Microsoft Azure

Future Proof Your IT Estate for AI Adoption at Scale

A practical guide to managing apps, data and infrastructure



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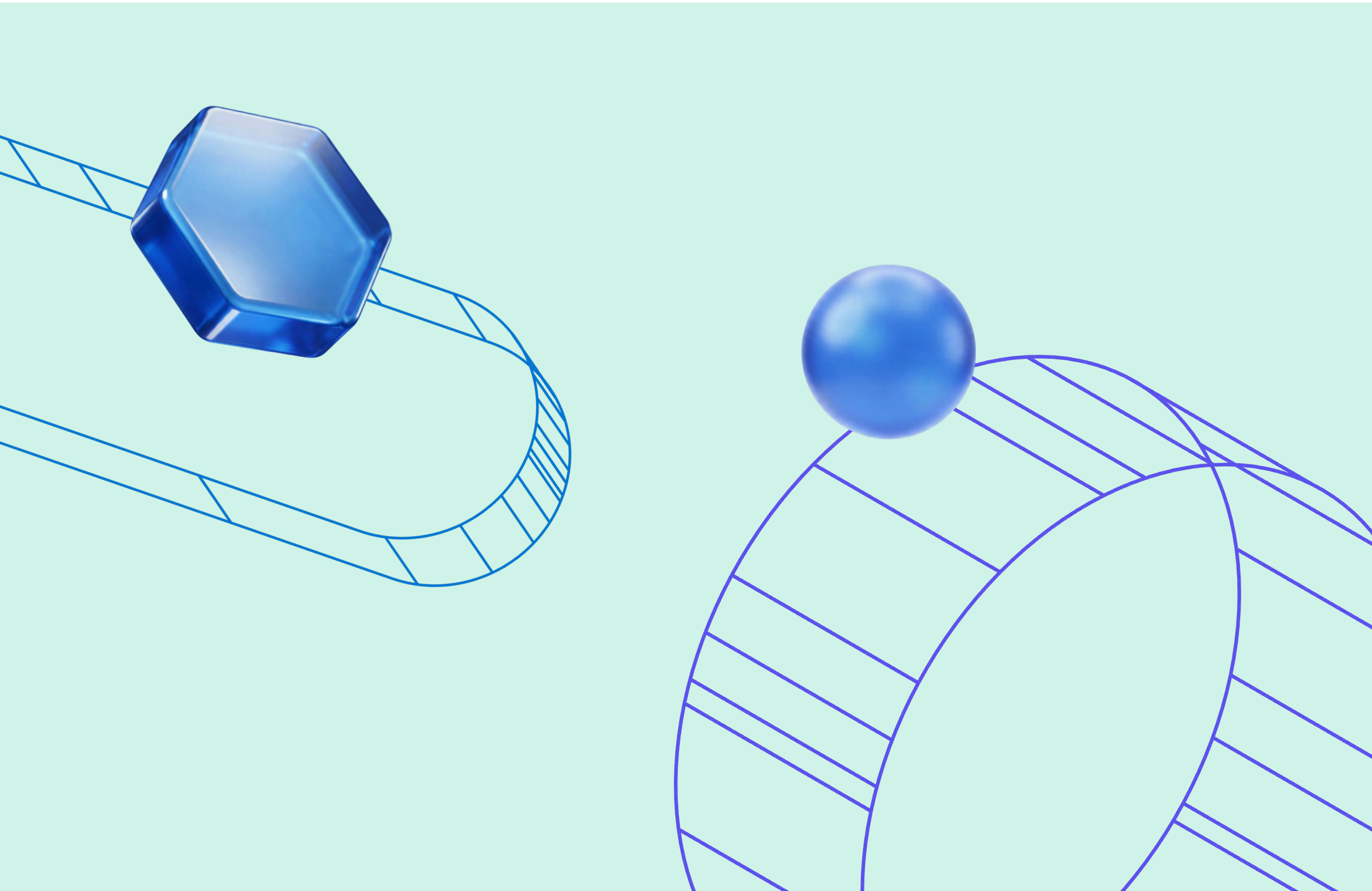
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Introduction

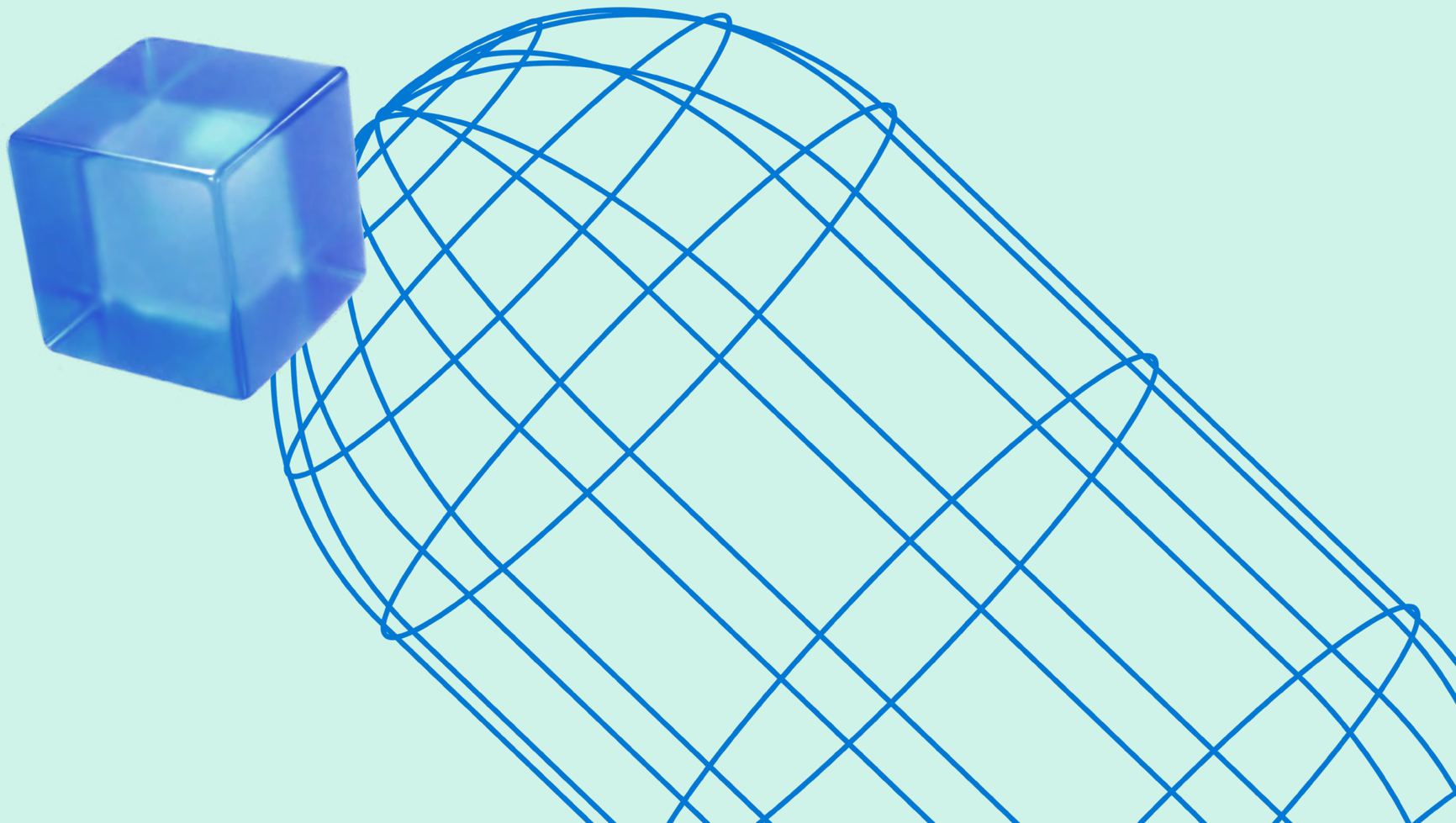
When Ahold Delhaize USA realised its ageing e-commerce systems were holding back growth and making it hard to meet customer expectations, the company set out to reimagine its digital foundation in the cloud. That shift paid off quickly, boosting engineering delivery speed by up to 40% and shrinking release cycles from weeks to hours.

