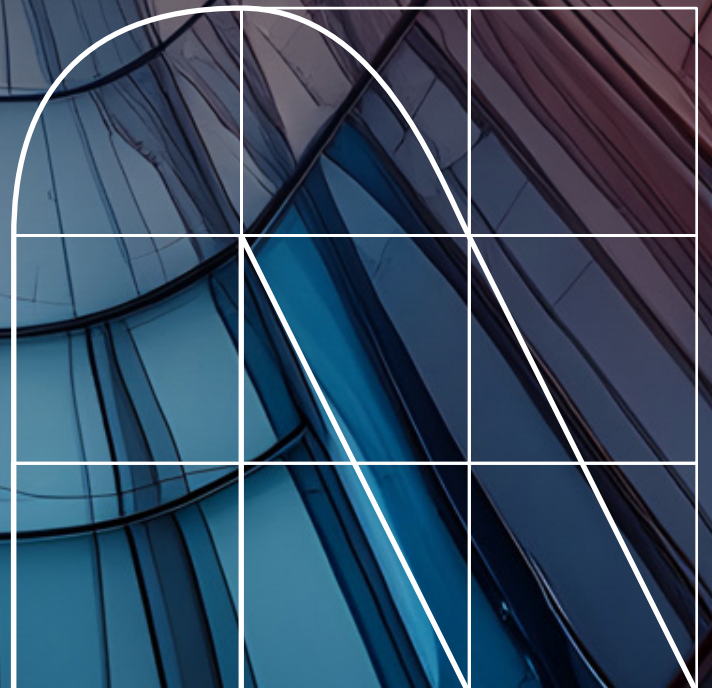


Core infrastructure creates confidence in the face of change

Positioning insurance enterprises
for intelligent operations

April 2026



Insurers operate in an environment of sustained pressure. Regulatory expectations continue to increase, customers demand faster and more transparent experiences, and competition is intensifying as digital-first players enter the market with leaner operating models.

Insurers are exploring advanced capabilities such as generative and agentic AI to improve decision-making, automate high-volume processes and strengthen operational resilience.

Many have already invested significantly in cloud technologies and digital platforms. However, these investments have not always delivered the expected gains in speed, adaptability or cost efficiency. In many cases, new capabilities are added to legacy systems to keep operations running smoothly rather than to support frequent change. The result is often additional complexity, higher operating costs and slower delivery.

Cloud strategy, application modernization and application development directly affect how quickly insurers can respond to changing business requirements, regulations and technology.

We explore how modernizing core infrastructure positions insurance businesses for intelligent operations and workflows that don't require additional manual intervention or workarounds. It allows them to roll out digital services faster, with a clearer view of risk and effort, without disrupting operations, and gives them confidence in the face of change, knowing that they have the foundation and capabilities to respond.

“

What ultimately determines how well insurers can adapt to change is not the adoption of cloud or modern tools — it's whether their core infrastructure and application architectures can evolve as technology, regulations and business requirements change.”



Contents

Rethinking core infrastructure

Modernization as a strategic capability

Cloud in context: Supporting, not defining, transformation

From modern infrastructure to intelligent operations

Value-led transformation, grounded in outcomes

NTT DATA's approach to modernizing insurance foundations

Positioning the enterprise for intelligent change

Rethinking core infrastructure

Core infrastructure directly affects how quickly insurers can effect change, control costs and manage risk, making it a strategic concern for insurance leadership.

Across underwriting, claims, policy administration and finance, many insurers continue to rely on heavily interconnected systems that were built to prioritize transaction integrity and operational reliability. While these environments have supported scale over time, they often make change slow and risky. Enhancements can require extensive testing cycles, manual coordination across teams and deep reliance on a small pool of legacy specialists.

These constraints become increasingly visible as insurers seek to introduce intelligence into operational workflows. Advanced analytics and AI require timely access to data, as well as modular services and predictable orchestration. Where infrastructure remains monolithic, introducing new capabilities typically means adding layers of integration, workarounds and manual controls, increasing operational overhead instead of simplifying operations.

Modernization as a strategic capability

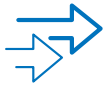
Effective infrastructure modernization changes how systems are structured, how teams integrate new capabilities and how governance supports frequent, low-risk change over time.

A modernization approach aligned with long-term transformation focuses on breaking down large, tightly connected systems into smaller components that can be changed independently.

