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Tech modernisation:
Legacy transformation in the era of AI

Introduction

Legacy systems and accumulated tech debt are anchors holding many organisations back from achieving the agility they desire. While the promise of AI requires a flexible, modern foundation, our ability to innovate is limited by the complexity of our existing systems. At Cognizant we believe in pervasive AI, seamlessly integrated into the tools we use every day. Insufficient investment in data quality, modern infrastructure, API architectures, and talent presents significant barriers to the adoption of artificial intelligence.

Organisations must shift perspective on legacy renewal from a burdensome cost to an opportunity to invest in the future. However, working with Australian IT research and advisory firm ADAPT, Cognizant uncovered that most organisations achieved limited progress in modernisation. Among various technological areas, only infrastructure has achieved over 50% modernisation, while automated decision-making has the lowest score at just 15%.* Drawing from our experience with clients and partners in Australia and across the globe, this article offers insights on how AI can be a tool in resolving complexity problems. It also explains how solving legacy will help unlock AI's full potential.

For more insights into the big picture of Australian CIOs and their goals for 2025, read our full guide here.

Transforming legacy systems to resolve tech debt and increase agility

Old business systems and infrastructure become an issue for the enterprise when they start to weigh us down, becoming a pain point for cost and agility. When we take steps to deal with a complex legacy environment, we must remember we are looking to unshackle the enterprise from unnecessary costs and roadblocks to better meet the demands of the wider business today.

Complexity is a symptom

Complexity does not happen by design. It is a symptom of a range of problems that have crept into technology systems over time. Sometimes complexity arrives as business users bypass IT to buy their own tech. Other times it is the emergence of exceptions to rules and standards that add fragmentation to our tech environment.

Regardless of how it enters our environment, the friction caused by complexity over time leads to IT systems starting to see added cost as well as lowered visibility of what is happening, who is controlling it, and how well the tech is meeting business needs.

Application consolidation

ADAPT research shows that consolidation and automation are progressing slowly for many organisations. But integration and improved enterprise architecture are high priorities for the year ahead.

Average progress in modernisation

Just 22% of businesses have made progress in application consolidation compared to 12 months ago.

ADAPT CIO Edge Survey in Feb 2025

The work of consolidation and integration can be difficult and costly, and with a longer timeline for ROI it is a difficult business case to build. However, pursuing application consolidation can be particularly powerful in heavily siloed businesses or where organisations have been acquired and integrated over time. These common scenarios lead to duplication across the technology environment.

Investment priorities of CIOs in the next 12 months

63% prioritise application integration | 64% prioritise enterprise architecture

ADAPT CIO Edge Survey in Feb 2025

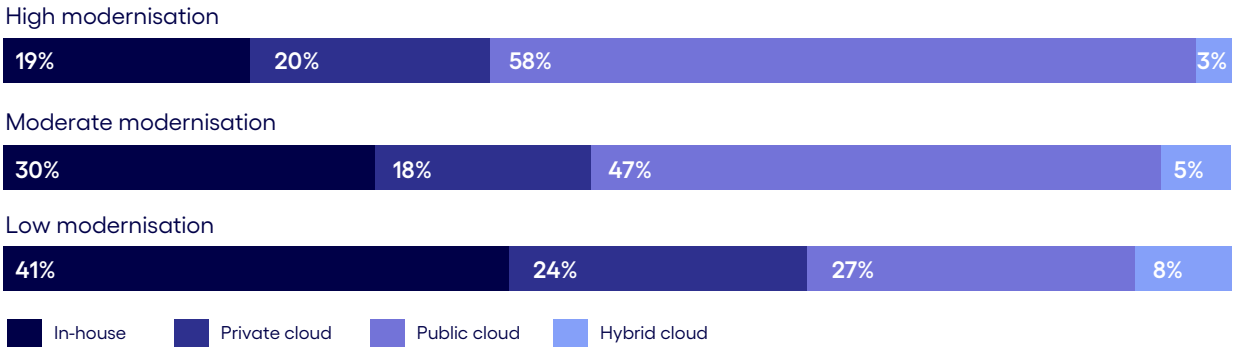
At Cognizant we believe that reducing application architecture complexity, deprecating and consolidating the portfolio of technology, and modernising application infrastructure has a significant impact on the return on the value of IT investment and the speed of delivery for the business.