Similarly, when Apollo Hospitals realised its on-premises systems were becoming harder to scale and maintain as patient demand and data volumes grew, the company decided to modernise its digital backbone in the cloud. That move led to **99.95% uptime**, a **40% reduction** in deployment timelines and faster, more reliable systems that help teams deliver care with greater speed and confidence.

Before and after modernisation

	Before modernisation	After modernisation
Ahold Delhaize USA	• Limited scalability • Slowed innovation • Delayed feature releases	• Up to **40% increase** in engineering delivery speed • Release cycles **reduced from weeks to hours**
Apollo Hospitals	• Fragmented systems resulting in downtime • Difficulty scaling infrastructure • Growing data and performance demands	• **99.95% uptime** across hospital systems • **40% reduction** in deployment timelines • **90% of transactions** completed within five seconds

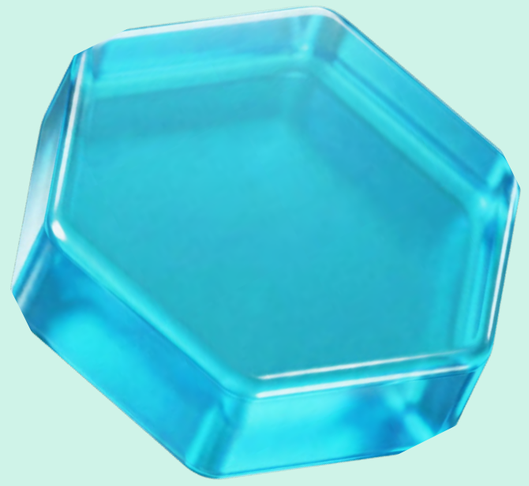
These real-life examples make one thing clear: modernisation is already delivering measurable business impact for organisations that modernise with intent. The question is how to approach it in a way that's practical, manageable and aligned to real business priorities.



Spotting opportunities for modernisation and empowerment

Modernisation is now a business decision that impacts adaptability, competitiveness and long-term readiness. While the need for change is clear, many organisations still struggle with where to begin and how to approach modernisation in a practical way.

This eBook explores how to kick off modernisation, how organisations are approaching it today and the capabilities needed to modernise applications, data and infrastructure in a phased, outcome-led and AI-ready way.





"When we were on-prem, tuning and troubleshooting ate up so much of our time. Now we're using Azure Virtual Machines, Azure Database for PostgreSQL and Application Insights to **stay ahead of issues instead of reacting to them.**"

Sridhar Yadla, General Manager, Apollo Hospitals

Read the story →

"Our modernisation was not only about infrastructure. It was about **empowering our engineering talent** to use the latest tools and create better customer experiences."

Amit Shah, SVP of Digital Technology, Ahold Delhaize USA

Read the story →



Chapter 1

Why modernisation is now a business decision

Organisations are being pushed to move faster, improve resilience, reduce complexity and prepare for AI-driven change – all while controlling cost and operational risk. Leading companies are reframing modernisation around business outcomes rather than infrastructure alone, using phased, practical approaches to improve agility, strengthen governance and build a stronger foundation for future growth.

So, what's driving this shift, and why are organisations rethinking modernisation now?

Business pressure now extends far beyond keeping systems running

For many organisations, the old question was whether core systems could keep up with demand. Today, the question is whether those systems can help the business move faster, stay secure and adapt to AI-driven change – a much higher expectation. It's no longer enough for applications to stay running, for data to stay available or for infrastructure to stay online. The technology environment now needs to support continuous improvement and innovation.

At the same time, many organisations are still trying to modernise using outdated approaches: manual assessments, disconnected workflows and months of dependency mapping before real progress begins. The result is familiar. Projects take too long, security risks grow and engineering teams spend more time maintaining old systems than building new capabilities. For organisations trying to balance innovation with operational stability, that approach makes both goals harder to achieve.

AI and intelligent agents are also raising expectations around speed, reliability and governance. As a result, modernisation is no longer separate from broader business pressure. If the technology estate remains too fragmented, fragile or expensive to change, organisations will struggle not only to modernise but also to take advantage of new AI opportunities as they emerge.