It introduces consistent integration layers so data and services can be reused across underwriting, claims and policy administration, rather than having to be rebuilt each time. It also addresses technical debt that increases maintenance effort and slows delivery, while putting automation, monitoring and governance in place so changes can be made more frequently without increasing risk.

AI-assisted modernization techniques are reinforcing this approach. In recent modernization engagements, NTT DATA has applied AI-supported reverse engineering and forward engineering to analyze and remediate large legacy estates. Compared with traditional approaches, these techniques have reduced modernization effort by approximately 50% to 75%, helping to shorten delivery timelines and reduce execution risk.





The economics of modernization have shifted

We have also seen how AI-assisted analysis and remediation techniques have delivered significantly better results than manual approaches by reducing the effort required to understand, refactor and migrate legacy code. This has lowered delivery risk and shortened timelines, improving the feasibility of modernizing large, long-standing legacy environments that were previously considered too complex or costly to address.



Technology debt is rising

The cost and risk of deferring modernization continue to rise across the insurance industry. Legacy technology debt is increasing, not only in financial terms but also in terms of operational risk, security exposure and delivery constraints.

HFS Research estimates that “decades of technical and process debt [are] estimated at a staggering \$200 billion.”¹

This debt reflects years of incremental change layered onto aging core systems, and it manifests in several ways:

- Specialized skills required to maintain legacy platforms are becoming harder to source, increasing dependency on a shrinking talent pool.
- Maintenance and support costs consume a disproportionate share of IT budgets, limiting investment in change and innovation.
- Legacy environments are also more difficult to secure against modern cyberthreats and less adaptable to ongoing regulatory change, raising both security and compliance risk.



Delaying modernization does not preserve the status quo

The longer you delay modernization, the more complexity, cost and risk will increase over time, making future transformation efforts more difficult and disruptive. In this context, advances that reduce the effort and execution risk of modernization play a critical role in enabling insurers to act before legacy constraints become prohibitive.



¹Tony Filippone and Sam Duncan, HFS Research. [Insurers cannot continue to ignore decades of technical and process debt](#), March 27, 2025.



Case in point: Establishing durable foundations through application modernization

A large US-based life insurer provides an example of how application modernization can be used to strengthen long-term foundations rather than deliver isolated short-term gains.

Instead of running separate digital initiatives on top of an unchanged core, the organization focused on modernizing its application landscape so systems could be changed and extended more reliably over time.

Core applications were reworked to reduce tight dependencies between systems, and common integration and delivery practices were introduced across teams. This reduced fragmentation in the application environment and made it easier to introduce new digital channels and services without creating additional complexity or instability.

The most significant outcome was not faster delivery alone.

The insurer gained confidence that changes could be introduced without triggering unexpected downstream impacts, lengthy regression cycles or operational disruption. New capabilities could be added incrementally, with clearer visibility of risk and effort.

This experience reflects a broader pattern seen in insurance modernization efforts. When application modernization is approached as a way to simplify architectures and standardize how systems interact, it creates foundations that continue to support change long after the initial program is complete.



Cloud in context: Supporting, not defining, transformation

Cloud technologies play an important role in modern infrastructure by providing scalability and flexibility, but they do not define transformation on their own. Without changes to architecture, integration and governance, moving systems to the cloud often reproduces existing complexity rather than reducing it.



The shift to workload-led strategies

Early cloud programs often emphasized migration milestones and consolidation targets. As adoption has matured, insurers are taking a more selective approach, informed by workload characteristics, regulatory requirements and cost management. AI-enabled workloads, in particular, are compute-intensive and require careful placement to remain economical.

There is a growing shift to hybrid, workload-led strategies, where insurers decide where each system should run based on cost, performance, regulatory requirements and operational risk. Some workloads benefit from the elasticity of public cloud, while others are better suited to more controlled environments. This approach avoids treating cloud as a one-size-fits-all solution.



The benefits of CloudOps and FinOps

When cloud adoption is paired with disciplined CloudOps and FinOps practices, insurers have achieved measurable benefits. In one insurance environment, improved cloud-cost governance reduced unnecessary cloud spend while maintaining more than 99% service availability. Even modest savings at the workload or environment level can be redirected to modernization initiatives, demonstrating how governance creates ongoing capacity for change without increasing overall IT spend.

From modern infrastructure to intelligent operations



Modern infrastructure enables the next stage of transformation: embedding intelligence into operational workflows.

When systems are modular and well-integrated, intelligence can be added directly to existing processes rather than bolted on as a separate layer.

