

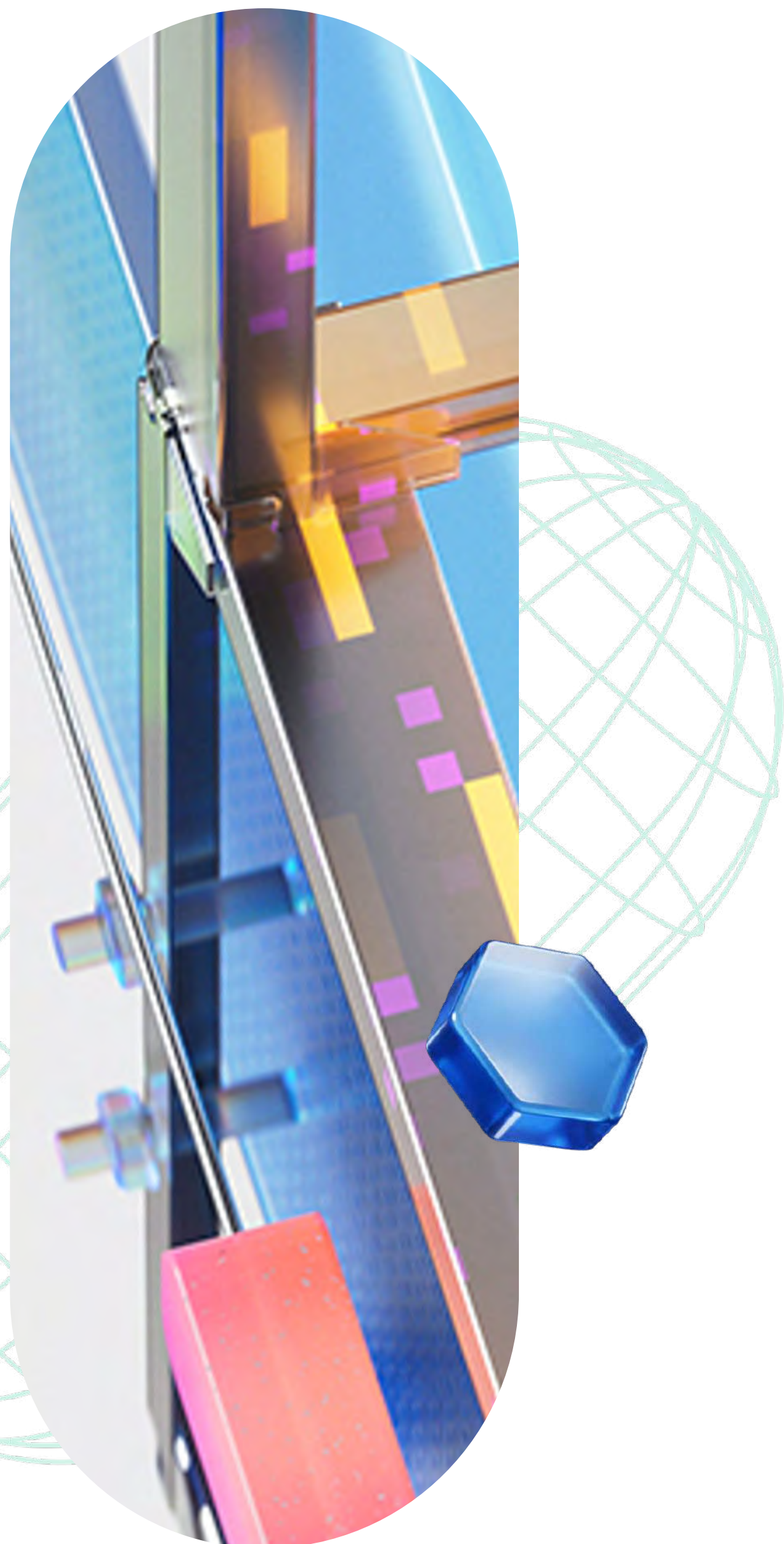


Migrating and modernising your IT estate

Transform apps, databases and infrastructure with AI agents



Contents



3	The new migration and modernisation reality
5	From manual orchestration to agentic execution
7	Agentic AI across your IT estate
	Modernising applications 8
	Moving data 9
	Optimising infrastructure 10
	Governance and security 10
11	Planning for Cloud adoption
	The six Rs of Cloud migration and modernisation 12
13	Azure for Cloud transformation
	Increase business agility 13
	Innovate at scale with AI 13
	Build your way and get to market faster 14
	Drive value and control costs 14
	Obtain high performance for all workloads 15
	Simplify hybrid management 15
	Secure from code to Cloud 16
	Build on a trusted resilient platform 16
	Receive expert guidance for your journey 17
18	Launch your Cloud transformation with Azure

The new migration and modernisation reality

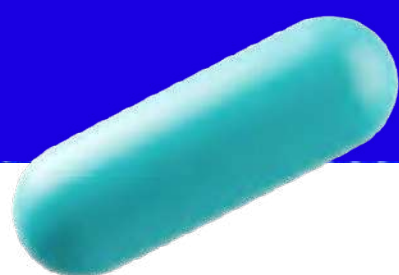
Cloud value¹

\$902,700

average annual benefits per migrated modernised business application

3.7x ROI

for every \$1 invested in generative AI



Are the only options in IT migration quick and dirty or slow and safe? Not anymore. Agentic AI has turned the old formula on its head that says that when you push for speed, you lose control; when you push for control, you lose speed. Now the slow control work moves at machine speed, within governance and security guardrails.

The new migration and modernisation reality grants you more options than ever to overcome technical debt. You can rein in IT sprawl, modernise legacy platforms and shift from capital-intensive infrastructure to usage-based Cloud operations.

AI and agents are raising expectations for delivery speed, reliability and governance, all at the same time. Now Cloud environments do more than run workloads. They provide you with an operating model to modernise continuously, reducing

manual coordination and optimising after cutover as cost and performance signals change. In this model, Cloud choice matters more than ever.