Source: ADAPT CIO Edge Survey February 2025

The role of cloud in modernisation

ADAPT research found that organisations leveraging public cloud are 1.4x more likely to achieve high levels of modernisation compared to those keeping workloads primarily in-house. Upgrading our infrastructure for better flexibility and scale is an essential step on the path to accessing new capabilities – especially AI.

Infrastructure modernisation and average workloads allocation



ADAPT Cloud and Infrastructure Edge Survey in Jul 2024. Sample size: 108 Australian Infrastructure leaders

However, well-known problems are associated with the 'lift and shift' style of moving to the cloud. A need to move quickly results in a lack of optimisation, with the work left on the tech debt "to-do" list while excessive costs continue to erode the tech budget year after year.

> Those leveraging public cloud are **1.4x** likely to achieve high levels of modernisation

A more subtle issue stems from a lack of investment in effective training in the skills required to manage cloud complexity. In the capex world of on-prem systems, costs are controlled through paperwork and sign offs to bring in new hardware. In the cloud, costs can run up very quickly with a single click. Establishing good FinOps and cloud cost governance practices are essential to cloud success.

In the shift out of the data centre and into the cloud, it can also feel natural for ClickOps to be part of the journey. But maintaining a ClickOps approach to deployment fails to embrace the consistency and efficiency of cloud automation.

Our advice to organisations is to adopt standardised, cloud-native approaches and infrastructure designs, such as Infrastructure as Code, to create repeatable and reliable patterns that ensure robust observability, enhanced security, cost management, and consistency.

Cloud and the cost of tech debt

Solving legacy complexity is like changing the wheel on a bicycle while riding it. If you're just keeping up with delivering day-to-day business activity it's hard to find the capacity to invest in resolving these tech debt problems.

But tech debt is also an ongoing opportunity cost to the business. A cost to doing a lot more with the same spend, or the opportunity to spend a lot less to get the same outcome. These debts must be addressed to get the baseline effectiveness on track. As we examine legacy roadblocks for an organisation, we identify opportunities such as hollowing out legacy applications for a cost effective cloud transition.

Finding ways to overcome these final humps in the legacy cost burden is essential to give organisations confidence they need to switch off old systems that carry cost and complexity. There can be internal resistance to arriving at that final 'switch off' and often there are reservations about the transition being complete. This is where working with an independent third party like Cognizant can help to ensure all dependencies have been resolved and to help overcome internal friction and objections. Once achieved, we can stop checking the rearview mirror and shift our focus firmly toward the future.

Observability shines a light on complexity

The launchpad for solving complexity is capturing the clearest picture we can on where we are today, and define where we want to be tomorrow.

Observability is essential to making sure we understand the reality of what is happening with the systems that are being used. Most commonly Cognizant uses DORA metrics to inform recommendations on the right path forward, and we use FinOps to understand your cost position.

Our 2024 research on Cost Intelligence points to the importance of aligning costs to real business value. This offers many benefits, and it improves the tech team's ability to tell its story and state its business case to the wider organisation.

Optimising cloud for cost and performance

A leading insurance company across Australia and New Zealand successfully migrated its legacy data warehouse to Amazon Redshift data warehouse service but found that its cost base doubled and batch task execution was too slow. The Cognizant team worked with the insurer to assess where the data warehouse was underperforming to uncover the best approach for optimising toward the institution's target outcomes.

We found that the organisation's Redshift cluster configuration was designed with more nodes than required across both production and non-production environments. The discovery process found that average utilisation was well-below capacity under this design. By reducing the number of nodes in the cluster we improved cost without compromising performance.

