Whitepaper
Australia and New Zealand

Application *modernisation* at the speed of AI.

A guide to the what, why and how of AI-led application modernisation in 2026.

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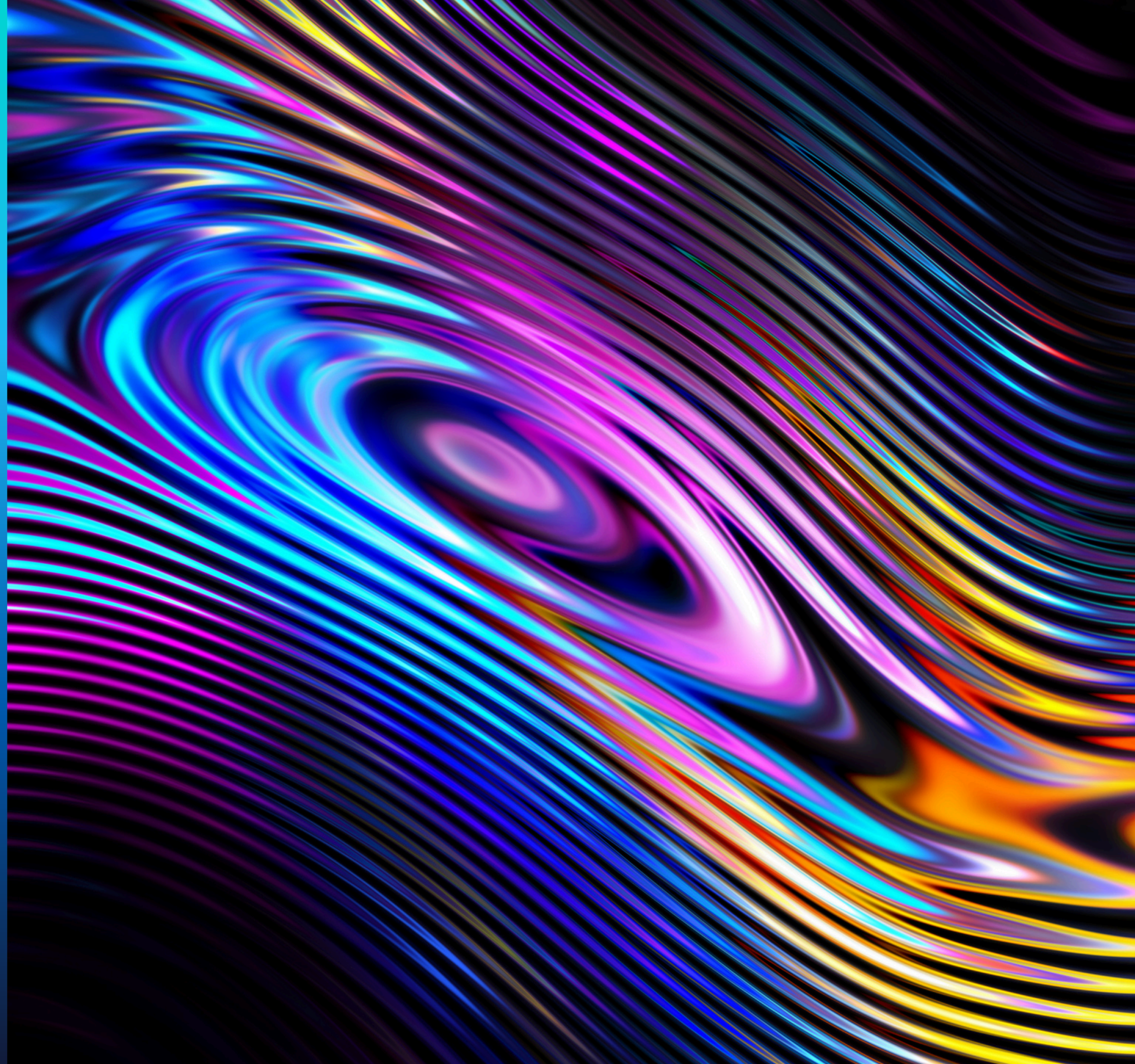

