An AI-driven business model that’s sustainable, trustworthy and scalable

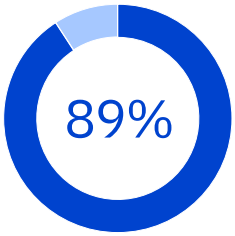
Gain more efficient business operations, compelling customer experiences and insightful decision-making capabilities

Accelerating AI integration across your enterprise can generate positive business growth. What happens when you can't see the biggest threat to your organization and it's right in front of you? 90% of AI initiatives have yet to move beyond the test stages as companies struggle with scaling their AI across the enterprise.[1] In addition, AI and analytics teams aren't getting the value they need out of their data science investment.

Often, enterprises don't have the required breadth of talent and depth of knowledge to engineer a repeatable system that can provide consistent model output across the business. Designing a system of this kind requires a solid understanding of data platforms, as well as AI expertise. For example, how does a data scientist get an AI model output to fit into the right business process with the correct information and deliver it to the right human at the right time?

Addressing these challenges is where intelligent workflows come into play. AI-driven processes are how the work gets done. And they result in more efficient business operations, more compelling customer experiences and more insightful decision-making. Enterprises can capture significant gains across the value chain with AI, but organizations have to do it right from the very beginning or run the risk of accruing fines, penalties, errors, corrupted results and general distrust from their business users and the market. According to Forrester Consulting, organizations that scale AI are 7x more likely to be the fastest-growing businesses in their industry.[2] However, to successfully scale AI throughout your organization, data complexity, talent scarcity and a lack of trust in AI systems must be overcome.

IBM Services® for AI at Scale can help make it happen.

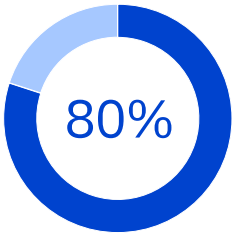


of enterprise decision makers agree that scaling AI leads to competitive differentiation.[2]

Benefits of IBM Services for AI at Scale

Purchased as a consulting service, IBM® Services for AI at Scale provides you with the means to consistently integrate and scale AI and ML pilots straight into production—as well as run and manage those models over time. Doing so can result in the following benefits:

- **Reduced model deployment costs**. Building a portfolio of reusable assets exponentially increases data science and developer productivity.
- **Faster deployment**. Models make it to production more quickly, generating promised business value.
- **Increased growth**. Scaling analytics, joint experimentation and co-creation with data scientists opens up new possibilities.
- **Reduced production support costs**. Outsourcing AI and ML model management and support improves efficiencies.
- **Increased employee satisfaction**. Data scientists get to focus on model development, not model maintenance or data wrangling.
- **Reduced risk and increased adoption**. Trustworthy AI mitigates the risk of misusing models that could cause harm to humans, thus gaining user adoption, so the business can achieve value from AI.



80% of firms expect AI use cases to increase in number within the next two years.[2]

Our methodology

The IBM Services for AI at Scale methodology integrates our strategy and process plans with our key AI differentiators—AI that's sustainable, trustworthy and scalable—to help our clients reach their business goals. We provide everything from up-front strategy, to co-development of models and processes, to full outsourcing needs.

How we do it

- **We start with a vision to establish and scale trustworthy AI and data** as key business strategy components for competitive advantage. We base it on a measurement framework to generate genuine AI value that you and your clients can trust.
- **We advise and work collaboratively with your team to build a tailored operating model.** We understand that each organization is different, and what works for one won't work for another. For example, a federated model instead of a non-federated model. We then work side by side with you to develop a pipeline of initiatives that produces measurable business value through the harvesting of AI assets by scalable and connected teams.
- **We guide your data and technology direction for AI** with the ability to migrate and build new AI and ML data-driven applications on a data platform that's flexible enough to gather, integrate and manage data for multiple use cases, platforms and clouds.
- **We position AI operations as a key component** and critical part of rolling out data science and AI models repeatably, consistently and at scale with four main objectives: engineer, deploy, monitor and trust.
- **We help develop change management for increasing AI adoption rates** with minimal risk by establishing active, enterprise-level change management. This approach can identify and address blockers to the ways in which AI can create value for your enterprise.
- **We develop environmentally sustainable and trustworthy AI** that minimizes operational and transformation risk through the use of actionable, trusted AI and ML-driven insights.