Modernisation gives a better business frame than migration alone

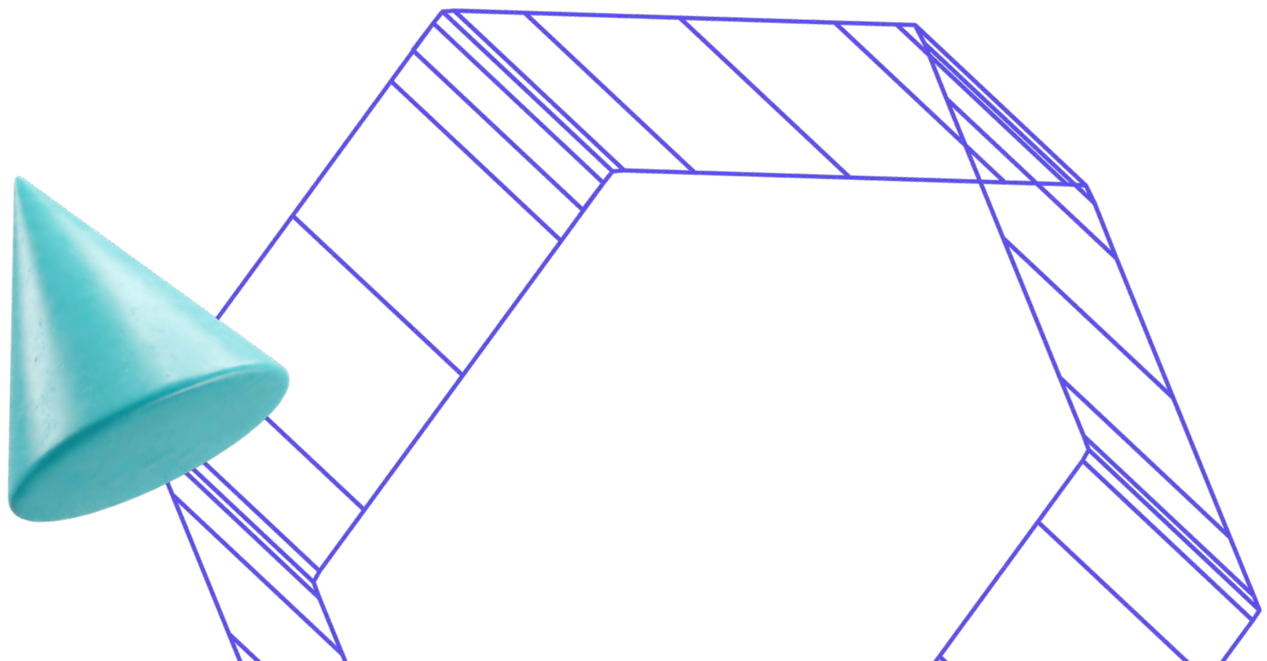
Migration and modernisation often come up in the same conversations, but they aren't the same thing. A migration-first approach usually focuses on where a workload will run next, while a modernisation-first approach starts with what the business needs next. That difference matters because it changes the value conversation.

When the focus is only on migration, discussions often narrow to infrastructure moves, hosting decisions or project scope. When the focus is on modernisation, the conversation expands to include agility, resilience, security, cost control and future readiness. This creates a clearer and more useful framework for executive decision-making because it connects technology choices directly to business outcomes.

A stronger framework for modernisation decision-making focuses on a few core measures of operating health:

- **Time to value:** How quickly can teams deliver meaningful upgrades and improvements?
- **Risk posture:** Are compliance, resilience and security improving during change?
- **Operational load:** Is the backlog shrinking and manual toil being reduced?
- **Unit economics:** Are costs becoming easier to predict, optimise and govern?

Viewed through that lens, modernisation becomes the mechanism for improving the overall health and adaptability of the estate.



A modernisation-first approach also reflects how most organisations actually move. Existing investments don't need to be thrown away and starting from scratch isn't the only way forward. In many cases, the better path is to modernise the most important systems first, sequence work in a clear order and get more value from what already runs the business. The goal isn't to move everything at once, but to build a better path forward from the systems already in place.

First steps to modernisation

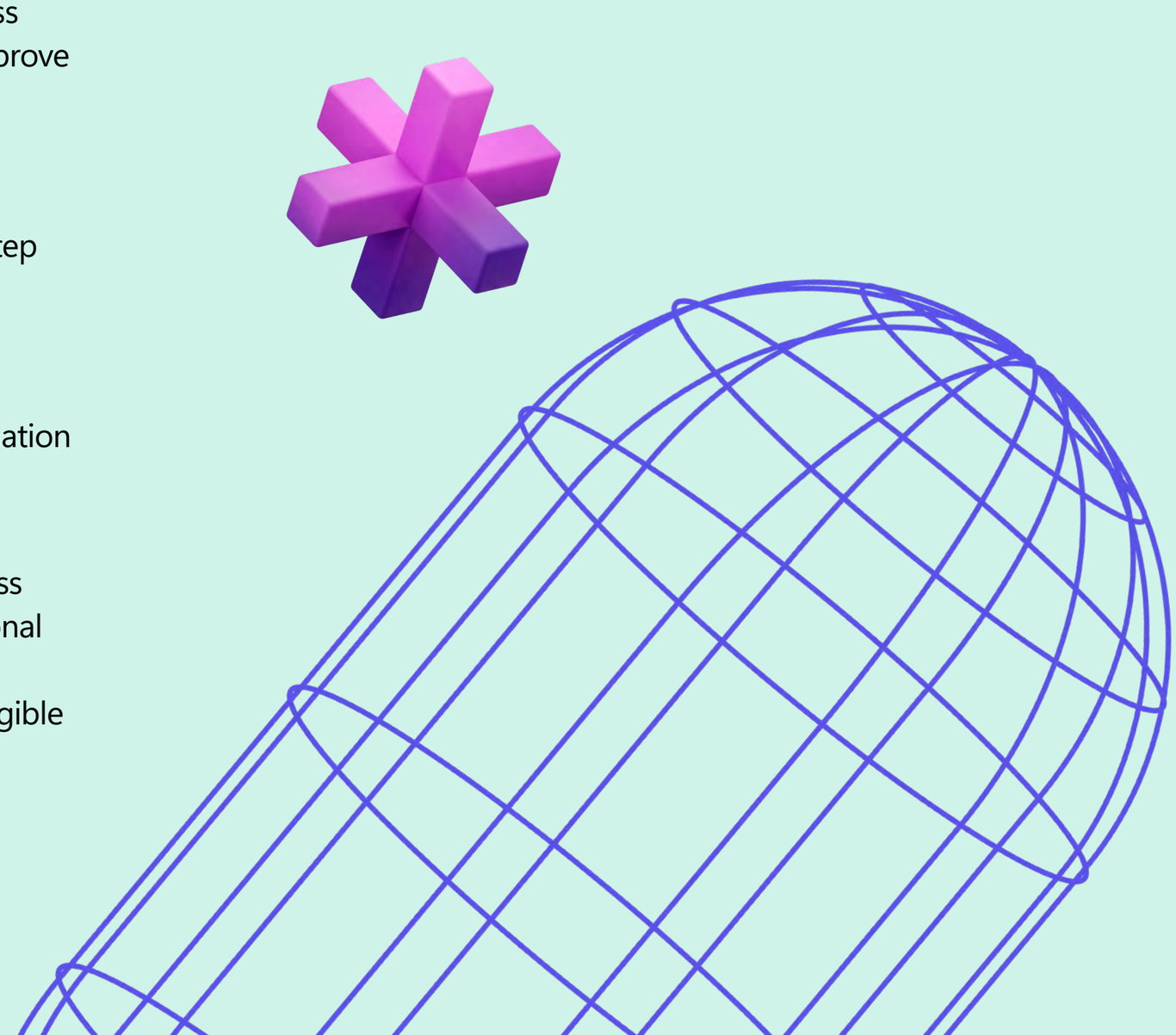
Getting started can feel complex because most environments already contain decades of applications, dependencies and technical debt. A good approach is to start with one or two pilot applications, build a better inventory, surface dependencies and sequence work by business impact and interdependence. That combination creates a modernisation motion that's disciplined enough to govern and concrete enough to start.