For example, underwriters can receive relevant risk information and recommendations while reviewing a case, without needing to search across multiple systems. In claims, automated checks can be applied earlier in the process to validate information and route cases more efficiently, reducing manual rework and handoffs. Advisor and employee platforms can present the right information at the moment a decision is being made, instead of requiring users to pull data from several applications.



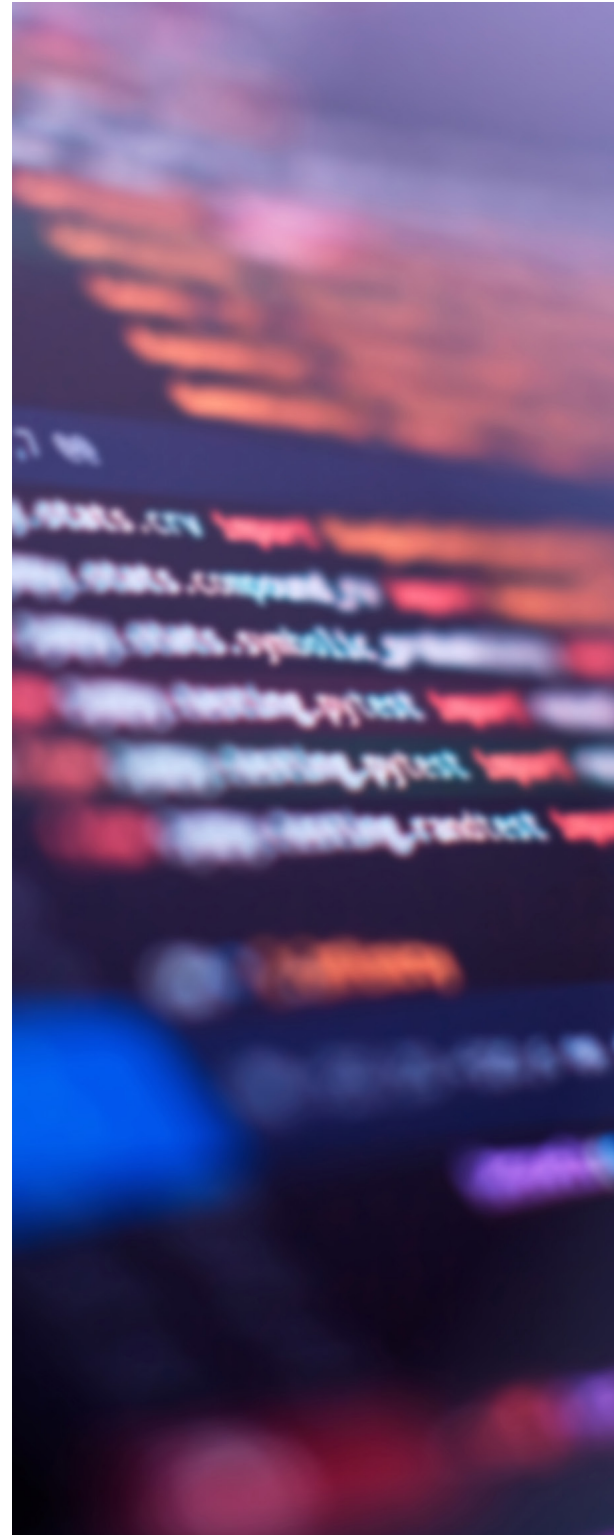
In complex, multinational underwriting environments, this approach has delivered measurable results.