Azure is the intelligent Cloud in which you can run your business with confidence, using a platform recognised as a leader for its comprehensive vision in the Gartner Magic Quadrant for the Cloud Application Platform.²

This e-book offers high-level guidance for agentic migration and modernisation using Azure to improve workload security, increase your business agility and integrate AI and agents into your products and processes.

¹ [The Business Value of Migrating and Modernising IT Estate with Microsoft Azure](#). IDC. Sponsored by Microsoft. April 2025.

² [Microsoft is a leader in the Gartner Magic Quadrant for the Cloud Application Platform](#). Microsoft. 24 November 2024.

The new migration scorecard

Time to value

How quickly can teams deliver meaningful moves and upgrades?

Risk posture

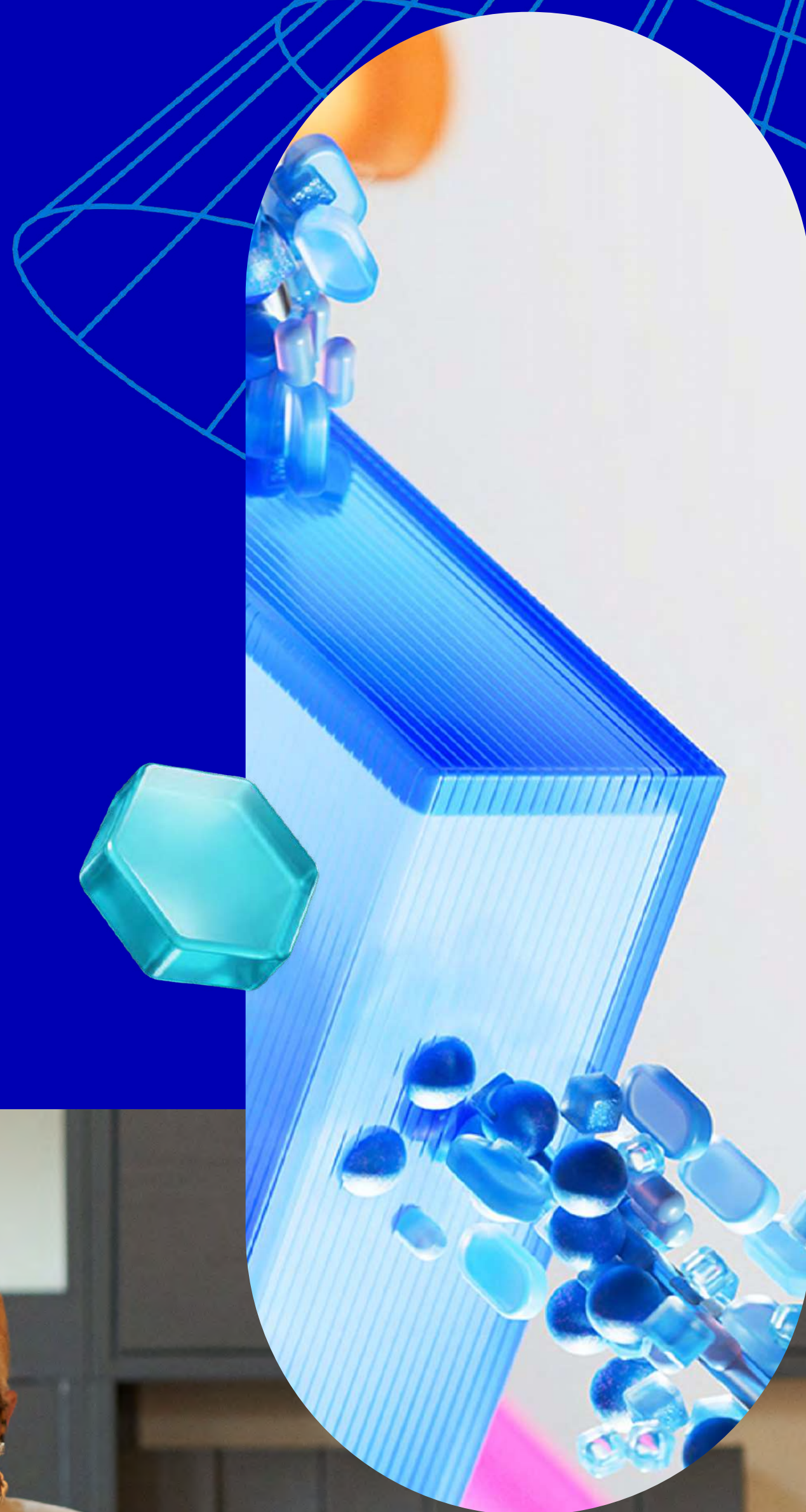
Are security, compliance and resilience improving during the move?

Operational load

Is backlog shrinking or just moving to a new platform?

Unit economics

Are running costs decreasing? Are costs easier to govern?