We work with what you have

An important detail of IBM Services for AI at Scale is that you don't have to start over. That's because we work with your existing environment: your intelligence automation, your governance and your data management. And we can do it on essentially any cloud, including a hybrid multicloud. You gain full visibility and control over your workloads—wherever they run—generating real business value.

That's for starters

Our strategy can also include introducing different programs, tools or technologies, as needed, to help ensure your success in meeting your AI at scale business goals. Perhaps you'll benefit from using the IBM Garage methodology to get a fast start to your AI project and quickly pivot with changing context to realize the true value of your data and AI. Or, if the Red Hat® OpenShift® Platform is introduced to the plan, you have a foundation for building AI and ML workflows and AI-powered intelligent applications with agility, flexibility, portability and scalability across the hybrid cloud.

Bottom line?

We help your teams conquer data complexity and talent scarcity with trustworthy AI that is sustainable, trustworthy and scalable. We work closely with you to progress AI at scale across your enterprise from procurement to supply chain to whatever makes sense for your business.

Our process

With the goal of minimizing time to deploy and time to value with minimized risk, our process includes a four-phased approach to AI at scale implementation.

Phase 1: Assess
First 4–6 weeks

- Conduct short-term gap audit
- Deliver an AI maturity assessment and roadmap to scale AI

Phase 2: Design and establish
First 4–6 weeks

- Establish common ways of working across data scientists via a common AI framework
- Develop a scalability framework based on existing environment

Phase 3: Adopt
Initiate in 3–4 month timeframe

- Co-deliver initial projects; pilot best 3–5
- Set up a deployment architecture and AI and ML ops processes
- Drive adoption of AI operating models

Phase 4: Scale
Ongoing implementation

- Scale ML products in production
- Maintain AI and ML models in production while monitoring for drift, bias and more

IBM Services for AI at Scale helps tackle 3 strategic imperatives that help enterprises optimize value from their AI investments

1. AI that's environmentally sustainable

We help our clients drive enterprise-wide innovation with scalable AI and ML models—not just one-off science experiments—that are environmentally friendly, actionable and reusable. We've developed a methodology that's informed by hundreds of our clients. This new direction is driven by our best practices, standards, work products, telemetry, integration code and dashboards. Also included is our new AI engineering methodology that builds the audit trails required for responsible systems that is optimized to consume fewer energy resources. Our science-driven engineering methodology provides the data team with a clear understanding of each role, their expected contribution and a plan for adding value.

2. AI that's trustworthy

At IBM, we recognize that a multidisciplinary, multidimensional approach is needed to help organizations create the safe guardrails needed in their AI journey. This approach helps ensure fairness and transparency—protecting users from the risks of bias. Our holistic process works with stakeholders across the organization to connect with each other to help mature their approach. For AI to flourish, restoring trust is paramount.

We help clients, not by throwing technology over the fence, thinking that it alone will solve the problem, but by helping them create responsible systems and mitigate their risk. We can assist you with the culture you need to adopt and safely scale AI, with AI engineering through forensic tools to see inside black-box algorithms, and with the governance to make sure the engineering sticks to the culture. At the center of trustworthy AI is the telemetry and forensic tooling that IBM holds supreme in the community for our open source and Linux® foundation. We've donated countless algorithms on fairness, explainability and adversarial robustness to these foundations for the good of science—and mankind.

IBM Services for AI at Scale is framed around the IBM Research open-source toolkit, AI Fairness 360 and fact sheets. Developers are able to share and receive state-of-the-art codes and data sets related to AI bias detection and mitigation. These IBM Research efforts also led us to integrate IBM Watson® OpenScale™, a commercial offering designed to build AI-based solutions or enterprises to detect, manage and mitigate AI bias.

3. AI that's scalable

It starts with adoption of a common build and development framework that provides consistency across data science teams to drive returns from AI and ML projects. IBM Services for AI at Scale uses our Rapid Asset Development for Machine Learning (RAD-ML) framework that swiftly accelerates time to production of data science applications through automation. We can adopt this to our client's existing technology stack, delivery and support teams to minimize the need for additional investment.