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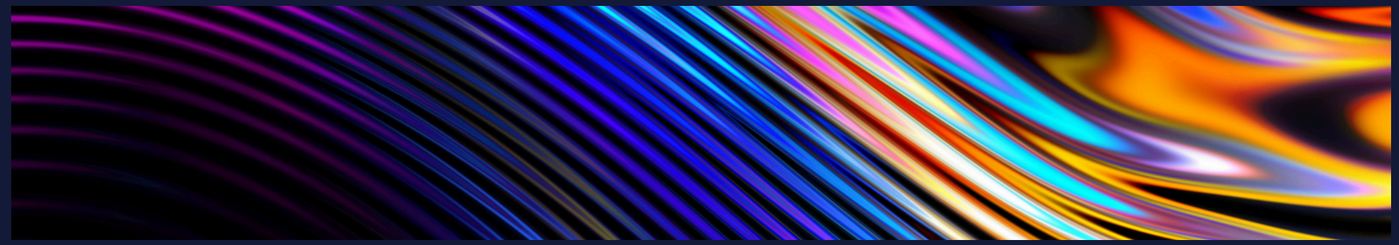
Executive overview:

Modernisation at the speed of AI – *The challenge and opportunity*

Across every industry, organisations are locked into legacy systems that were never designed for today's scale, security demands or innovation ambitions.



Built on ageing platforms and maintained through a shrinking pool of expertise, these platforms absorb a disproportionate amount of operational budget, often leaving little room to invest in the future.

Historically, modernisation presented a dilemma: high cost, high risk, long timelines and uncertain ROI. As a result, many organisations chose to defer action, opting to "sweat the asset" rather than transform it. Valuable business logic was trapped inside systems that could no longer evolve. Technical debt accumulated. Costs rose and innovation stalled.

Now, AI has redefined what is possible, moving modernisation from the realm of expensive, high-touch and bespoke projects into a repeatable capability.

The economic impact of this is immediate, enabling lower cost of entry, faster delivery and time-to-value. The strategic impact is a durable foundation that is cloud-ready, secure by design and adaptable to an ever-evolving AI landscape.

Instead of spending months on manual code analysis, AI can scan, assess and generate transformation paths in a matter of hours. AI-driven tooling interprets business logic, upgrades frameworks, flags risks and even generates test scaffolding and deployment scripts, lessening the requirement for deep in-house legacy expertise.

This isn't simply about speed; it's about shifting modernisation from a one-off capital project into a future-proof model that continuously uplifts your organisation's estate while creating the foundation for AI-enabled innovation.

The opportunity for leaders is clear:

- Reclaim budget by reversing the legacy maintenance-to-innovation spend ratio.
- Unlock agility by shifting from monolithic technical debt to modular, cloud-ready architectures.
- Preserve what matters – such as business logic, IP and workflows – while replacing the technical foundations beneath.
- Build readiness for AI-native capabilities, automation and next-generation digital platforms.

From constraint to AI-enabled opportunity

AI vs traditional and customised off-the-shelf (COTS) approaches

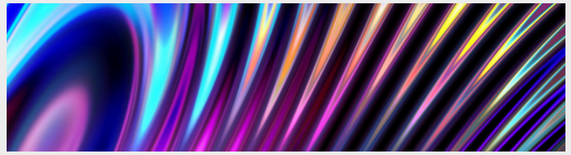
Feature	Traditional	COTS	GenAI-led
Speed	Slow (months - years)	Moderate	Fast (days - weeks)
Cost	High	High (licensing)	Lower
Customisation	High	Low	High
Risk	High	Medium	Low
Legacy logic retention	Partial	Low	High
Future flexibility	Limited	Vendor-dependent	High

Navigating legacy challenges to embrace the new economics of modernisation

Maintaining legacy applications isn't just a technical requirement; it's a significant and growing business risk. Legacy systems are often expensive to host, difficult to secure and increasingly reliant on a shrinking pool of skilled professionals. As technologies reach end-of-life, organisations face rising licensing costs, limited vendor support and mounting compliance challenges.