From manual orchestration to agentic execution

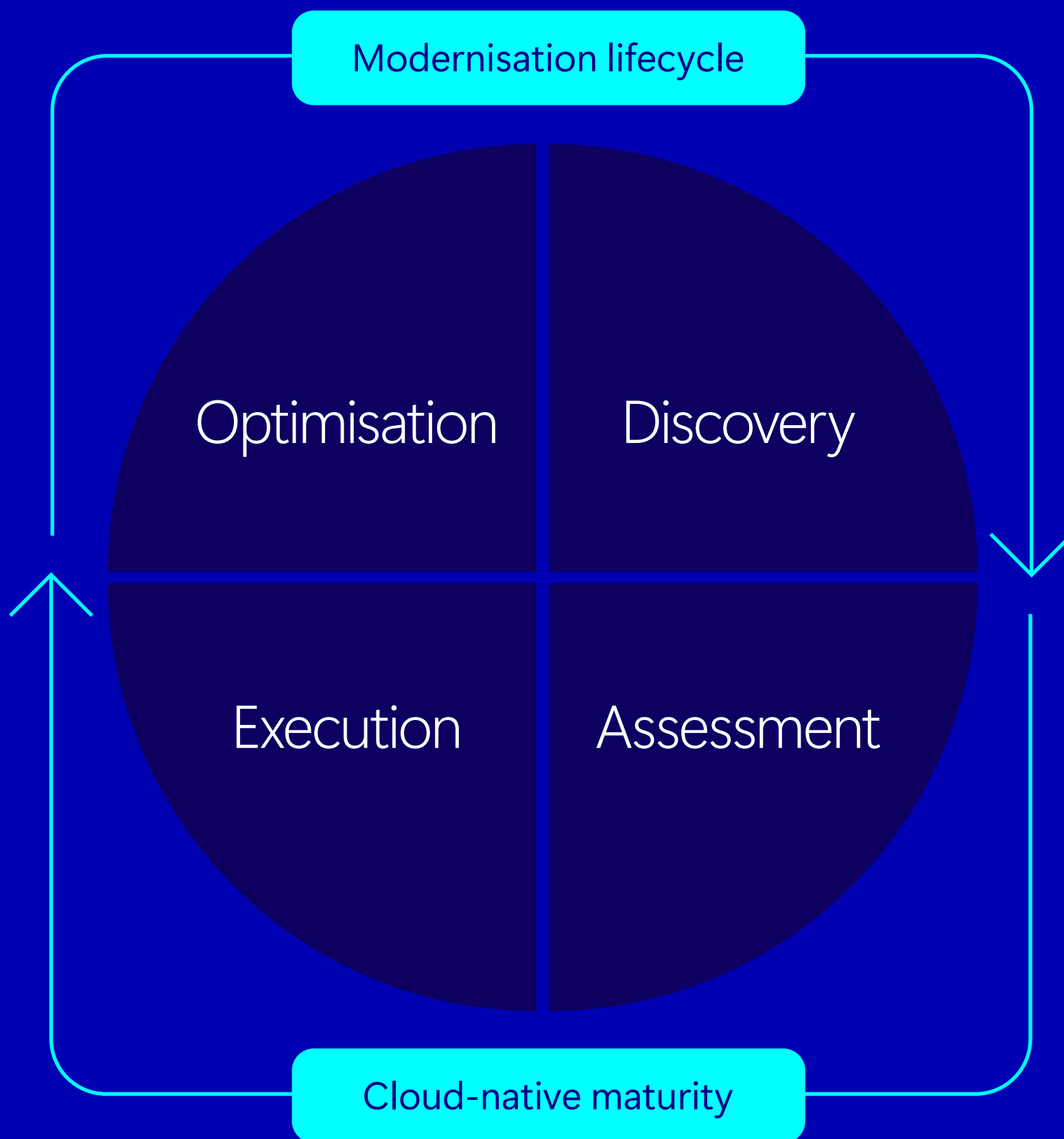


With the pressure to deliver results with AI, who has months to spend manually migrating fragmented data estates or modernising complex applications and all their dependencies? For most teams, the challenge is not to migrate one workload. It's the manual coordination across many workloads, owners and dependencies, causing programmes to move slowly and lose momentum or to move quickly and surface surprises at cutover.

Agentic AI changes that model by turning migration and modernisation into a guided workflow. Instead of stopping at recommendations, agents can act within policy guardrails, keep changes auditable and continuously improve plans as new signals appear. Practically, that means less time spent on coordination and rework and more time spent on decisions requiring human judgement.

The migration and modernisation model is now a continuous loop:

- Discovery builds an accurate view of what you have and how it connects.
- Assessment translates that into options, risks and a plan.
- Execution carries out migration and modernisation steps with approvals and controls in place.
- Optimisation uses telemetry, cost signals and performance data to tune your environment after cutover—so that value keeps compounding after workloads move to Azure.



Agentic discovery and assessment help you to plan migration and modernisation as an end-to-end lifecycle. The Azure Copilot migration agent helps you to inventory your estate and understand dependencies using multiple discovery options. You can run a one-time offline or disconnected discovery using the Azure Migrate collector, import existing inventory files such as CSVs or RVTools exports or use Azure Arc-based discovery for Arc-enabled servers and SQL instances. Built on Azure Migrate, the migration agent uses that foundation to help to accelerate discovery, business case development, migration planning and landing zone setup, while keeping governance in the loop.

How much time can you save?³

Weeks → Hours

Discovery to business case, landing zone setup and migration planning with agentic migration workflows

Weeks → Days

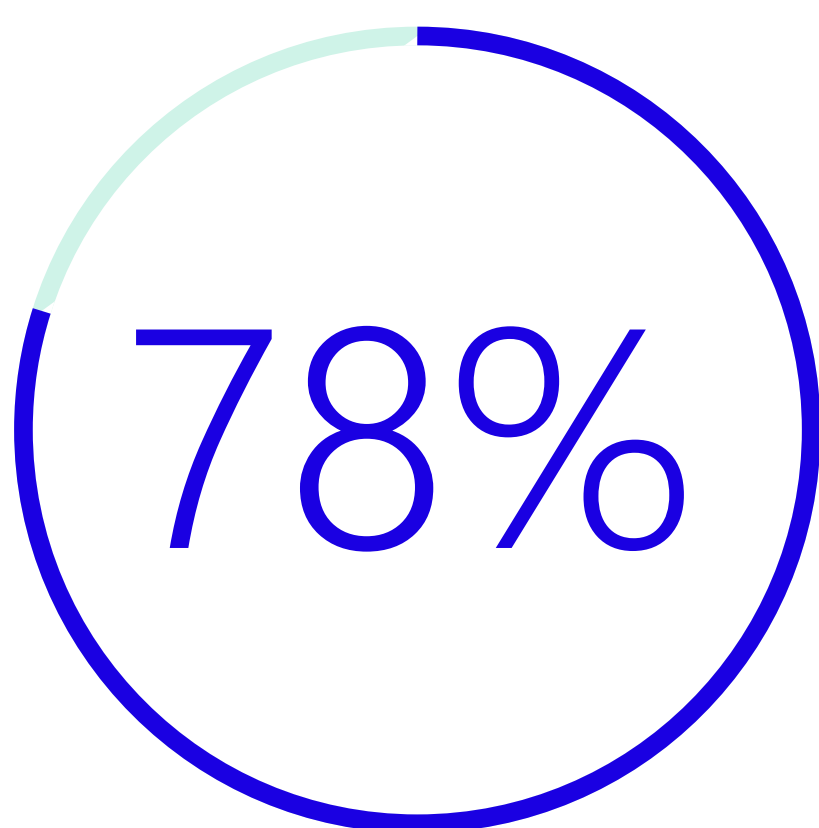
AI-assisted assessment and modernisation for Java and .NET

Months → Hours

AI-assisted .NET 8 upgrades at portfolio scale

³ Timeframes vary by portfolio and governance requirements.