We have also amassed a collection of patterns that work best for reaching different business outcomes. This collection includes patterns on IBM Cloud®, Amazon Web Services (AWS), Microsoft Azure and Google Cloud Platform (GCP), as well as patterns on Open Data Hub with Red Hat OpenShift software.

IBM has a breadth of experience. That experience presents itself for our clients in trustworthy end-to-end AI at scale, with our expertise available at every juncture.

Use cases

01

Global oil and gas company

Problem: This well-established energy company's large data science team had developed many ML proof of concept (PoC) projects. However, they didn't have a clear deployment path into production, nor were they able to scale them across the enterprise.

Solution: Using IBM Services for AI at Scale, we teamed with the company to establish a robust methodology for the production and scaling of AI and ML models using the RAD-ML framework. This unified methodology sits on top of Microsoft Azure. IBM is monitoring, maintaining and supporting those models through outsourced analytics scaling teams based in Romania and India.

Business benefit: Moving the company's PoC projects into production has resulted in significant cost savings in operations. The ROI of USD 500 million on AI and ML innovation goes back into the business.[3]

02

Major US retailer

Problem: This retail giant wanted to increase time to value and throughput with high-quality AI. It also needed to ensure that it was mitigating the risk of bias by ensuring transparency and fairness in its use of AI in hiring decisions.

Solution: The client agreed to using Fairness 360 and IBM Watson OpenScale AI for a production use case, monitoring the AI used for hiring for fairness, operational performance and drift, making AI transparent.

Business benefit: The retailer was able to provide diagnoses for AI models in production. It improved fairness and social bias in recruiting with improved communication across the board.

03

Consumer research company

Problem: This consumer research company gathers tens of millions of data points from thousands of retailers around the world each month. The company needed to reconcile these data points with its existing main data with high accuracy, which today is only achieved by employing hundreds of experts around the globe.

Solution: We created an open source platform where the team could iterate on new algorithmic approaches to safely test using shadow deployments and A/B testing to independently deploy, scale and monitor the custom algorithms. We combined agile DevOps teams with custom data science and ML research on nonnatural language, which allowed large parts of the data reconciliation to be automated.

Business benefit: The company realized a significant reduction in manual expert effort for data reconciliation worldwide. Deploying various algorithms as managed application programming interfaces (APIs) allowed the team to move into new business models, selling the acquired insight to clients as part of a prescriptive analytics platform. With this IBM Services for AI at Scale solution, the team deployed 6,000 AI models with 30,000 monthly records processed.

> “Many, many companies are at a juncture where they have got to adapt and change and reinvent themselves and transform how they operate. Using enterprise-grade AI and having AI materially integrated into the business processes will engender the type of company that is future-ready.”
>
> — Beth Rudden, IBM Distinguished Engineer and Principal Data Scientist, Cognitive and AI Global Business Services

AI is a complex, multifaceted business and technological innovation with layers of interconnected and moving parts. No one aspect can single-handedly ensure success in moving AI projects into commercial use. There’s no silver bullet. Working with a knowledgeable and seasoned AI team like IBM and using a well-planned AI framework not only drives immediate business value but paves a clear path to your digital future within trustworthy AI guardrails.

Why IBM?

IBM has trustworthy AI connections, operating models and global experience in 172 countries. We work with the EU, WEF, ISO, IEEE, NIST and other standards bodies to create the stress tests and regulations coming for AI.

Speak to an IBM representative about how you can engage IBM Services for AI at Scale for your enterprise. Schedule a call.

Also, learn more about how IBM Services AI at Scale can accelerate your digital transformation. Visit now.

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1 Advancing AI ethics beyond compliance: From principles to practice, *IBM Institute for Business Value*, April 2020

2 Overcome Obstacles to Get to AI at Scale, *Forrester Consulting Thought Leadership Paper*, January 2020

3 All client examples cited or described are presented as illustrations of the manner in which some clients have used IBM products and the results they may have achieved. Actual environmental costs and performance characteristics will vary depending on individual client configurations and conditions. Contact IBM to see what we can do for you.

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