Practical steps for kicking off modernisation

1. **Define what 'modernisation' means for your business**
   Start by anchoring the effort in outcomes – such as faster delivery, lower cost, improved resilience, stronger governance or AI readiness – rather than technology alone.
2. **Establish a clear baseline**
   Use discovery and dependency mapping to understand what exists today and how systems, applications and data are connected. This creates visibility before any change begins.
3. **Select meaningful pilot applications**
   Choose pilots that reflect real complexity and business value – not just the easiest workloads. The goal is to prove the approach, not simplify the problem.
4. **Scale through governed, phased execution**
   Expand beyond pilots in structured waves across applications, data and infrastructure, ensuring each step is controlled and repeatable.
5. **Focus on steady, cumulative progress**
   Treat modernisation as an ongoing programme of incremental improvements, not a one-time transformation or high-risk leap.
6. **Keep outcomes front and centre**
   Continuously tie progress back to measurable business impact – such as improved velocity, reduced operational effort, lower cost, better performance and stronger innovation capacity – so the programme remains tangible and credible.

Creating flexibility for whatever comes next

Modernisation is less about replacing technology and more about creating business flexibility. Every time manual work is reduced, systems are simplified, data quality improves or workloads become easier to run, organisations gain more room to respond to change. That flexibility matters whether the opportunity is AI, new products, cost savings or improved resilience. The more adaptable the technology environment becomes, the more adaptable the business can be. And a large part of that adaptability will come from using agentic AI in your modernisation efforts.



Chapter 2

Four ways agentic AI changes the modernisation model

Agentic AI is reshaping modernisation by changing how work gets done, not just what gets automated. Instead of relying on slow, linear processes and heavy manual coordination, you can move toward goal-driven systems that connect discovery, planning, execution and governance in a more continuous way. The result is a model where modernisation becomes faster, more scalable and easier to manage – without sacrificing control or oversight.

1

Agentic AI helps move modernisation from analysis bottlenecks to guided execution

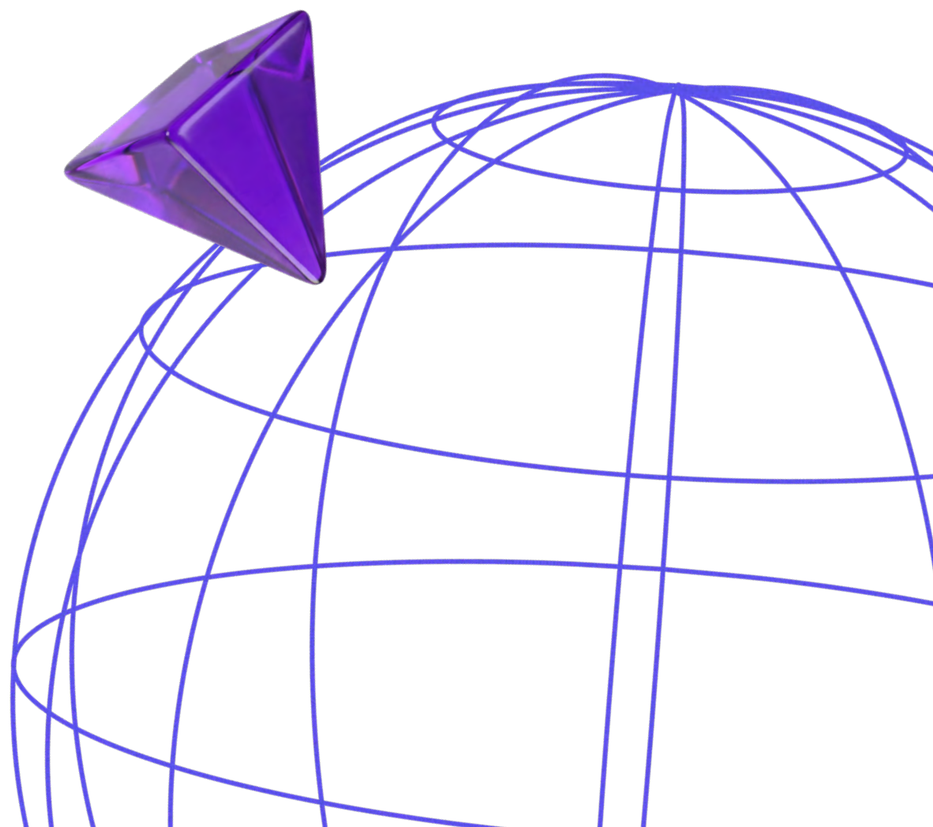
A core reason modernisation has been difficult at scale is that too much of the work depends on slow manual coordination. Teams must inventory assets, surface dependencies, weigh trade-offs, prioritise what to do first, make changes, validate results and then optimise after the fact. Each stage can stall because another team owns a dependency; another system lacks clean documentation or another decision introduces risk. This is where agentic AI changes the model.