Agentic AI across your IT estate



less time and effort to
modernise Java apps with
GitHub Copilot⁴

Consider a web server that looks like an easy first move. Teams often migrate that virtual machine (VM) early because it appears low risk. After cutover, they discover that the web tier still depends on an on-premises database across a constrained path. Authentication still routes on-premises as well and the application slows down or fails during cutover.

This kind of late-stage dependency surprise is what portfolio-level discovery and dependency-aware planning help to prevent. Agentic AI can also help to reduce operational and performance surprises such as unexpected latency, authentication and authorisation failures and monitoring gaps. Comprehensive dependency analysis helps to ensure that nothing is left behind so that you can preserve application behaviour during and after a move.

Here's what it looks like in practice:

⁴ [Accelerate migration and modernisation with agentic AI](#). Azure Blog, 23 September 2025.

Modernising applications

Application modernisation efforts can stall on uncertainty. A portfolio may seem too risky to touch even when you need faster iteration. AI-assisted modernisation is easier to plan and safer to execute at scale.

In practice

- Assessment and upgrade planning identify breaking changes, outdated libraries and remediation paths across a portfolio.
- Dependency analysis surfaces service-to-service calls, identity flows and shared components, so that your teams can modernise and migrate in coherent waves.
- Automated code transformations and refactoring can apply structured changes consistently, then help you to iterate until you can build and test cleanly.
- Build patching and dependency updates reduces the manual grind after upgrades, including validation and security fixes that often block release readiness.
- Containerisation support helps you to move towards Cloud-ready deployment patterns where they make sense, without forcing every application into the same model.



One of the largest grocery groups in the United States replaced ageing systems, on-premises infrastructure and disconnected data with modern e-commerce and faster deployments. Now updates can be deployed in hours instead of weeks, supporting new features at the pace of customer demand.

3,000+ VMs

300 PostgreSQL workloads

40% increase in engineering delivery

“Our goal was to modernise our omnichannel platform so that we could innovate faster, stay resilient and be ready for what comes next.”

*Amit Shah, SVP of Digital Technology,
Ahold Delhaize USA*

[Read the full story →](#)

Moving data

Data modernisation gets harder when applications move first and the data stays behind, creating latency, unstable connections and cutover risk. Agentic workflows help you to map data dependencies, then replicate and validate databases so that apps remain responsive throughout cutover.

In practice

- Discovery and assessment of database instances and usage patterns help you to prioritise data to modernise first.
- Schema and compatibility guidance reduces manual effort and improves consistency when moving between engines or versions.
- Online migration options, where appropriate, lower downtime risk and maintain fallback paths throughout cutover.
- Portfolio tracking makes modernisation progress visible and governable across teams.



One of India's largest healthcare providers supported its growing digital footprint with a move to Linux on Azure. Over 100 legacy applications now run on Azure Database for PostgreSQL, saving the team significant performance and operations time.

90% of transactions are completed within five seconds

99.95% uptime across hospital systems

"The Oracle stack was becoming harder to maintain and scaling it meant significant investment every time. We saw Azure Database for PostgreSQL as the right foundation for the future. It's open, cost-effective and able to support the hospital information system built by us in-house."

*Shankar Krishan A., General IT Manager,
Apollo Hospitals*

[Read the full story →](#)

Optimising infrastructure

Many data estates include thousands of VMs, uneven documentation and network and security patterns that were never designed for rapid change. Agentic approaches are most valuable here when they reduce coordination overhead. You can speed up lift-and-shifts, but the real value is repeatable execution—reliable discovery, right-sizing and business-case clarity, templated landing zone patterns and wave planning that respects dependencies.

In practice

- Discovery and dependency mapping help you to plan migration waves around application boundaries and shared services.
- AI-assisted right-sizing and cost modelling help you to anchor infrastructure decisions in real usage.
- Landing zone setup is aligned to standard patterns, so networking, identity and policy stay consistent across workloads.
- Post-cutover optimisation continuously assesses performance and cost tuning.

Governance and security

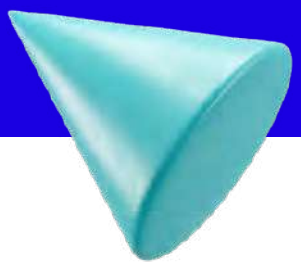
Agentic migration changes the governance question as agents propose plans and carry out steps alongside your teams. Their power to act is exactly why governance and security must be part of the execution loop. The goal is to increase speed while keeping control clear, auditable and aligned to policy.

In practice

- Policy-aligned execution ensures that automation operates inside defined guardrails.
- Human oversight where it matters includes approval of high-impact changes and clear rollback paths.
- Audit-ready change trails make modernisation and migration actions reviewable and explainable.
- Dependency-aware risk reduction helps to avoid cutover surprises that become security and operational incidents.
- Continuous posture improvement after cutover uses monitoring insights to keep tightening security and compliance over time.



Planning for Cloud adoption



Your path to Azure depends on many factors—your application portfolio, operating model, data estate and available skills. The goal is to find the sweet spot between business impact and effort. AI-assisted migration and modernisation reduce the manual work that slows down planning, helping you to build a reliable inventory, surface dependencies, estimate effort and identify common remediation tasks.

