Tech modernisation:

Modern engineering practice in the era of AI

Introduction

As AI tools promise to accelerate software development, a critical question emerges: does speed come at the cost of quality? While enterprise-wide modernisation is essential for future success, we must also place attention onto the systems and processes that drive the value creation we seek. We believe that we must evolve engineering practices as the foundation of a fast and reliable technology environment.

Our experience shows that simply increasing code velocity can be counterproductive, even leading to new kinds of AI-generated tech debt. We must better manage how we measure workflows and leverage automation to build the foundations required for AI to become a consistent value add to team performance. This sets the stage for new tools that our teams want to use, essential to a smooth transition for culture and process.

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

Aligning business process prepares operations for AI evolution

An enterprise does not transform by declaring a five-year plan. Iterative experiments anchored to real outcomes are key to moving from old ways of working into the age of the AI-augmented modern engineering paradigm.

Updated systems and processes founded on modern engineering practice hold the power to improve both speed and quality in enterprise software development cycles. But it requires a commitment to real change led by leadership with strong commitment and training throughout the organisation.

It can be difficult to push through cultural barriers when trying to drive real change. Working with external partners like Cognizant can offer the third-party insight required to look clearly at where problems lie and how best to address them.

Measuring workflow to optimise process

While technologies change, the fundamentals of knowledge work do not. Investigation of engineering practice must examine enterprise-wide systems and processes to uncover the complete picture of interdependent cycle times, constraints, and the nature of the variations that define your unique business needs.

Everything must be on the table to iteratively test and measure the status quo, identify blockers, improve flow, and automate the right processes to elevate consistency and reduce unforced errors. Optimisation must take a global view of entire value streams. Local optimisation lacks the context needed to see where added speed in one process may result in negative impacts elsewhere in the value chain.

How we measure workflow performance

DORA is the framework of choice at Cognizant to measure workflow performance. This frames the art of the possible when it comes to engineering performance.

Techniques such as value stream mapping, critical chain project management, and optimising for flow enable observability and identify where constraints lie in engineering processes. This reveals where we can optimise for greater quality and speed, giving organisations the metrics required to support the business case for evolving our engineering systems.

When leadership feels burnt by past failures, justifying upfront cost to establish a new library of automations, for example, to improve consistency and speed in engineering processes can seem too high based on the first deployment. But insights through end-to-end workflow measurement can demonstrate the savings generated after deployment 10, 50 and 500.

Research conducted with Australian IT research and advisory firm ADAPT reveals only 26% of CIOs feel they have progressed their workflow automations.

Average progress in modernisation

26%

feel they have progressed in workflow automation.

15%

have progressed automated decision making

ADAPT CIO Edge Survey in Feb 2025

Good tools generate gravity

Tools often proliferate throughout organisations as if tools themselves hold the answers to our problems. This sees pressure placed on tool evaluation as a focal point of cost, speed, and security. But focusing on tool adoption as a proxy for modernisation is misplaced, with mandates providing an easy path to meeting such measures while losing sight of the outcomes that could be negatively impacted if bad tools result in poorer processes.

Mandates ultimately kill the feedback loops that are critical to successful modernisation. Everyone knows the experience of new tools that are introduced but never adopted because they failed to generate enough excitement and value upon introduction.

We believe in transitioning from a project mindset needs to a product mindset. Whether designing new automation templates for consistent and confident deployment processes or new applications that support a modernised workflow, the same customer-centric approach we apply to external products is essential to building compelling internal products. When new internal platforms enhance the developer experience, they succeed by providing enough value that teams are motivated to adopt them.

The 'right' tools feel easy, helping teams to reserve cognitive load for the complexity of the problem they are working on rather than the incidental complexity of poor tools and systems. They have a gravity, attracting users quickly who want the improvements to become part of their daily routine as soon as possible.

Automation breeds consistency

Achieving a tight automation loop is key to modern engineering practice. Through development, feedback, leveraging AI, security, and then rapid deployment, testing, and observability, automation gives us the consistency of workflow and confidence that we have maintained quality design through the templates we have put in place.

Some of the most transformative work we have delivered for partners is through automation that standardises around consistent deployment patterns. Using ready-to-deploy cloud infrastructure platforms designed with security as code and compliance as code, we can standardise behaviour, keep costs trackable, and dramatically reduce risk.

At some of Australia's largest mining and retail enterprises, we have seen powerful and measurable results.