Traditional automation follows predefined scripts, while agentic AI works from goals. Agents can receive a defined objective, determine the steps needed to move toward it, execute those steps and adapt based on feedback. This allows more of the modernisation journey to move from manual choreography to guided execution. The result is faster assessment, more consistent planning and more work happening in parallel.

Importantly, this model is most effective when paired with a cloud foundation designed for interoperability, governance and AI readiness. Built-in capabilities across data, applications and security help agents work across complex estates with the context and guardrails needed to act reliably – reducing friction between systems that would otherwise slow progress. As a result, teams spend less time coordinating and reworking, and more time making decisions that actually require human judgement.

The business impact goes beyond just saving time. A goal-driven model makes it possible to treat modernisation as a repeatable way of working, not just a set of one-off projects. And as the process becomes more repeatable, it becomes easier to plan, govern and scale.

Modernisation accelerates when work moves from slow manual coordination to goal-driven execution that can be guided, sequenced and adapted in real time.



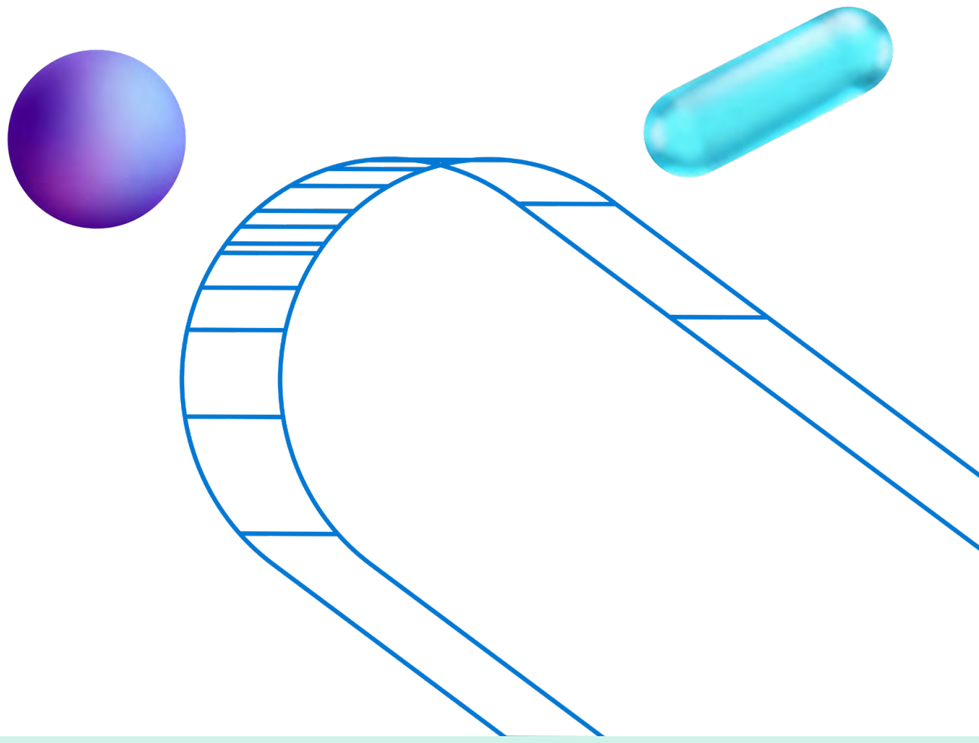
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Modernisation is no longer defined by the speed-versus-control trade-off

Many organisations assume they have to trade speed for control during modernisation. In reality, that trade-off is often caused by manual processes and disconnected reviews. When governance happens only after work is completed, faster execution naturally feels riskier. But when governance is built directly into the process – with guardrails, approvals, policy checks and audit trails – teams can move faster with greater confidence and control.

That's why agentic AI matters. The value isn't just task automation. AI agents can help organisations execute modernisation work more consistently and at a greater scale by identifying issues earlier, applying standards automatically and improving visibility into progress. The result is fewer surprises, less rework and more confidence that modernisation efforts are moving in the right direction.

Speed and control no longer need to be in conflict when governance, policies and validation are embedded directly into the execution process.



3

Modernisation works better as a continuous loop

A helpful way to think about modernisation is as a continuous cycle of discovery, assessment, execution and optimisation. Discovery helps teams understand what systems exist and how they connect. Assessment turns that information into priorities, risks and action plans. Execution carries out the work with governance and controls in place. Finally, optimisation uses performance, cost and operational insights to keep improving over time.

This is a more realistic model than treating modernisation as a series of one-time projects with clear finish lines. Technology environments continue to evolve as business priorities shift, risks change and new AI use cases emerge. Modernisation has become an ongoing operating discipline – and agentic AI can help connect to each stage of the cycle, so organisations can move from insight to action faster and more consistently.

Modernisation becomes more effective when discovery, assessment, execution and optimisation operate as a connected, ongoing cycle rather than isolated efforts.