Security is also a major concern. Legacy systems frequently contain vulnerabilities that require costly containment strategies, such as isolated hosting environments or manual patching. These workarounds increase operational complexity and introduce fragility into the IT estate.

On top of this, the opportunity cost of maintaining legacy systems is substantial. Every dollar spent on keeping outdated systems running is a dollar not invested in innovation, customer experience or competitive differentiation. And the longer these systems remain in place, the more they constrain agility, scalability and opportunities for digital transformation.



How AI transforms modernisation

AI is fundamentally reshaping how organisations approach application modernisation. By bridging the gap between outdated systems and modern architectures, AI empowers organisations to modernise at scale – unlocking agility, reducing technical debt and laying the groundwork for future innovation.

Key factors, capabilities and benefits of AI-augmented modernisation include:

- Intelligent legacy system analysis
- Automated code analysis and translation
- Semantic understanding of business logic
- Identification of upgrade paths and compatibility issues
- Performance optimisation and risk identification
- Generation of test cases and deployment scaffolding
- Reverse engineering and document generation
- Reduced reliance on legacy tech experts
- Enablement of rapid feasibility assessments
- Supports incremental, low-risk transformation
- Creates the foundation for future AI-enabled applications
- Lower cost and faster time-to-value

Why 2026 is the year for AI-enabled application modernisation – *at scale*

New research indicates that 2026 is the year AI moves beyond experimentation and enters a phase of maturity across the enterprise, becoming “the backbone of enterprise architecture” and reshaping software lifecycle development. Enterprise leaders will pivot from proof of concept to proof of impact, looking to construct the “durable foundations that future innovation will depend on.”

With future-readiness a prerequisite for any enterprise transformation programme today, agentic AI will increasingly play a role in facilitating this, helping organisations orchestrate end-to-end software engineering tasks, such as analysis, transformation, testing and deployment, all while ensuring a premium is placed on observability, guardrails and architecture fit.

Continuous modernisation will replace the big-bang rewrites of old, with application estates evolving iteratively as AI accelerates pipelines and human teams focus on oversight and optimisation.

Organisations that succeed with AI will treat it as an operating model as much as a technology capability: designing, governing and scaling it with the same rigour as any mission-critical platform.

Futher Reading:
AI in action: How Gen AI and agentic AI redefine business operations

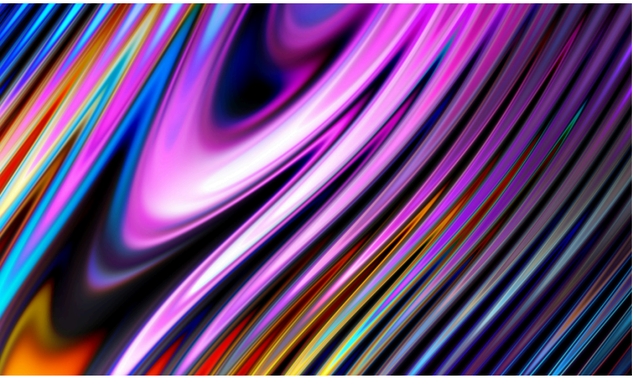
Click here

Strategic considerations and deciding factors – Defining your AI-enabled future state