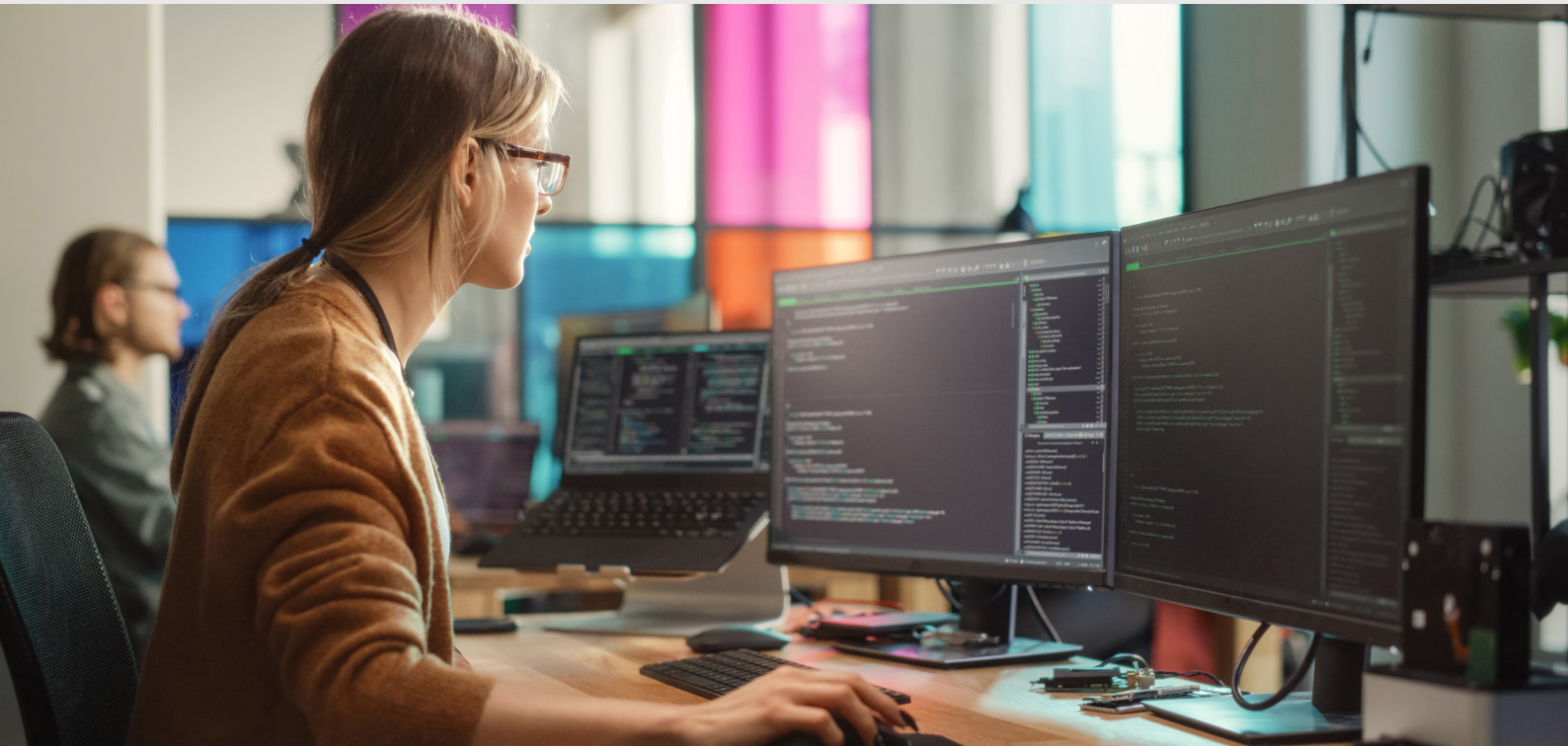
AI-enabled workflows have reduced underwriting cycle times from approximately 90 days to under 40 days, while also applying underwriting guidelines more consistently across regions. Decisions remain with underwriters, but intelligence supports them by prioritizing cases, highlighting exceptions and reducing administrative effort.



These outcomes depend on having infrastructure that allows systems to share data reliably, apply consistent controls and accommodate frequent change.

If these foundations are missing, introducing intelligence often requires additional manual checks, workarounds and custom integrations to make new capabilities fit into existing systems. Instead of simplifying workflows, this adds steps and complexity, reducing the efficiency gains that intelligence is meant to deliver.





Case in point: Accelerating delivery through modern application development

Across multiple NTT DATA delivery engagements, organizations that adopted modern application development practices on top of modernized foundations have achieved:



Up to **30%** faster application development



Up to **50%** increases in release velocity



Reduced operational overhead, allowing teams to focus on innovation rather than maintenance

In insurance environments, the same approaches have supported the rapid development and rollout of new digital services during periods of fluctuating demand, such as changes in claims volumes or the introduction of new customer and advisor channels. Because these services are built on standardized platforms and governed delivery pipelines, insurers can respond quickly while still applying consistent security controls, auditability and regulatory safeguards.

The ability to respond quickly without sacrificing control reflects the close relationship between infrastructure design and delivery performance.