4

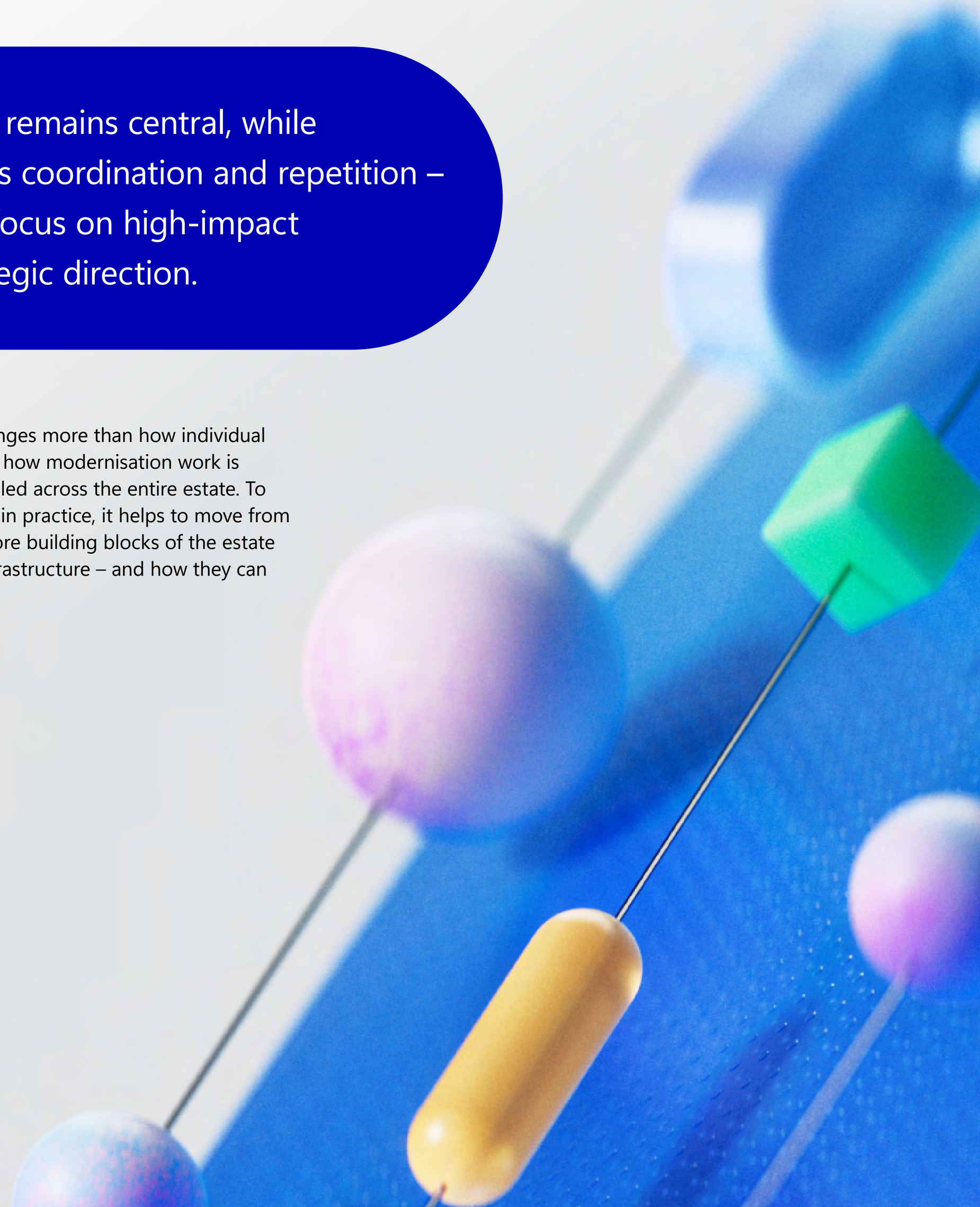
Human oversight stays where it matters most

One of the most practical benefits of agentic AI is that it doesn't remove human control. Instead, it helps organisations scale it. Human approval steps, validation gates, organisational policies and audit trails can all remain part of the process, allowing teams to move faster without losing accountability. Teams can guide agents with clear goals and guardrails while still making the final decisions on high-impact changes.

This is especially valuable in large, complex modernisation efforts. Agentic AI can help surface decisions earlier, apply standards more consistently and improve visibility into how changes are made. Human judgement still matters, but teams can spend less time on repetitive coordination and manual troubleshooting and more time focusing on strategic decisions.

Human judgement remains central, while automation handles coordination and repetition – allowing teams to focus on high-impact decisions and strategic direction.

The shift toward agentic AI changes more than how individual tasks is automated – it changes how modernisation work is structured, coordinated and scaled across the entire estate. To understand what this looks like in practice, it helps to move from the operating model into the core building blocks of the estate itself: applications, data and infrastructure – and how they can be modernised together.



Chapter 3

How to modernise applications, data and infrastructure as one estate

Modernisation works best when applications, data and infrastructure are treated as connected parts of the same environment. If one area changes without the others, new bottlenecks and risks often appear somewhere else. A more effective approach is to modernise all three together so teams can improve speed, reduce complexity, strengthen governance and build a stronger foundation for AI.

Applications: Reduce technical debt and improve delivery speed

Application modernisation is often where transformation efforts either gain momentum or slow down. Many organisations know their application portfolios need improvement, but hidden dependencies, outdated frameworks and inconsistent deployment processes can make change feel risky and difficult to prioritise.

AI-assisted assessment and planning can help reduce that complexity. Teams can identify outdated dependencies, breaking changes and remediation paths earlier in the process. Dependency analysis also helps teams understand how applications, services and identity systems connect, so modernisation work can happen in more organised waves instead of isolated projects.

Automation can also reduce manual work by supporting:

- Framework upgrades such as legacy .NET to modern .NET
- Dependency and build updates
- Code transformation and remediation
- Containerisation and deployment preparation

This helps teams spend less time troubleshooting repetitive upgrade work and more time improving delivery speed and resilience across the portfolio.