The business case for AI-led application modernisation

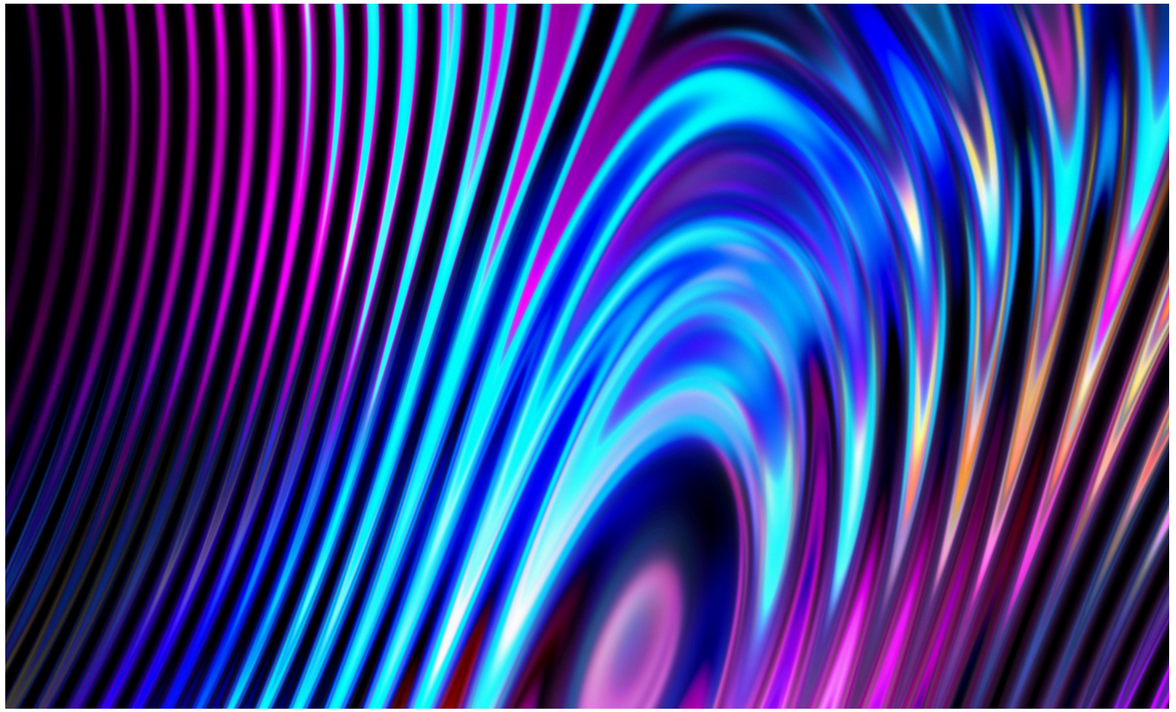
By dramatically reducing the cost and effort required to upgrade legacy systems, AI makes transformation feasible, even when no new business functionality is introduced.

This opens the door to technical upgrades that deliver value through reduced support costs, improved security and future development potential.



AI enables organisations to modernise legacy systems at a fraction of the traditional cost, making upgrades that were previously cost prohibitive more widely viable. TThis shift in the ROI equation allows organisations to invest in future-ready platforms that support innovation and agility.

Whether your objective is a technical uplift, incremental improvements or full refactoring, aligning your modernisation efforts with your business priorities will help you ensure your transformation delivers meaningful value, supporting both short-term technical upgrades and your organisation's long-term strategic evolution.



Key factors for alignment with business priorities:

- Clarify business objectives across time horizons
- Choose between lift-and-shift, refactor or rebuild
- Align architecture and tooling with future goals
- Enable continuous improvement and innovation

Futher Reading:
The multi-year AI advantage

Click here

Decision framework: *modernise* or *replace*?

Modernise

Modernise when the application still delivers ongoing business value, business logic remains relevant, and the stack can be upgraded within your future architecture.

Replace

Replace when technology is unmaintainable or unsupported, functionality is obsolete, duplication exists across systems or the business process has fundamentally changed.

When decision-making is ambiguous, modernisation stalls. The fastest path to impact is to establish a simple decision framework and apply it consistently.

When in doubt, use AI-assisted assessments to quantify feasibility and risk: scan codebases, identify upgrade paths, estimate effort and highlight hidden dependencies early.

Choose your modernisation path

There are two common paths to readiness:

Portfolio-wide scan

A portfolio-wide scan targets low-complexity upgrades that deliver quick savings and momentum, freeing budget and capacity to tackle harder problems.

Monolithic deep-dive

A monolithic deep-dive focuses on a mission-critical system: assess feasibility, carve-out components, de-risk dependencies and orchestrate incremental migration.

Both paths benefit from AI-enabled tooling to accelerate analysis, generate documentation and produce test scaffolding.

Modernisation methodology – agile, flexible, scalable

Strategise | **Discover**

1 Discovery and assessment

These are the critical first steps in any AI-led modernisation journey, ensuring that transformation efforts are grounded in reality and aligned with business needs.

