with intelligent automation.

Employee engagement, productivity, and creativity can plummet under the burden of repetitive, manual data processes. Highly skilled data professionals that create scripts to prepare, validate, and monitor data can also get bogged down in script upgrades and maintenance.

Intelligent automation takes on repeatable, high-frequency tasks and operationalizes the output of your best talent, making key processes maintenance free and easy to scale. Automating data pipeline tasks, such as data collection, consolidation, cleansing, formatting, validation, and actioning, removes the inefficiencies that make tasks boring and reduce employee productivity.

## Automate data ingestion.

Data volume, disparate sources, and diverse data types introduce complexity and data quality challenges. Automation allows data analysis of all your enterprise and external data sources with automated data capture from difficult-to-access locations.

Robotic process automation (RPA) makes it easy to grab data sets from any source, deliver them to staging areas, automatically check for quality, and spot data drift early—ensuring that machine-learning models produce accurate projections.



## Enrich data with expanded data sources.

It's useful and often critical to inject new data into an in-flight analytical process. A good example might be to gather customer contact info following an attrition analysis to send high-risk accounts a time-sensitive offer. Relevant data can be quickly and automatically pulled into the analytical workflow via application programming interfaces (APIs), data stores, user interfaces, and enterprise business applications. This approach accelerates analytical workflows by providing access to just-in-time data, which expands your capacity to support multi-stage analyses previously too complex to even contemplate.



### Process any data type.

Data often requires format-specific scripts and processing pipelines to ready it for analytics and machine learning. Using RPA, structured, semistructured, and unstructured data is collected, processed, formatted, and stored for fast, secure access by data analysts, end users, and business teams.

### Cleanse and reformat data.

Automated data cleansing removes typos and missing values, while automated formatting organizes data so it can be uploaded into your data warehouse or data lake, or it can be consumed directly by a downstream process. Unlike macros and scripts, RPA-based automations require little to no maintenance and adapt quickly to meet the needs of new machine-learning models.

### Test and validate data continuously.

Manual data quality testing and quality assurance (QA) is time consuming, costly, and prone to errors. It's also cumbersome to automate, usually via cron scripts on a specific server. Automated, AI-based data testing validates that your data is clean, compliant, and machine learning ready while elevating oversight to the business owner (e.g., compliance officer), who would otherwise depend on data engineers to implement even basic data validation. And when issues arise, an automated environment uses notifications to bring human experts into the loop to make informed decisions.

Automated testing can also identify data drift early by continuously validating data structures, semantics, and infrastructure to avoid disruption down the line.

### Trigger actions and downstream processes.

Trigger actions directly from your data visualization dashboard. Consumers of analytics can initiate actions themselves or rely on automated processes that trigger activity when a specified condition is met, eliminating human intervention and error.

### Reduce effort in AI/ML operations.

Automation makes it easy to operationalize ML models and analytics, connecting them to applications faster and more reliably. Automation provides the mechanism to quickly surface new decision models with low effort, speed up the “last mile” of machine learning, and enable end users to benefit immediately from the latest innovations of their data science teams

**67%** of global workers feel they are constantly doing the same tasks.<sup>23</sup>

**58%** of global workers said their jobs do not allow them to be as creative as they would like.<sup>24</sup>

**5 hours** per worker are wasted each week on automatable tasks.<sup>25</sup>





# Learn more, make better predictions, and act faster with AI.

CIOs and CDOs want to extract full value from their vast stores of business data to build smarter applications and make better predictions. Artificial intelligence (AI) unlocks that value by leveraging machine learning and deep learning to provide insights, intelligent automation, and new ways to interact with data.

## Predictive models and machine-learning

Data science teams within organizations convert high-quality data into machine-learning models that recognize patterns in data and generate predictions to drive better decisions previously only performed by experienced humans. Common applications for machine-learning models include anomaly detection, data classification, forecasting, personalization, computer vision, and natural language processing.