Data: Modernise for performance, governance and AI readiness

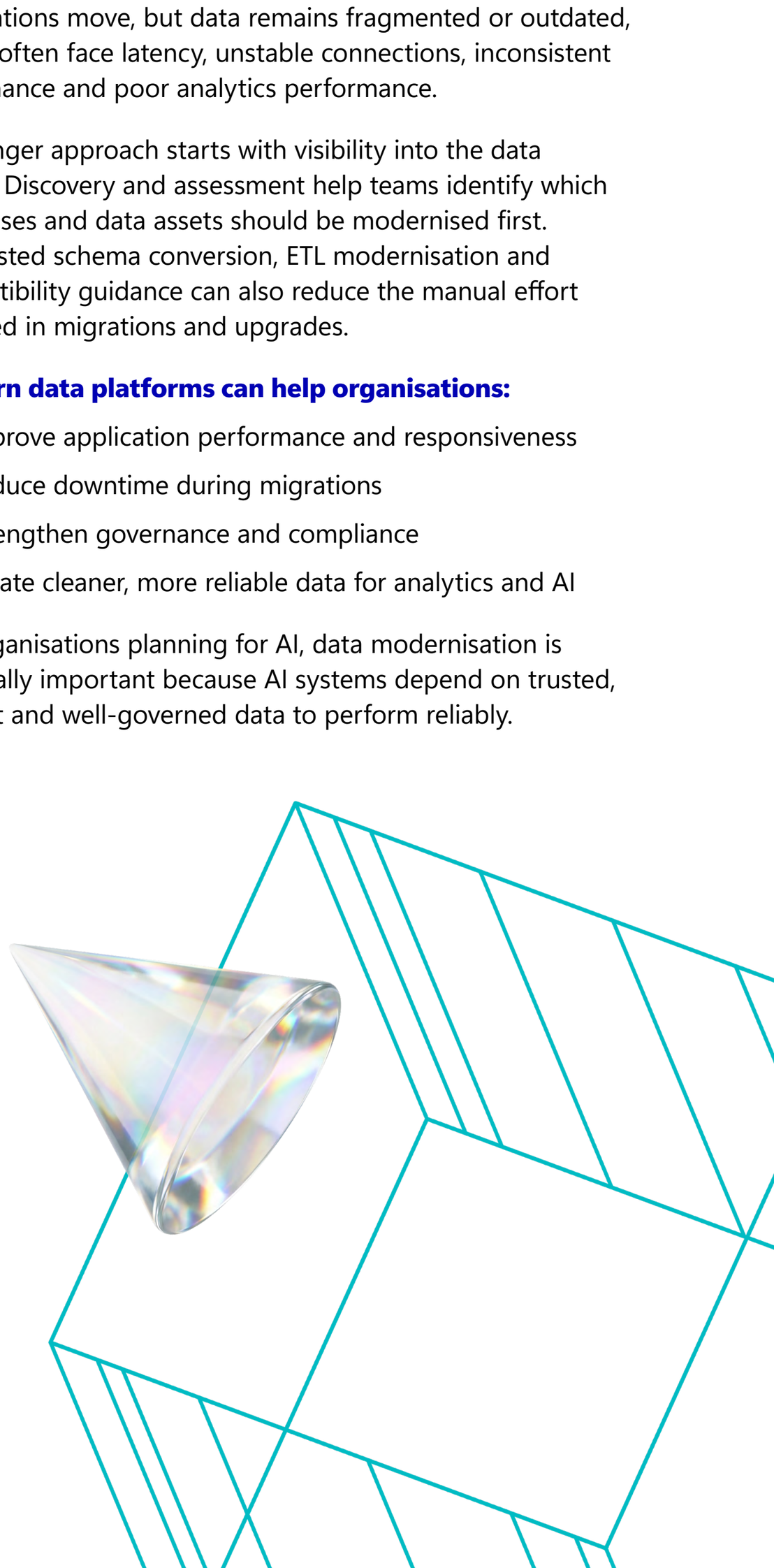
Data modernisation becomes critical when organisations start modernising applications and adopting AI. If applications move, but data remains fragmented or outdated, teams often face latency, unstable connections, inconsistent governance and poor analytics performance.

A stronger approach starts with visibility into the data estate. Discovery and assessment help teams identify which databases and data assets should be modernised first. AI-assisted schema conversion, ETL modernisation and compatibility guidance can also reduce the manual effort involved in migrations and upgrades.

Modern data platforms can help organisations:

- Improve application performance and responsiveness
- Reduce downtime during migrations
- Strengthen governance and compliance
- Create cleaner, more reliable data for analytics and AI

For organisations planning for AI, data modernisation is especially important because AI systems depend on trusted, current and well-governed data to perform reliably.



Infrastructure: Improve agility, visibility and cost control

Infrastructure modernisation is about more than moving workloads to the cloud. Many organisations operate large, complex environments with thousands of virtual machines, inconsistent documentation and network architectures that were never designed for rapid change. The biggest challenge is often understanding how systems connect and planning changes without creating disruption.

AI-assisted discovery and dependency mapping help address this complexity by creating a more accurate, continuously updated view of the environment. This becomes significantly more effective when powered by a simple, integrated AI platform like Microsoft Azure, where visibility across compute, data, networking and security is inherently connected. This allows insights to reflect how systems actually behave in real time – not just how they were originally documented.

With this approach, teams can:

- Identify relationships between applications and infrastructure with greater precision
- Plan and sequence modernisation waves with less risk and fewer surprises
- Improve cost visibility and right-size resources based on real usage patterns
- Establish consistent landing zones, networking and governance policies from the start
- Continuously optimise environments post-migration through built-in intelligence and feedback loops

Agentic AI can also help recommend architectures, generate infrastructure plans and automate operational tasks that previously required extensive manual coordination.

Just as importantly, modernisation doesn't have to happen all at once. Hybrid environments are common, and many organisations modernise in phases while some systems remain on premises longer.

Modernisation delivers the most value when applications, data and infrastructure are treated as one connected estate.

As organisations begin modernising applications, data and infrastructure together, the next challenge is making sure that speed doesn't come at the expense of safety, compliance or operational control.



Chapter 4

Striking the balance between control and speed

Instead of treating control as something that slows progress down, leading organisations are embedding policies, visibility and decision-making directly into how modernisation work gets done. The result is a more manageable, scalable approach that helps teams move faster while maintaining confidence in security, compliance and operational stability.

Governance belongs in the architecture, not after the fact

If modernisation is going to move faster, organisations need more confidence in control – not less. Governance works best when it is built directly into the modernisation process instead of added later as a separate review step. Policy checks, human approvals, audit trails and ongoing monitoring help teams move faster while still maintaining visibility and accountability.

This becomes especially important in large environments where risks can build over time. In fragmented processes, problems are often discovered too late. A more governed approach can identify issues earlier, apply standards more consistently and create a clearer record of what changed and why. In this model, control improves because governance happens closer to the work itself – not because teams slow everything down.

Security improves when modernisation removes fragility and inconsistency

Security should be part of the modernisation strategy, not treated as a separate compliance task. More standardised deployment patterns, stronger policy enforcement, better monitoring and faster remediation all help improve security posture. As environments become more consistent, they also become easier to secure and manage.