Approach

Explore the context

- Scan and prioritise by feasibility, risk and impact.
- Align business strategy and capabilities.

Establish a vision

- Map domains and priorities.
- Create your business case.
- Derive a roadmap
- Produce a lightweight decision dossier for each application, summarising effort, risk and options.

2 Application rationalisation

Analysing application functionality and dependencies will help your organisation decide which systems to retain, consolidate or retire, while also rethinking outdated workflows.

Approach

Understand the problem – application rationalisation

- Analyse business processes and dependencies.
- Remove application duplication and unify where it improves user and operational value.
- Rationalisation is not consolidation for its own sake; it is targeted simplification that reduces operational friction and cost to serve.
- Use AI insights to locate overlapping functionalities, unused features and workflows that would benefit from redesign.

3 Target architecture definition

This is a pivotal step in ensuring modernisation efforts deliver long-term value and provide the foundation for a future applications landscape that is scalable, secure, adaptable and strategically aligned.

Approach

Envision the solution – target architecture definition

- Design for modularity, portability and Cloud 3.0 patterns (hybrid, multi-cloud, and sovereign).
- Treat the target as an architecture standard with guardrails – API-first integration, container orchestration, observability baked-in, and data platforms that support AI/agentic workloads.

Refine the solution

Plan next steps

Modernisation methodology – agile, flexible, scalable

Deliver | **Measure**

4 AI-driven code transformation

AI-driven code transformation is central to modernisation, rapidly analysing legacy code, identifying upgrade paths and translating it into modern languages and frameworks.

Approach

Modernise efficiently with AI-driven code transformation

- Automate standard patterns, refactoring and translation while preserving business logic.
- Use AI to generate documentation, identify performance bottlenecks, and recommend patterns.
- Keep human engineers in the loop to enforce architecture fit and security hygiene.

Migrate securely

- Leverage automatic data migration services and ensure continuous quality during transition

5 Validation, testing and remediation

Validation, testing and remediation ensure AI-led transformations are secure, reliable and production-ready.

Approach

Learn and adapt – validate, test and remediate

- Ensure functional equivalence, performance, and security.
- Where tests are missing, use AI to reverse engineer baselines; adopt agentic execution to run suites and collect telemetry.
- Prioritise remediation by risk and user impact; codify learnings into standards.
- Improve patterns and automations.

6 Deployment and change management

Deployment, measurement and change management enable a smooth transition and lay the foundation for continuous evolution. This ensures that modernised applications are not only technically sound but also fit for purpose and operationally viable.