Data used to train a machine-learning model needs to be of the highest quality to ensure that predictions are as accurate as possible. Data preparation and cleansing are essential for a healthy AI environment to ensure that ground truth data is completely trustworthy.

## Data science team productivity

Improving the productivity of data scientists is a critical enabler of AI-led innovation. With fewer data management issues to address, they can devote more time to improving model quality, training and testing models to ever-higher standards of accuracy. Data scientists employ a variety of approaches to build models, including supervised learning to recognize specific patterns (e.g., identifying vehicles in an image, text in a document, or words in a call center recording) and unsupervised learning to find hidden, underlying patterns within a historical data set (e.g., detecting anomalies, segmenting customers into natural cohorts, or recommending new content). The effort required to label data to support supervised learning models can also add a significant burden that reduces the efficiency of the ML pipeline, as humans are required to identify, review, and verify labeled content.







### Experimentation as a catalyst for innovation

There is a mandate for organizations to experiment using AI, and nearly 96% of organizations have some form of pilot or AI rollout within limited production.<sup>26</sup>

The value of any machine-learning model can only be verified after it has been built, trained, and tested. A high-friction ML pipeline will produce fewer models and require more effort, which requires senior leaders in the IT organization to be very selective about the projects they assign to their data science teams. This dynamic constrains innovation, as fewer attempts can be made to discover better decision engines that may benefit the business.



96%

of organizations are undertaking a pilot or AI rollout within limited production.<sup>27</sup>

26%

of organizations report AI capabilities delivered into widespread production.<sup>28</sup>

The converse is also true; a low-friction ML operations pipeline will drive innovation. When the effort required to build and train models is minimized, data scientists can run more experiments more often. They'll use their intuition to design new models to see whether they produce positive outcomes, knowing that failure is inexpensive and success might be game changing for the business. Embracing high-frequency, low-cost experimentation is essential to unlocking the innovation cycle. Failures are not only accepted, they are embraced as they lead to learning, which leads to new experiments and eventually new breakthroughs.



# Case study: Avison Young



## Tapping new data insights for clients with UiPath, Tableau, and Snowflake

UiPath automation empowers Avison Young's commercial real estate advisors to uncover and share previously unknown opportunities for clients and to deliver insights and service innovation faster.

### Complex data challenges—solved

- Disparate data sets (internal and external)
- Inconsistent data use
- Inconsistent data insight presentations to clients
- High-value employees spending time pulling and consolidating data

With confidence in the accuracy, availability, relevance, and quality of their data, Avison Young analysts can test theories faster and look for hidden correlations.

For example, the firm may seek to understand the types of corporate real estate that drive workforce productivity, innovation, and satisfaction in a specific market. An agile, automated data pipeline empowers them to connect factors such as office design versus utilization, the number of coffee shops within walking distance, or their downtown's bikeability.

Dynamic visualization by Tableau, supported by automation and machine learning, gives analysts more

time to ask the right strategic questions and then share findings with the speed necessary to make decisions and take action in the fast-paced, global real estate marketplace.

A cloud-first data infrastructure with Snowflake scales to meet organizational and client demand and increases the speed of data ingestion, consolidation, and automation—transforming insights into real-world results.