Value-led transformation, grounded in outcomes



Measure progress by tracking business outcomes

Successful modernization programs focus on clear business value and results rather than technology milestones. Instead of measuring progress by how many systems have been migrated or upgraded, insurers should track outcomes such as:

- Lower operating costs
- Faster turnaround times
- Improved risk control
- Better customer and advisor experience



Build in governance, security and compliance at the start

To support this, governance, security and compliance are built into system design and delivery processes from the start. Controls are applied consistently through platforms and automation, rather than added manually at the end of projects. This reduces delays and rework as new capabilities are introduced, while still meeting regulatory requirements.



Use industry-specific platforms and accelerators

Industry-specific platforms and accelerators further reduce risk, aligning modernization efforts with established insurance processes, regulatory expectations and data structures. By starting with patterns that reflect how insurers operate, teams can deliver change more quickly and with greater confidence, particularly in large and highly regulated environments.



NTT DATA's approach to modernizing insurance foundations

Modernizing core infrastructure at scale requires more than individual tools or point solutions. NTT DATA's approach combines industry expertise, structured delivery methods and proprietary capabilities to help insurers modernize complex environments in a controlled, value-led way.



Industry expertise

At the foundation of our approach is a deep understanding of insurance processes and operating models.

Modernization efforts are aligned to underwriting, claims, policy administration and finance workflows, rather than treated as generic technology programs.

This alignment is guided by NTT DATA's AI-native insurer blueprint, which defines a North Star view of how core systems, data and workflows need to evolve to support business objectives, regulatory requirements and the effective use of intelligence.

By using this blueprint as a reference point, we help insurers make architectural decisions in the context of insurance-specific data dependencies, risk controls and operating constraints, while remaining focused on long-term business outcomes. In this way, modernization activity is coherent and cumulative, rather than fragmented across individual platforms or initiatives.



Modernization framework

NTT DATA applies a structured modernization framework that starts with a detailed analysis of existing application estates.

AI-assisted reverse engineering tools are used to analyze legacy code bases, uncover hidden dependencies and document system behavior that is often poorly understood or undocumented. This creates a clear, shared view of the current state, reducing uncertainty before changes are made.

Based on this analysis, forward engineering techniques support the redesign and refactoring of applications into more modular, interoperable components. Automation is applied across remediation, testing and validation activities to reduce manual effort and delivery risk. These capabilities allow modernization to proceed incrementally, rather than requiring large, high-risk replacement programs.



Cloud strategy and app development

Cloud strategy uses workload-led assessments to determine the most appropriate execution environment for each system.

Hybrid architectures are designed deliberately, with embedded CloudOps and FinOps practices to manage cost, performance and compliance over time. With this approach, cloud adoption supports long-term sustainability without introducing new operational risk.

Modern application development practices are then applied on top of these foundations.

Standardized platforms, continuous integration and development pipelines, and embedded governance enable delivery teams to work in parallel, release changes more frequently and maintain consistent security and compliance controls. This operating model supports faster delivery without sacrificing stability.



Guided by business outcomes

Throughout the program, progress is measured against business outcomes rather than technical milestones alone. Cost reduction, cycle-time improvement, risk mitigation and service reliability are used to guide prioritization and sequencing decisions. This value-led approach helps insurers sustain momentum and demonstrate tangible benefits at each stage of modernization.



Taken together, these capabilities allow NTT DATA to support insurers through complex modernization journeys, addressing legacy constraints while building foundations that continue to support change over time.”



Positioning the enterprise for intelligent change



Insurance transformation does not begin with adopting individual technologies. It begins with modernizing core infrastructure so organizations can adapt, integrate and evolve as business conditions, regulation and customer expectations continue to change.

When infrastructure modernization, application development and delivery practices are aligned with clear business outcomes, you can create environments that are easier to change, govern and scale. This reduces operational friction, lowers risk and allows new capabilities to be introduced incrementally, rather than through large-scale disruption. Intelligence can then be embedded into workflows in a controlled and sustainable way, supporting better decisions without adding complexity.

As insurers look ahead, the ability to respond confidently to change will matter more than any individual technology decision.

Through our approach to infrastructure modernization, application development and governed cloud adoption, we enable insurers to build foundations that support continuous change, even as demands and regulatory expectations evolve.

This is how NTT DATA helps drive intelligent change.

Visit nttdata.com to learn more.

NTT DATA is a \$30+ billion business and technology services leader in AI and digital infrastructure. We accelerate client success and positively impact society through responsible innovation. As a Global Top Employer, we have experts in more than 70 countries. NTT DATA is part of NTT Group.