Approach

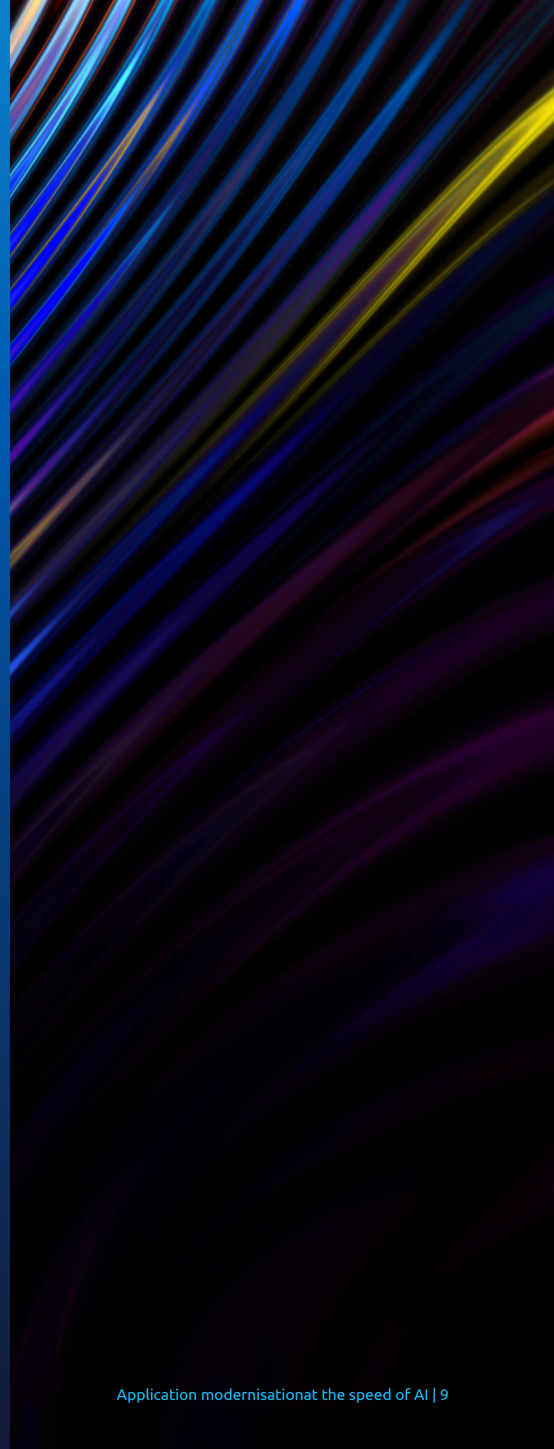
Enable adoption

- Increase successful adoption through DevOps pipelines, infrastructure-as-code, training and phased rollouts with safe rollback options.
- Anchor change management in clear communication, role-based training and
- Operational runbooks that prevent drift.

Gain feedback

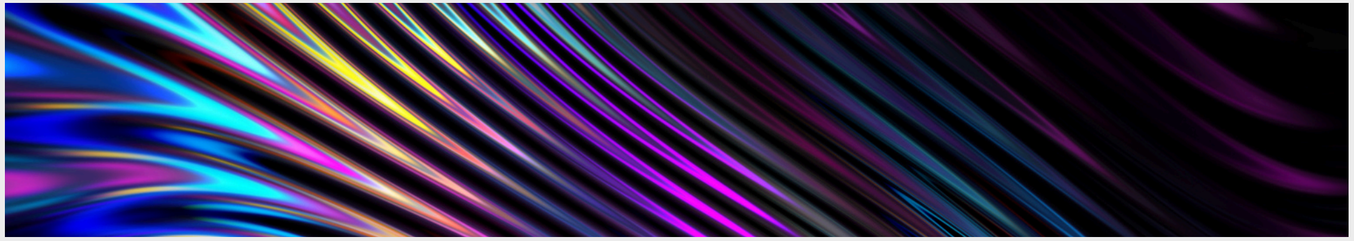
Apply metrics

Derive insights



Governance and guardrails

Acceleration without discipline introduces risk. Governance and guardrails allow you to modernise quickly without losing control.



Ensuring quality and compliance

While AI accelerates transformation, it also introduces new technical, operational and regulatory risks that must be proactively managed.

Governance and risk management are critical to AI-led modernisation. Many projects fail not due to technology, but from a lack of risk awareness and insufficient governance.

Quality assurance starts with feasibility and continues through deployment, ensuring code runs as expected and meets security and compliance standards. AI aids with code reviews, benchmarking, and defect detection, but human oversight remains essential.

A structured risk framework helps uncover technical pitfalls early, validate third-party components and ensure cloud compatibility – reducing disruption and boosting confidence in any modernisation endeavour.

Maintaining AI output and human-in-the-loop review

Managing AI output through human-in-the-loop review is essential for maintaining quality and performance in AI-led modernisation.

While AI can automate much of the code transformation process, human oversight is essential to ensure quality, performance and alignment with best practices.

AI should only ever accelerate, never replace, engineering judgment. AI-generated code may be functional but inefficient or misaligned architecturally. Developers must always validate that the output is scalable, maintainable and fit for purpose.

A structured human-in-the-loop review process, including benchmarking and architectural checks, helps catch inefficiencies, hallucinated logic and hidden dependencies.