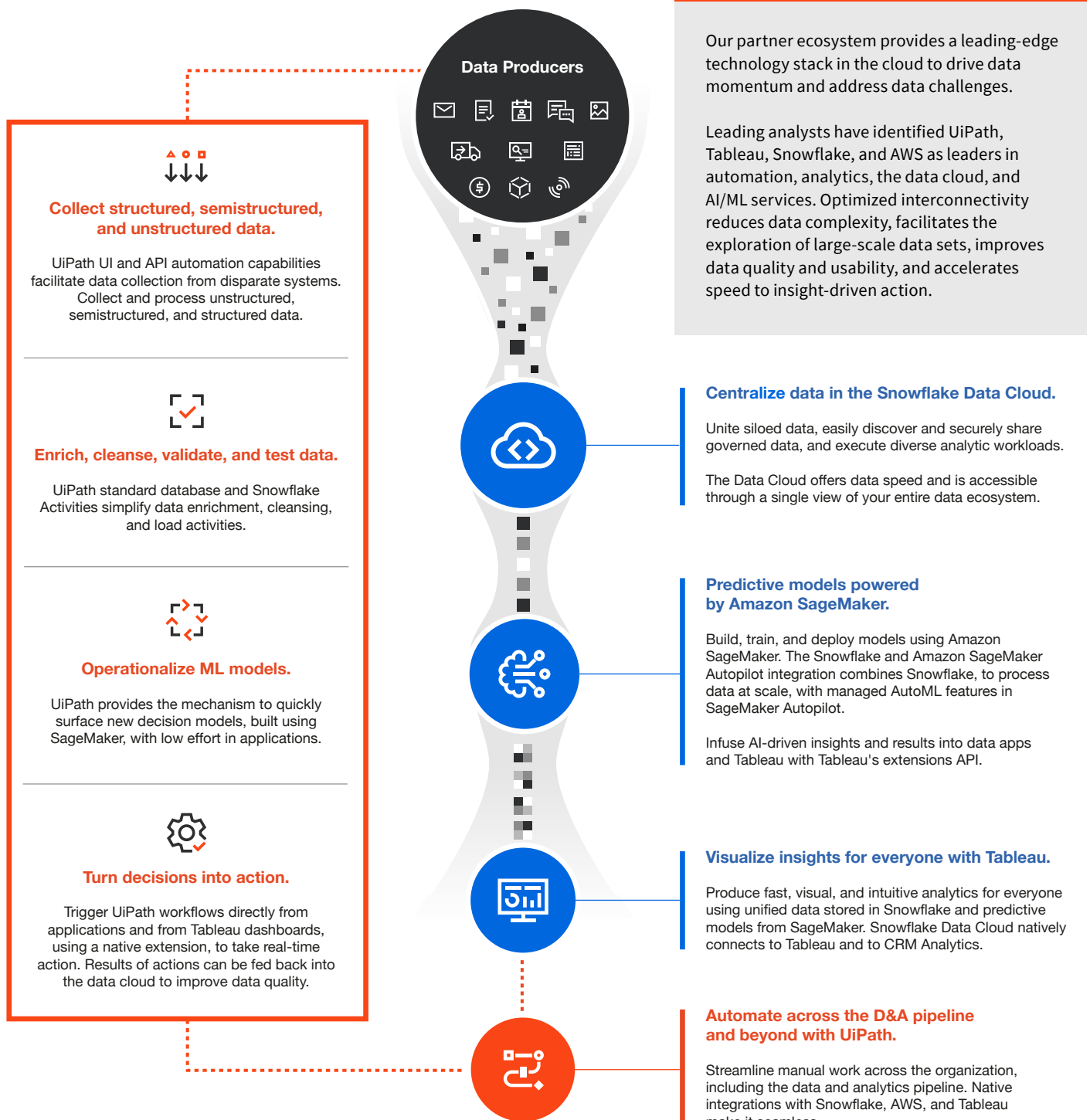
**“One of my favorite things to do is blend disparate data sets together to surface new insights we couldn't ultimately find in any one of these data sets by themselves. UiPath makes it easier for our teams to integrate and consolidate data, which all has to be done before we can start to explore the data and discover insights.”**

**Dave Sawdey**  
Avison Young  
Global Leader of Portfolio Analytics  
and Business Intelligence



**Enable Your Team with Data and Insights Through Automation—A conversation with Avison Young.**

# A powerful best-of-breed technology stack





# UiPath: A leading end-to-end platform for automation

UiPath—a leader in the Gartner® Magic Quadrant™ for robotic process automation for four years running—gives you an end-to-end platform for automation, combining the leading RPA solution with a full suite of capabilities that enables every organization to rapidly scale digital business operations.