With a clearer starting point, planning becomes a rationalisation decision. You can use the framework for the six cloud rationalisations (6 Rs for short) to choose the right approach per workload. Those choices become a roadmap of migration waves, with quick wins that build momentum paired with realistic paths to higher-impact modernisation.

A hybrid environment is a normal stage of Cloud adoption, with some assets staying on-premises longer. Your roadmap can anticipate such overlap, and AI-assisted discovery and dependency mapping help you to see what must move together and what can wait, so you can sequence waves without surprises.

Which path should you take?

For the greatest long-term benefits, move towards platform as a service (PaaS), to the extent that it fits and delivers measurable outcomes. Agentic assistance can make that path practical sooner by reducing the modernisation effort and accelerating the journey from plan to production.

The Six Rs of Cloud migration and modernisation

The 6 Rs are a practical framework to take consistent decisions per workload and turn those decisions into an execution roadmap.

Rehost to lift-and-shift to VMs

AI-assisted discovery and assessment can accelerate inventory, right-sizing recommendations and wave planning so that execution is more predictable and less manual.

Replatform to managed services

Replatforming helps to reduce operational overhead without requiring your teams to rewrite the application. Agents can help to identify candidates for minimal-change moves and guide common platform swaps, such as database hosting, app hosting, identity integration and messaging, while keeping governance considerations visible.

Refactor to move towards cloud-native

Refactoring can improve maintainability, scalability and resilience without changing what an app does. AI-assisted workflows can turn refactoring into a guided sequence. The agent analyses the codebase and dependencies, applies structured transformations and runs build and test validation. Your team reviews the changes, addresses any edge cases and approves the final result.

Rebuild for cloud-native capabilities

Redesigning and rebuilding application architecture enables you to take full advantage of Cloud-native patterns and services. Agents can accelerate planning and implementation by generating modernisation options, assisting with the migration of patterns and components and supporting continuous optimisation once the new architecture is up and running.

Retire to decommission

AI-assisted discovery and dependency analysis can reveal low-value systems and confirm whether they are truly safe to remove.

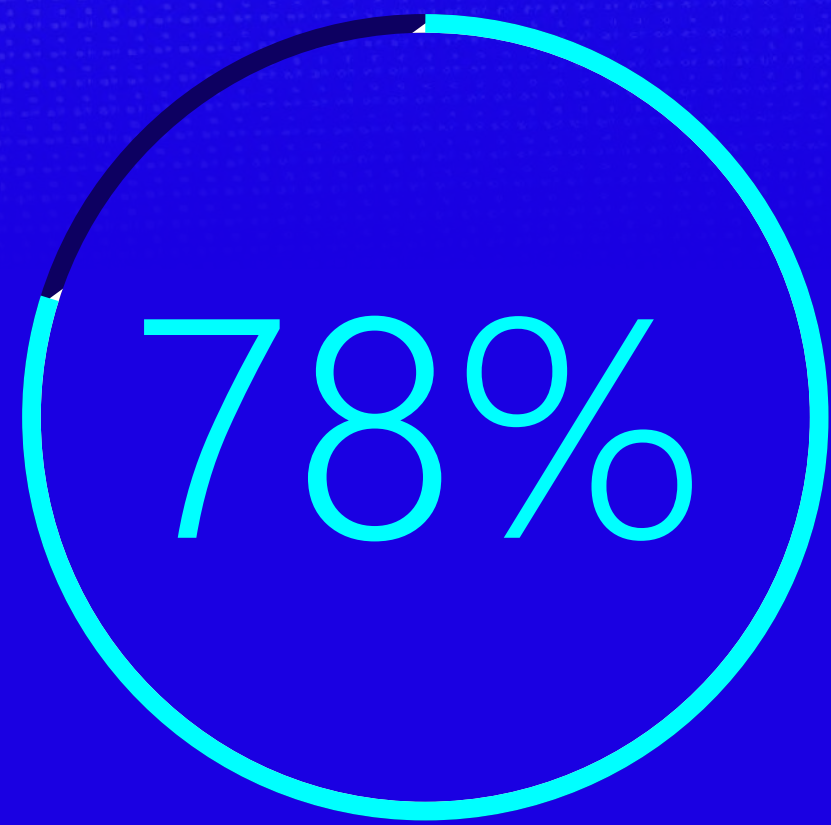
Retain to keep as-is

AI-assisted assessments can support the choice to retain workloads, granting you greater visibility in terms of risks and dependencies. With clearer inputs, you can make a structured business case.