To optimise batch processing, we moved the client from sequential to parallel SQL scripts execution, converted Datashare to materialised views and simplified data structures.

By changing the Redshift cluster design, the insurer saw its AWS costs reduced by over 65% with projected savings to the organization over $1 million per year. The optimised overnight batch jobs are now consistently completed well ahead of the deadline.

Through Cognizant's careful analysis and optimisation program, the insurance organisation gained the full benefit of its legacy migration into the Amazon Redshift data warehouse while achieving the cost and performance benefits.

Modernise where it matters

Trying to modernise your entire organisation to take advantage of what AI offers can be a daunting task and a strong barrier to building AI momentum. We recommend that our customers modernise what matters. Start by prioritising the AI use cases that deliver the greatest potential value, modernise the thin vertical slice of your technology stack to support that use case. This approach maximises return on investment, builds momentum for modernisation transformation and significantly reduces time to value for the organisation.

How we resolve the legacy challenge

At Cognizant we have a range of tools at our disposal, to find the right simplification path for every partner.

There is no standard solution that solves for decades of complexity and accumulated tech debt. Identifying the right problems is critical to finding the correct solutions. The starting point is to begin investigating the status quo for an enterprise and how to diagnose the symptoms that cause complexity to grow unchecked.

We offer five key approaches to IT simplification, outlined here, that can be mixed and matched to suit the systems and circumstances of any enterprise and its technical needs.

Five approaches to IT simplification

1. Loosely coupled

The systems remain separate and fragmented, requiring customers to modify reporting for consolidation purposes. This approach is appropriate when companies operate as independent entities within a larger conglomerate and is most viable when there is extreme time pressure.

2. Select one

Select one of many IT setups that is most aligned with combined business strategy. This approach works best if there is significant discrepancy in sizes. It is the fastest method for reducing costs.

3. Best of breed

Choose the most suitable setup guided by architectural direction. This is the best approach in a large-scale "merger of equals" or when dealing with entities with different business models across the combined organization. It can be time consuming but functional.

4. Replace

Phase out "legacy" systems and setups. This approach works best when point-specific solutions are poor in both companies and new software is easily integrated. It can be time-consuming in selection and implementation.

5. Partner

Outsource system issues to a third-party that aligns with the architectural direction. This approach is beneficial in mergers with significant size discrepancies, frequent acquisitions, and limited internal IT skills. In this scenario, 'economies of learning' from multiple mergers help reduce integration time."

By working through a design process with our clients we identify the right path and the best methods for reducing complexity of their IT systems.

We have helped many major enterprises around the world with legacy renewal projects. In one major example, we worked with AXA to take over 24/7 coverage of its infrastructure services in Japanese and English, providing significant year on year cost savings based on automations and incident reductions. Cognizant has delivered ongoing technology and process improvements while reducing the institution's tech debt and improving its SLA outcomes.

How AI can support simplification programs

AI holds great potential to support complexity reduction and help simplify and modernise applications. It can be leveraged to provide fast analysis of code bases, to generate documentation. At a large Telco Cognizant has used AI across the software development life cycle (SDLC) to aid code reviews and merge duplicated processes. We also advise clients to use AI to enhance test case coverage, and to help engineer the uplift of included libraries to reduce security risks and reduce technical debt. All of these can contribute to accelerated build cycles with improved quality outcomes.

With Cognizant Neuro® AI tools, we work with CIOs to explore options in real-time that bring the art of the possible to life. We can demonstrate how AI can be applied to your environment to overcome legacy setbacks and drive you toward an optimal enterprise architecture.

Along with offering external credibility, our strategic support can help you achieve the target state of simplicity and effectiveness without locking you into any ongoing commitments. And we can offer commercial models that are outcome based and zero risk to your organisation.

To learn more how Cognizant can help transform legacy in the era of AI:

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www.cognizant.com/au/en/cmp/technology-modernisation-legacy-transformation-in-the-era-of-ai

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