## Build resilient automations faster with UiPath Studio.

UiPath API and UI activities streamline data collection, while the UiPath Database Activities and connector for Snowflake connect the UiPath platform to the data cloud. Robots can interact, extract, process, and augment centralized data for downstream use.



### Avison Young

A modern data pipeline empowers Avison Young's commercial real estate advisors to explore data territory they couldn't access before.

## Seamlessly trigger downstream processes.

Optimize business-critical processes, such as supply chain management and customer service, by triggering automated workflows directly from your dashboards with a native connector for Tableau. Feed results of actions back into Snowflake, or the source system, to improve data quality and generate better prediction models in Amazon SageMaker.

## Automate with robots, escalate to humans.

Automate data operations, and when robots need help handling exceptions, validation, or require input, automatically create a task and delegate it to a person with UiPath Apps and UiPath Action Center.

## Ensure data quality and compliance.

Continuously test and validate data to increase the reliability of critical processes at scale with UiPath Test Suite.

**“UiPath makes it easier for me to use intermediately skilled resources to build automations that get data blended into a single cohesive data model, get the data as clean as possible in an automated fashion, and auto-generate reports and presentations to push out to clients as research papers and insights.”**

**Dave Sawdey**  
Avison Young  
Global Leader of Portfolio Analytics  
and Business Intelligence

### **Manage and scale AI for quicker results.**

Incorporate AI and ML models into your automations with the help of UiPath AI Center. Prebuilt models, AI solution templates, multiple deployment options, and a drag-and-drop interface make it fast and easy to deploy. Incorporate your own AI skills, pretrained AI skills developed by UiPath, or AI technology such as Amazon SageMaker.

### **Unlock unstructured data with intelligent document processing.**

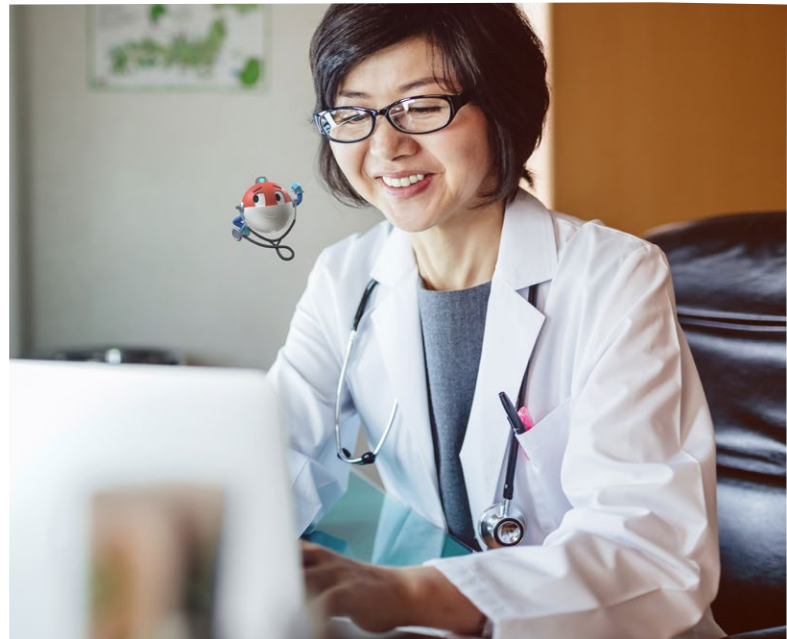
Get a 360-degree view of your data by incorporating unstructured data locked away in documents. Extract, interpret, and process data from documents such as PDFs, images, handwritten pages, and scans with UiPath Document Understanding.

### **Increase transparency and compliance with a full audit trail.**

Use UiPath Orchestrator to schedule automations that execute scripts in a preplanned manner and at regular intervals. Orchestrator tracks and logs everything every robot does, along with everything people do with robots, so you can keep compliant and stay secure.

### **Monitor your automation ROI with RPA-specific analytics.**

Use UiPath Insights, an RPA analytics solution, to track, measure, and manage the performance of your automation program. Easily report any time and money savings generated by RPA to your organization.