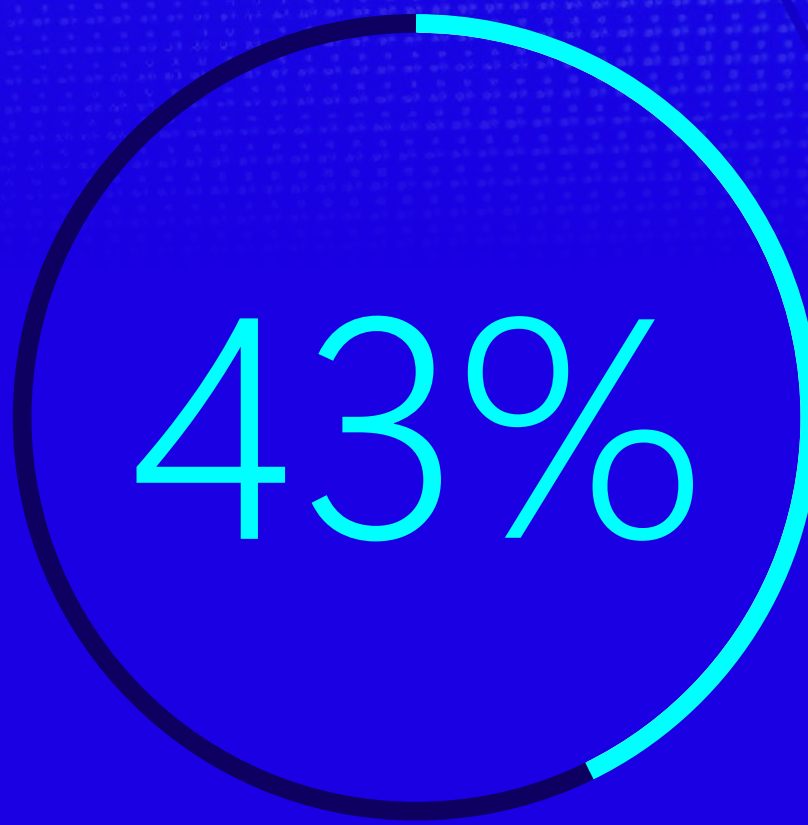


Azure for Cloud transformation

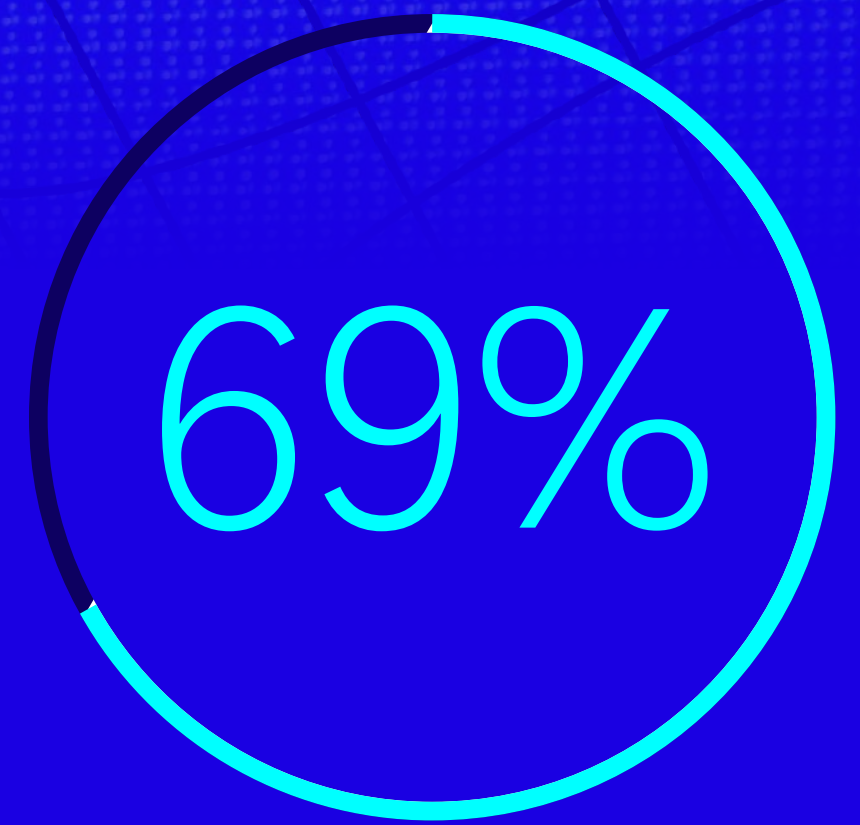
Azure by numbers⁵



faster time to respond to and execute business changes



faster time to build and deploy new features



more time back to focus on innovation

As AI moves from recommendations to action, governance and controls need to be built into the platform. Azure pairs AI-assisted execution with policy, permissions and auditability, so that you can migrate and modernise faster without losing oversight across hybrid and multi-cloud operations.

Increase business agility

Moving workloads to Azure provides you with the operational resilience to handle unpredictable business volumes, seasonal spikes and evolving customer expectations. Instead of overprovisioned servers and siloed legacy applications and databases, you have access to autoscaling computing power, managed services on demand and unified data to power real-time analytics and AI – all without heavy upfront infrastructure investments. With agentic capabilities to accelerate workflows, you can automate manual operations and deploy new abilities quickly, without disruption or downtime.

Innovate at scale with AI

Modernising your applications and data lays the groundwork for automation, AI apps and agentic workflows. Microsoft Foundry is the app and agent factory to explore and build AI solutions that understand your business context. Responsible AI standards are built in to help to ensure trustworthy results that operate according to your organisational values and compliance needs.

You can compare and choose from over 11,000 AI models and work with familiar popular tools such as GitHub, Visual Studio and Microsoft Copilot Studio, to build everything from no-code AI apps to sophisticated, custom-developed AI-powered agents, chatbots, recommendation engines and more.

⁵ [The Business Value of Migrating and Modernising IT Estate with Microsoft Azure](#). IDC. Sponsored by Microsoft. April 2025.

Build your way and get to market faster

Moving to Azure helps to remove barriers to development and speed up iteration cycles. Tools such as GitHub and GitHub Copilot work with Azure services to support intelligent agent-driven DevOps workflows. You can deliver resilient autoscaling solutions using cloud-native development practices such as containers and API-first architectures.

Managed services such as Azure App Service, Azure Kubernetes Service (AKS) and Azure DevOps help you to rapidly build, test and release applications using your preferred languages and frameworks. In addition, you can quickly pivot as your needs change. Integrated monitoring, diagnostics and agentic AI tools help your teams to rapidly iterate and optimise.