Security, privacy and IP considerations

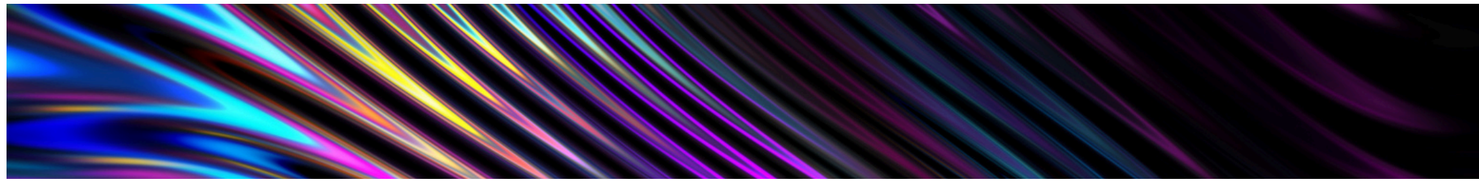
Security, privacy and IP governance are essential to safe and responsible AI-led modernisation. AI introduces powerful capabilities, but also new risks, including hallucinated libraries, supply chain vulnerabilities and third-party code issues.

Organisations must validate dependencies, ensure data sovereignty and confirm that AI-generated code is secure, compliant and legally sound.

Futher Reading:
Rise of agentic AI: How trust is the key to human-AI collaboration

Click here

Embarking on your AI-led modernisation journey



Conduct a readiness assessment

Readiness starts with evaluating the application landscape, identifying upgrade candidates, and assessing whether your organisation has the skills, tools and governance to support transformation.

AI accelerates this by surfacing upgrade paths, estimating effort and aligning plans with strategic goals.

As mentioned previously, organisations typically follow one of two paths:

- A broad portfolio scan to target low-complexity applications for quick wins
- A deep dive into a critical monolith to assess feasibility

AI supports both, helping identify pilot candidates, incremental migrations or systems that may need full replacement.

Build the right team and skills

Successful AI-led modernisation requires more than just the right tools. It calls for the right people, skills and mindset.

Organisations must assess whether their teams are ready – both technically and culturally – for AI-enabled workflows.

This starts with a skills gap analysis: Do our teams understand AI tools, or is external support needed?

Upskilling is often possible, but it requires clear communication and leadership backing. Team alignment is equally important.

Legacy teams may resist change, so leaders must foster a culture of innovation, safety and learning. Framing transformation as a growth opportunity – not a threat – helps build a future-ready workforce.

Identify quick wins and pilot projects

Quick wins and pilot projects are essential for demonstrating the value of AI-led modernisation and building momentum across the organisation.

Rather than starting with complex systems, it's more effective to begin with low-complexity applications that can be upgraded quickly and with minimal risk. These pilots validate AI tools, test the process in a controlled setting and deliver early wins to build stakeholder confidence.

Ideal candidates are systems with clear value, minimal dependencies and measurable limitations. The goal is to prove AI's speed and cost-effectiveness, laying the foundation for broader transformation across the portfolio.

Readiness assessment checklist:

- Reassess strategic direction before starting transformation
- Use AI tools to assess feasibility and effort
- Choose between a portfolio-wide scan or deep-dive into monoliths
- Identify quick wins and build confidence

Team readiness and skills checklist:

- Define desired tech stack and integration layers
- Choose between technical uplift or full refactoring
- Align architecture with scalability and business goals
- Use factory models or modular approaches for scale

Quick wins and pilot projects checklist:

- Start with low-complexity applications to demonstrate value
- Avoid complex systems early to reduce risk and disruption
- Use pilots to validate AI tools and transformation process
- Build momentum and executive support for broader rollout

Scale modernisation across your portfolio

Once pilot projects have demonstrated success, the next challenge is scaling modernisation across your full application portfolio.

For organisations with hundreds or thousands of legacy systems, a structured, repeatable approach is essential to avoid chaos, duplication and rework.

A factory model is often the most effective strategy – establishing dedicated teams, governance and tooling pipelines to industrialise transformation. Control towers and design authorities ensure architectural consistency and quality.

Scaling also requires experienced partners who can support AI tooling, migration planning and change management. With the right structure in place, organisations can modernise at pace, reduce technical debt and unlock trapped business value across the estate.