 **Get started with UiPath.**





# Tableau: The world's leading analytics platform

Tableau has been a leader in the Gartner® Magic Quadrant™ for Analytics and Business Intelligence Platforms for 10 consecutive years—giving you the broadest and deepest end-to-end data and analytics platform.

Tableau ensures responsible use of data to drive better business outcomes through native data management and governance, visual analytics, data storytelling, and collaboration capabilities. Take action on your business insights with recommendations from Salesforce's industry-leading Einstein AI technology.

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**To kickstart your data culture journey with Tableau:**

## **Start with best practice.**

Check out Tableau Blueprint—a step-by-step guide to becoming a data-driven organization that outlines the processes and best practices from thousands of customers. Blueprint provides concrete plans, recommendations, and guidelines across critical foundational work to turn repeatable processes into core capabilities.



### Democratize your data.

Tableau offers the flexibility to ensure that all users can connect to any data, wherever they are. Make data more accessible to nontechnical business people through augmented analytics. Augmented analytics refers to tools and software that bring additional analytical capabilities to more people, whether it is done with system-generated and visualized data stories, actionable recommendations, visual insights on outliers and expected values, or written executive summaries of a specific query. Enabling individuals and teams to see, understand, and maximize the value of their data and derive insights faster is a competitive differentiator for modern businesses.

### Accelerate from insights to action with best-in-class technologies.

Act on data from within a user-friendly dashboard, automating repetitive tasks and freeing up time for deeper analytics. Tableau natively connects to Snowflake Data Cloud, providing a great way for organizations to bring internal and third-party data together for richer, high-performing analytics. Tableau also allows you to harness the full power of UiPath RPA. Native Tableau integrations enable users to connect data insights with a software robot that can automatically perform actions and trigger downstream business processes. This happens in the cloud, so data analysts and IT teams can spend less time managing hardware and data preparation and more time using data to drive innovation and key business decisions.



**Get started with Tableau.**

### Huel

Tableau empowered food company Huel to shift away from manual reporting processes and create a thriving data culture that improves customer insights and data-driven strategic decisions and democratizes data across the enterprise.

**“Tableau is central to our data culture, which goes beyond mere reporting. It empowers our employees to explore the data, to confidently analyze and tackle complex business challenges, meaning everyone has a stake in driving our growth.”**

**Ollie Scheers**  
Huel  
Ecommerce Director





# Snowflake: A leader in analytical data infrastructure

The Snowflake Data Cloud™ maintains a perfect recommend score in the 2022 Wisdom of Crowds® Analytical Data Infrastructure (ADI) market study, and is ranked as an overall leader in both customer experience and vendor credibility, with 100% of Snowflake customer survey participants recommending Snowflake to other organizations for the fifth consecutive year.

Snowflake delivers a built-for-the-cloud architecture that enables disparate teams to work on the same data for a wide range of workloads. Using Snowflake, organizations have the ability to scale their data cloud up and down as the situation demands, and its unique shared-data architecture allows for easy scalability.

**“Having data in the cloud makes it much easier for us to manage and control and build a model and share it. Snowflake makes it easier for us to blend data, analyze the data, and share the insights with our clients.”**

**Dave Sawdey**

Avison Young  
Global Leader of Portfolio Analytics  
and Business Intelligence

## Avison Young

Snowflake brings the commercial real estate firm data speed and ease they wouldn't have otherwise. They can access the data rapidly, rather than waiting on one or two data scientists to process data requests.

Inside the Snowflake Data Cloud, organizations unite their siloed data, easily discover and securely share governed data, and execute diverse analytic workloads. Instead of separating production and analysis databases, Snowflake uses virtual data clouds to allow unlimited access and computational power, delivering performance, simplicity, and affordability.

Teams across your enterprise benefit from self-service data management and reliable data for analysis and accurate, high-quality insights. The Data Cloud offers data speed and is accessible through a single view of your entire data ecosystem.