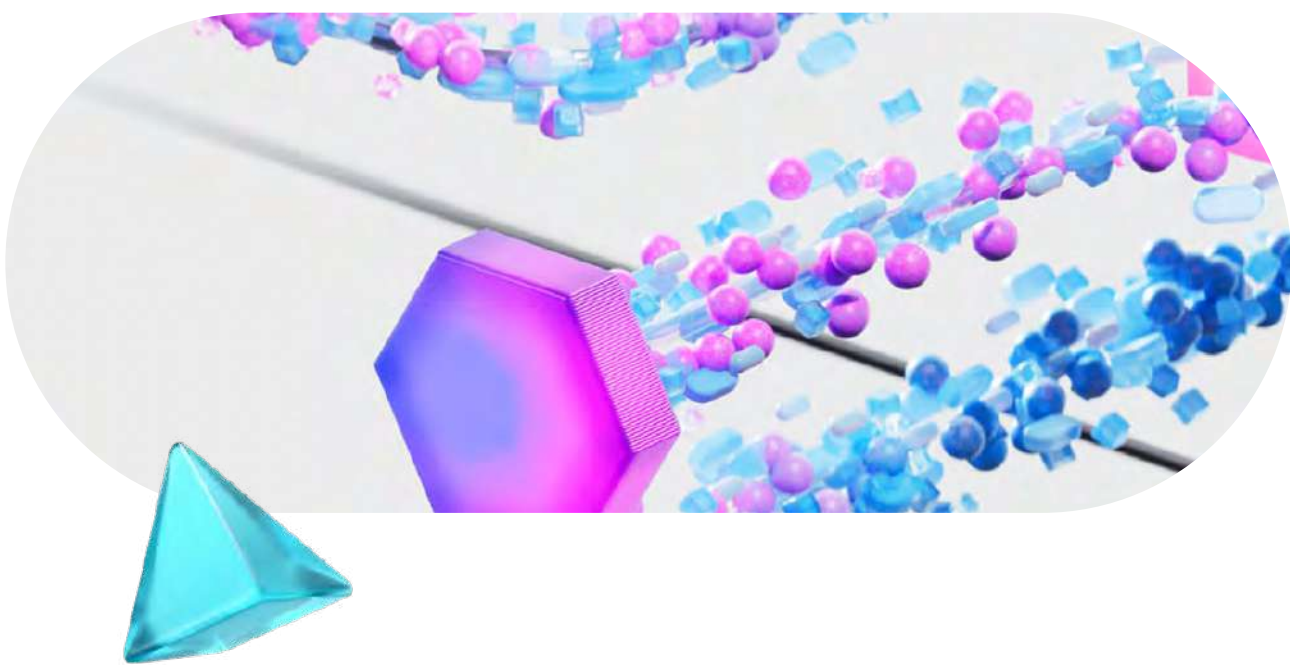
Developer benefits on Azure⁶

39%

higher developer productivity

43%

faster to market new products and solutions



Drive value and control costs

Azure enables you to manage costs as you modernise by reducing overprovisioning and making optimisation an ongoing process, rather than a one-time exercise. Agent-assisted optimisation supports a FinOps operating financial operations model by surfacing rightsizing and savings opportunities early and over time, including opportunities to reduce the carbon impact where supported.

Cloud economics support better cost control as you shift from upfront purchases to usage-based operations, while lowering overheads as you move away from resource-intensive data centres. Cloud investments can lower your infrastructure's total cost of ownership with a 344% three-year ROI.⁷

As you move more workloads into the Cloud, you can find new ways to save as you go:

Optimise your spending with free proactive recommendations from Microsoft Cost Management that help you to analyse usage patterns, forecast expenses and make costs transparent.

Apply your existing licenses for Windows Server and SQL Server to cloud-hosted resources through Azure Hybrid Benefit. It offers significant savings compared to standard pay-as-you-go rates and also extends to Linux, where customers have reported savings of up to 76%.⁸

Make spending predictable by reserving Azure capacity in advance. The Microsoft Azure Compute Commitment requires an upfront obligation, typically one to three years, in return for significant discounts.

Up to 76%

cost savings for Windows Server and SQL Server in Azure vs. leading Cloud provider⁹

⁶ [The Business Value of Migrating and Modernising IT Estate with Microsoft Azure](#). IDC. Sponsored by Microsoft. April 2025.

⁷ Ibid.

⁸ [Azure Hybrid Benefit](#). Microsoft.

⁹ Ibid.

Obtain high performance for all workloads

Azure provides you with choices to migrate and modernise, including:

Scalable on-demand VMs (including GPU, high memory and high storage) to meet existing service-level agreements for lift-and-shift waves while you modernise at your own pace.

Managed app and database services with built-in tuning and AI-ready capabilities to stabilise performance and reduce operational work in modernised tiers.

Low-latency global infrastructure to keep user experiences stable as you shift traffic, expand regions or standardise operations post-cutover.

Support for mixed stacks so that legacy and cloud-native workloads can run side by side during staged modernisation.