Portfolio modernisation checklist:

- Use factory models to industrialise transformation
- Establish governance, control towers and design authorities
- Engage experienced partners to support scale
- Avoid chaos and rework through structured programs

Long-term strategic impact

AI's long-term impact lies not just in transforming applications, but in reshaping how your organisation approaches building, maintaining and evolving your technology estates.

The impact of AI goes beyond code volume or speed; it's about delivering business outcomes, accelerating time-to-value and enabling continuous innovation.

Yet, to truly realise these benefits, organisations must rethink traditional success metrics, focusing instead on aspects like business value delivered, defects reduced and agility gained.

AI enables faster development, but without quality and strategic alignment, speed alone can be counterproductive. The organisations that embrace AI strategically will be best positioned to adapt, compete and lead.

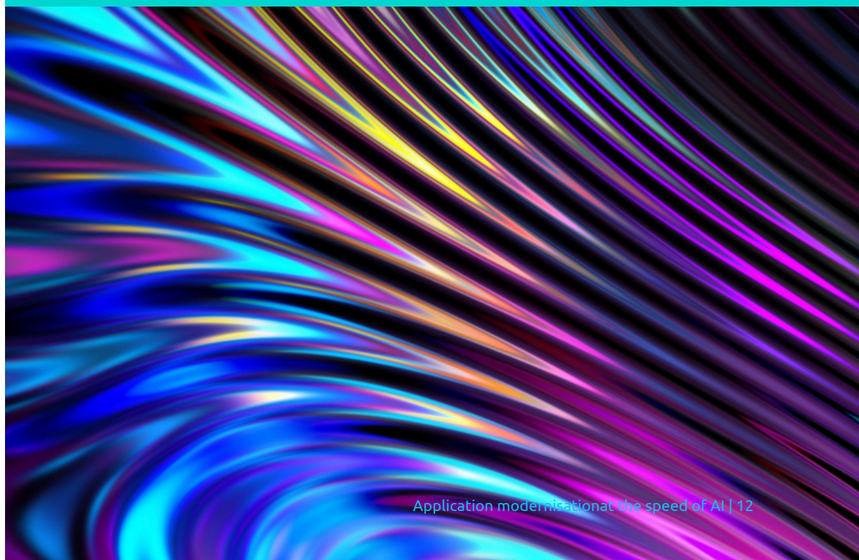
Strategic impact checklist:

- Focus on time-to-value and business outcomes, not just code volume
- Measure quality, agility, and strategic impact
- Use modernisation to enable future capabilities and innovation
- Build a foundation for long-term adaptability and competitiveness

Design for the future

AI-augmented engineering and continuous modernisation

AI is reshaping the software development lifecycle (SDLC) in profound ways. To prepare for a future where software engineering is collaborative, AI-augmented and constantly evolving, organisations must rethink skillsets, team structures and development methods.



Next steps

Start small, move with purpose and build your modernisation engine.

What was once a costly, risky and low-ROI endeavour is now achievable at speed and scale – with reduced effort, improved quality and greater alignment to business goals.

But success requires more than just technology.

It demands structured planning, robust governance and a clear understanding of your business priorities.

It requires a clear-eyed and comprehensive assessment of your organisation's legacy estates.

It calls for a commitment to building the right teams – and to continuously upskilling and empowering them. And – perhaps most important of all – it necessitates a methodology that always balances automation with human oversight.

The call to action is clear:

- Start now.
- Conduct a readiness assessment.
- Launch pilot projects and build internal capabilities.
- Invest in skills, governance and tooling that support continuous modernisation.
- Prioritise value, continuous improvement and future readiness.

Doing this will help your organisation unlock trapped value, reduce risk and enable long-term innovation – and, in the process, turn application modernisation into a competitive edge.

Recommended further reading

- Top Tech Trends of 2026 (December 2025)
- The multi-year AI advantage: Building the Enterprise of Tomorrow (2026)
- Rise of agentic AI: How trust is the key to human-AI collaboration (2025)
- AI in action: How Gen AI and agentic AI redefine business operations (2025)
- The on-demand tech paradox: Balancing speed and spend (2025)
- agentic AI powered by integration (2025)
- TechnoVision 2026 guide for CTOs and CIOs (2026)

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