**Get started with Snowflake.**

# Amazon Web Services: A leader in cloud AI developer services

Amazon Web Services (AWS) is a leader in the Gartner® Magic Quadrant™ for Cloud AI Developer Services and provides multiple types of AI/ML services to help customers create impactful solutions faster.

Developers can quickly add intelligence to applications without needing ML expertise using pretrained AI services to do things like create more intelligent contact centers, improve demand forecasting, detect fraud, and personalize the consumer experience.

For ML practitioners and data scientists that want to access and analyze data, and build, train, and deploy high-quality ML models, Amazon SageMaker offers a broad set of ML capabilities used by tens of thousands of customers.

AWS provides cloud service infrastructure that powers all these capabilities, from ML-optimized servers and processors to virtual machine images that deploy quickly

and reliably every time. Specific to AI and ML, AWS services enable developers to add intelligence to their applications as well as build new intelligent applications from the ground up. Amazon SageMaker provides all the tools needed to build ML models and drives up to 10x improvement in productivity for data science teams and a 54% lower TCO compared to other cloud platforms.

The combination of ML intelligence from AWS and automation from UiPath makes it easy for customers to operationalize their ML models and analytics, connecting them to applications *faster* and more *reliably*. Automation provides the no-code/low-code mechanism for quickly surfacing new decision models built using machine learning with *minimal effort*. Within the context of the broader data pipeline, SageMaker consumes data that has been gathered, stored, and prepared into an ML-ready state using market-leading technologies like Snowflake.







Snowflake is one of many data sources that data scientists can access using Amazon SageMaker. As the data cloud of choice for many, Snowflake provides data science teams with a single data source in which operational data has already been consolidated. Snowflake has powerful data management capabilities that accelerate data preparation and cleaning, reducing the burden on data scientists to manually perform these tasks. The Snowflake and Amazon SageMaker Autopilot integration combines Snowflake's power to process data at scale with the managed AutoML features in SageMaker Autopilot.

SageMaker-built ML models can be consumed and surfaced in Tableau dashboards as the primary interface to end users with Tableau's extensions API. Incorporating ML within UiPath workflows also delivers intelligent automation that improves performance and speeds up actions within business processes. For example, an inventory-forecasting model built in SageMaker provides the stock reordering levels to Tableau based on a complex analysis of the supply chain. The Tableau user receives an alert when inventory levels dip below the reorder level for each individual item, which can trigger the generation of a new order with UiPath automation.



**Get started with SageMaker.**

## **AstraZeneca**

Working with AWS, the global pharmaceutical company used Amazon SageMaker to build an agile machine-learning environment that lets data scientists analyze large data sets at scale. With the solution, they reduced time to insights from 6 months to 2.5 months and reduced manual workloads for more than 100 data scientists.

**“Because the solution has infrastructure as code, it's simple to repeat. We don't need to reinvent the wheel for projects. We can share this solution across different internal and external partners where it makes the most sense.”**

**Cherry Cabading**

AstraZeneca

Global Senior Enterprise Architect







# Tap innovative, industry-leading technologies to deliver the modern data pipeline.

It's time to create a truly data-driven enterprise.

Combine innovative technologies from industry-leading vendors so your data lives up to its promise. With these solutions, you have a modern data pipeline that supports a data culture, removes friction, and delivers real-time data insights and automated actions that improve customer experiences, elevate client outcomes, and drive results for your business.

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**Together, these best-in-class data and analytics solutions deliver:**

**More accessible data and analytics across the organization.** Analyze all of your enterprise data and all relevant external data, then seamlessly share your data analysis quickly and visually.

**Faster, better decisions** based on trusted insights and data.

**More time for data talent to grow, experiment, innovate, and discover new opportunities.** A user-friendly data technology stack is the key to optimizing the productivity of your highest-value employees while engaging them with the modern tools they prefer.

**Data-focused technology that delivers rapid insights and actions.** Accelerate strategic data agility so your enterprise can innovate faster and more efficiently today—and into the future.

 **Learn how the modern automated data pipeline can unlock your data.**



## Sources

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