Performance by numbers¹⁰

55%

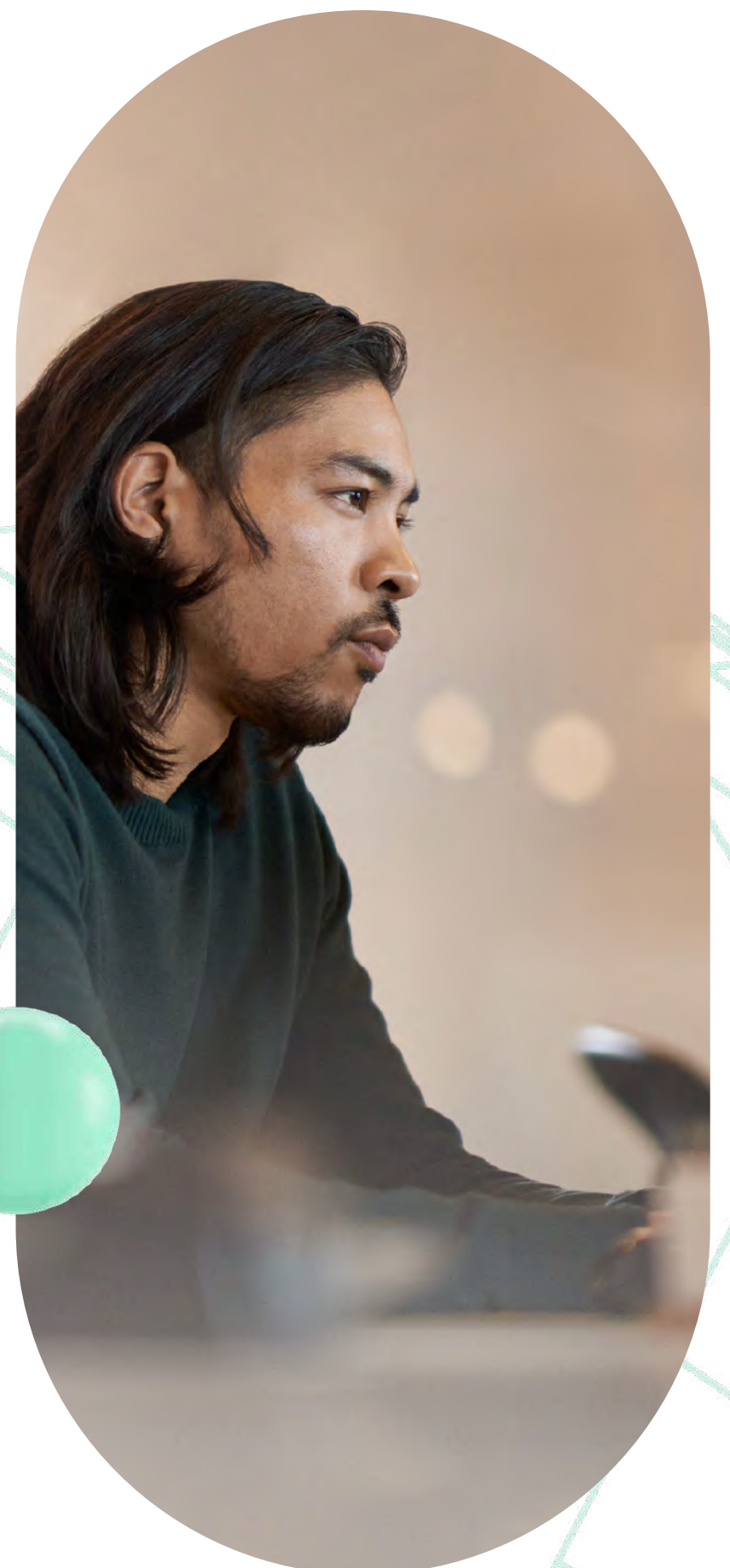
improvement in application performance after migration to managed Azure databases

Up to 65%

database performance acceleration with Azure Database for PostgreSQL

Simplify hybrid management

Hybrid and multi-cloud approaches let you modernise in phases while meeting compliance, data residency or latency requirements. For data workloads that must meet those requirements, hybrid architecture is often the best solution. Azure Arc simplifies governance and management by delivering a consistent multi-cloud and on-premises management platform. It projects on-premises and multi-cloud servers, Kubernetes clusters and databases into Azure Resource Manager, so that you can apply consistent inventory, policy and management. You can also run SQL Managed Instance on-premises, at the edge and in public clouds, using Kubernetes.



¹⁰ McAfee, Nathan. [The Economic Benefits of Migrating On-premises Databases to Azure Database for PostgreSQL](#). Enterprise Strategy Group. March 2025.

Secure from code to Cloud

Security is built into the Azure platform through a multilayered approach, from physical infrastructure to platform controls and operations. Zero Trust principles require verification at every step. With Azure security controls and services you can:

Implement Zero Trust access controls with explicit verification and least-privilege access.

Rely on encryption at rest by default for many services. Azure offers robust security for data in transit through industry-standard encryption protocols and mechanisms.

Harden the network edge with controls such as firewalls and DDoS protection to reduce exposure and absorb attacks.

Enforce governance consistently using Azure Policy and role-based access control (RBAC) to assess, audit and apply security and compliance requirements at scale.

Extend protection across hybrid and multi-cloud environments using Microsoft Defender for Cloud for security posture management and threat detection. Microsoft Sentinel adds cloud-scale security information and event management (SIEM) and automated response workflows.

30%

faster threat remediation with Defender for Cloud¹¹

Build on a trusted resilient platform

As a global cybersecurity leader, Microsoft processes 84 trillion security signals daily, granting us unparalleled insight into evolving threats. Our leadership in multiple Gartner Magic Quadrants for security makes us the only cloud operated by a leading security supplier.¹² You gain assurance with:

Global compliance. Over 100 compliance certifications for regulated industries.

Operational transparency and control. Clear shared responsibility and controls that you can audit and enforce.

Data sovereignty. Control over where data is stored and processed, with options for regulated industries and governments through Microsoft Sovereign Cloud.

Resilience. Global regions and availability zones, plus disaster recovery patterns to keep workloads online.

Responsible innovation. Confidential computing protects data in use, and agent-assisted DevOps tools integrate security directly into the software development lifecycle.



¹¹ [Microsoft Defender for Cloud remediated threats 30% faster than other solutions, according to a Forrester TEL study](#)

¹² [Industry-recognised cybersecurity leader](#). Microsoft Security website.

Receive expert guidance for your journey

Cloud transformation requires a talent strategy. Agentic migration lowers the barrier to expertise, transforming many manual tasks into guided workflows. Teams can learn by doing and focus on high-impact decisions. Microsoft Learn provides role-based training and step-by-step guidance to help teams to build skills quickly. Expert support is also available to help you to execute with confidence while expanding capabilities internally.



Launch your Cloud transformation with Azure

With an expected \$3 trillion in value generated for Forbes Global 2000 companies by 2030,¹³ the Cloud is poised to deliver significant results for organisations. Cloud transformation helps to optimise IT costs, digitalise business processes and strengthen resilience, while enabling AI-assisted innovation that drives growth and faster product development.

Now agentic acceleration is extending Azure's operational advantages into a new execution model. Instead of treating discovery, assessment, migration, modernisation and optimisation as separate workstreams, you can use agentic approaches to connect them into a continuous loop—turning insights into action faster, with guardrails built in.

Accelerate AI innovation by securely migrating and modernising your IT estate

Explore agentic migration use cases

[Deep dive: application modernisation](#)

[Deep dive: infrastructure transformation](#)

[Deep dive: data estate modernisation](#)

[Talk to an Azure migration specialist](#)

[Receive expert guidance and unlock investments with Azure Accelerate](#)

¹³ [Projecting the global value of the Cloud: \\$3 trillion is up for grabs for companies that go beyond adoption.](#) McKinsey & Company, 28 November 2022.