Reduced deployment time by

80%

Self-service increased from

0% to 60%

Reduced manual touch by

66%

two-thirds of manual requests disappeared

Turnaround times reduced by

80%

This has accelerated software teams, making it faster than ever to bring solutions into the business. Consistency through automation breeds confidence in deployment quality and achieves greater benefit to the humans across the business as important infrastructure can be deployed faster and with high reliability.

Other examples include:

AWS platform as a product:
Cognizant has enhanced automation for a client's AWS platform by treating it as a product. Initially, the client faced challenges with internal engineering capabilities and lacked the right platforming to unlock value effectively. For instance, requesting new AWS accounts or changes could take weeks. By developing an internally available product metric and operational dashboard, we built trust in an improved AWS landing zone, scaled to over 300 accounts, and maintained a sub one-day service level for all requests. Additionally, we created an automation safety net that allowed necessary manual changes but generated feedback loops to incorporate these changes back into automation, preventing the need for future manual interventions.

Agentic AI in the Software Lifecycle:
Working with an ASX 100 organisation we have used Neuro® AI platform to improve flow at scale. The rollout of the code assistant has increased code velocity, presenting new challenges to existing quality engineering practices. The higher volume of code reviews initially decreased the overall quality of reviews. By integrating AI assistance into the review process and supporting human reviewers, we have achieved significant improvements in software flow. Originally, the average time from pull request to closure was three days, with an average hands-on code review time of two hours and 75% of reviews requiring rework. Under the new AI feedback loop, hands-on review time has been reduced to one hour, and rework requirements have dropped to 37.5%.

AI in modern engineering

AI holds great power as part of an optimised workflow. But you must have your modern engineering fundamentals in place to know the AI tools are delivering what you need.

Many have already seen code assistants as a positive contribution, and Github metrics point to a widespread increase in code velocity. But raw code velocity may exacerbate existing constraints and bottlenecks or introduce other impediments to production output quality, as well as place strain on traditional code review processes due to increased volume. Quality predicts speed, but speed does not predict quality.

Defects may compound as we increase outputs through the speed benefits of AI, making safeguards more important than ever to minimise unintended bugs. We must avoid a new era of AI generated tech debt caused by poor oversight.

The more robust your modern engineering process is, the better placed you are for AI adoption. Automated quality checks, architectural fitness functions, and wider automations that ensure consistency all work together to preserve the stability of every aspect of your systems. With these in place, AI becomes a true team enhancement that can be adopted with confidence.

Bringing your AI empowered engineering process to life

There is no standard solution to modernise your engineering systems and processes. Identifying where existing problems lie and how your teams and infrastructure should support your needs is critical to optimising for ideal end-to-end workflows. At Cognizant, we know where to begin investigating the status quo for an enterprise using best practice frameworks and how to design new tools and processes that your teams will want to adopt.

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 support your engineering teams to move toward your ideal speed and quality targets.

Along with offering external credibility, our strategic support can help you achieve your desired engineering processes 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 establish modern engineering in the era of AI:

Email: contact_au@cognizant.com

www.cognizant.com/au/en/cmp/technology-modern-engineering-in-the-era-of-ai

cognizant®

Cognizant (Nasdaq-100: CTSH) engineers modern businesses. We help our clients modernize technology, reimagine processes and transform experiences so they can stay ahead in our fast-changing world. Together, we're improving everyday life. See how at www.cognizant.com or **@cognizant.**

World Headquarters
300 Frank W. Burr Blvd.
Suite 36, 6th Floor
Teaneck, NJ 07666 USA
Phone: +1 201 801 0233
Fax: +1 201 801 0243
Toll Free: +1 888 937 3277

European Headquarters
280 Bishopsgate
London
EC2M 4RB
Phone: +44 207 297 7600

India Operations Headquarters
5/535, Okkiam Thoraipakkam,
Old Mahabalipuram Road,
Chennai 600 096
Tel: 1-800-208-6999
Fax: +91 (01) 44 4209 6060

APAC Headquarters
1 Fusionopolis Link, Level 5
NEXUS@One-North, North Tower
Singapore 138542
Phone: +65 6812 4000

© Copyright 2025–2027, Cognizant. All rights reserved. No part of this document may be reproduced, stored in a retrieval system, transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the express written permission of Cognizant. The information contained herein is subject to change without notice. All other trademarks mentioned herein are the property of their respective owners.

WF 3696162