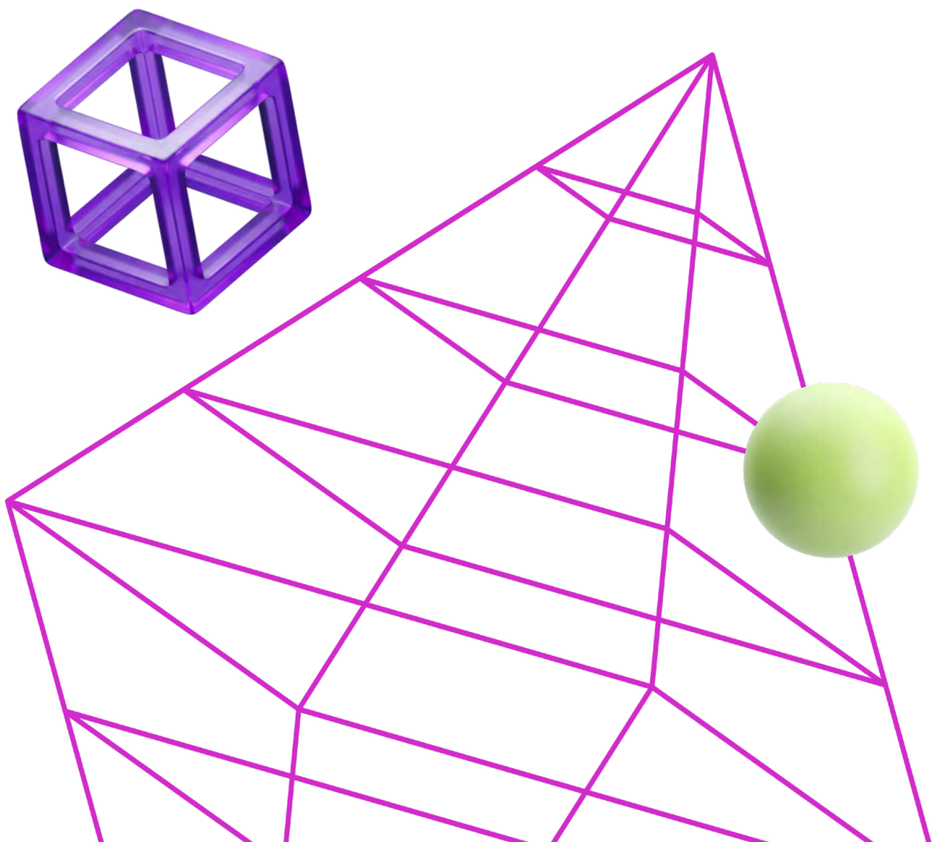
Many organisations still approach security as a downstream review process. But modernisation can reduce the fragility and inconsistency that often create security risks in the first place. The goal is not just to respond to issues faster – it is to build an environment where problems are easier to prevent, detect and resolve.

Use portfolio planning to make modernisation more strategic

Modernisation becomes easier to manage when organisations treat it as a portfolio strategy instead of a collection of disconnected projects. That means understanding dependencies, estimating effort realistically and prioritising work based on business impact and value.

This is where the 6 ‘R’s framework can help. Rehost, replatform, refactor, rebuild, retire and retain give organisations a structured way to decide which assets should be modernised deeply, which can move with minimal changes and which should stay in place for now. Used effectively, the framework helps organisations balance quick wins with longer-term modernisation goals.

This kind of planning also makes modernisation easier to explain across the business. When each phase is tied to clear outcomes like lower cost, reduced risk, faster delivery or AI readiness, modernisation becomes easier to support, prioritise and govern.



The 6 ‘R’s

Rehost: Move applications to the cloud as-is (‘lift and shift’) with minimal or no changes to code or architecture.

Replatform: Make small optimisations (e.g., move to managed services) to improve performance or cost without significantly changing the application.

Refactor (Re-architect): Redesign parts of the application to better take advantage of cloud capabilities, such as scalability, resilience or modern architectures.

Rebuild: Recreate the application from scratch using cloud-native technologies to fully meet new business or technical requirements.

Retire: Decommission applications that are no longer needed or have been replaced, reducing complexity and cost.

Retain: Keep applications in their current environment (on-premises or unchanged) because they still meet business needs or are not ready to move.

Next Steps

Kicking off your modernisation journey

Modernisation turns today’s technology into tomorrow’s capability – creating space to innovate while maintaining control. It improves performance, cost, resilience and AI readiness together, instead of treating them as separate efforts.

The old trade-off between speed and control no longer applies. Agentic AI connects discovery, assessment, execution and optimisation into a continuous process, with governance built in. Azure makes this real by combining a unified platform with agentic capabilities across applications, data and infrastructure – so organisations can modernise faster and move forward with confidence.

Why Azure?

Modernisation determines how fast you can adapt, improve and build what comes next.

- **Modernise faster with agentic execution**
  AI-powered tooling can accelerate code migration and application changes, helping teams modernise faster and reduce manual effort

- **Reduce complexity, don't recreate it**
  A unified platform helps eliminate fragmented tools and duplicated work, so teams can focus on delivery instead of coordination

- **Move with speed and control**
  Built-in governance, security and operations allow teams to modernise quickly while maintaining stability and compliance

- **Deliver measurable business impact**
  Faster feature delivery, lower total cost of ownership and more time for innovation translate directly into business outcomes

- **Build a foundation for what's next**
  Modernised applications and data enable AI, automation and intelligent agents – so modernisation becomes a starting point, not an endpoint



Get started

Modernise with confidence on Azure →

Microsoft & Digital Sovereignty

Microsoft Sovereign Cloud: The most comprehensive set of sovereign solutions across AI, productivity, security and cloud platform.

Our approach is simple – digital sovereignty is foundational to our cloud and services, delivered through a well-governed combination of technical, contractual and operational controls and because every workload and every organisation has different levels of sensitivity and criticality, sovereignty requirements are adaptable to the needs of each customer.

The Microsoft Sovereign Cloud brings together AI, productivity, security and cloud workloads to span public, hybrid and disconnected environments so customers can apply the right level of control, capability and compliance based on the sensitivity and criticality of each workload rather than relying on a single deployment model.

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