Cognizant Digital Engineering: Accelerate Application Transformation for the Cloud

More Value, Faster Velocity
In the digital economy, the advantage goes to the company that can deliver high-value software the fastest. Speed is supreme.

But quickly delivering new software that delights your users requires a major transformation. You need to eliminate waste. Adopt new processes to accelerate software delivery. And transform your existing application portfolio to take advantage of cloud economics.

You might have already experimented on a limited basis with modern software delivery techniques. But transforming your entire application portfolio is a different beast. It affects your people, process, technology and culture. An experienced partner can help you achieve your goals faster and with less risk.

At Cognizant, we know what it takes to transform software delivery at enterprise scale — because we’re doing it in our own organization. You benefit from the know-how we’ve acquired from our own application transformation and guiding more than 100 clients on their journeys.
BARRIERS TO DIGITAL TRANSFORMATION

If competing in the digital economy calls for application transformation, why hasn’t every company done it? The top obstacles we hear are:

- **Not knowing where to begin for the biggest returns.** Many of our clients aren’t certain about what’s actually in their application portfolio, much less the application dependencies and the costs and risks of moving a given application to the cloud.

- **Lack of experience with Build-Measure-Learn methodology.** Going fast means building the basic application quickly (minimum viable product), iterating quickly and validating along the way. Working at breakneck speed — all the time and without burnout — requires a cultural transformation.

- **Scarce talent.** People with the skills to transform your application portfolio are in short supply. In addition to developers you need software architects, user advocates and maybe field researchers to understand user needs. Few companies have the right collection of talent in-house.

GO FASTER, DELIVER MORE VALUE

Our Digital Engineering practice supplies you with the people, processes and technology to accelerate your journey to modern, cloud-based applications. We help you win in the digital economy by bringing valued software products to market more quickly. Our method: combining a deep understanding of user needs with an agile, test-driven development process and automation. You'll measure success in terms of continuous improvement. Faster software velocity. And a shift in your application development budget from remediation to innovation.

The Build-Measure-Learn Process

**NOT LIKE THIS ...**

![Image of red faces and negative symbols]

**... LIKE THIS!**

![Image of happy faces and positive symbols]
The right work in the right place at the right time. Your premises or our labs – with optional offshore augmentation.

PEOPLE
Transformation happens from the inside out. It starts with people.

We assign you a team of 6–8 software experts, sourced from our talent pool of 53,000 top engineers and developers. We'll work side by side with you on your premises or in one of our North American Cognizant Labs locations, augmenting with offshore resources when appropriate. We put the right work in the right place at the right cost.

PROCESS
Apply product-engineering principles to your software.

We take a product-engineering approach to software development, aligning from the top down – from strategy through execution. An iterative, test-driven process keeps the focus on the user at every stage of the process. We release minimum viable product quickly, iterate quickly and validate along the way. Your team can work side by side with us to learn Extreme Programming and DevOps practices such as:

- Pair programming
- CI/CD
- Test-driven development
- Build-measure-learn with MVPs
- Balanced teams: anchor (user advocate), project manager and developers
- Elimination of waste – including time and work cycles

We'll work with you as long as you’d like – on a single project or continuously.

TECHNOLOGY
Accelerate your transformation using AI and machine learning.

We've developed unique machine learning technology and automation to shorten development time and reduce waste. Automation can accelerate a 10-12 week project to a few days. Our AI engine evaluates application code to identify changes needed for cloud deployment. It scans for antipatterns and recommends remediation. And it can implement the recommendations with a click.

As appropriate for your project, we collaborate with other major software development players, including OutSystems, Pivotal and Red Hat.
DevOps culture

Delivering software better and faster at the same time demands a profoundly different way of thinking about your business, your users and decision-making. During the engagement we model the culture that accompanies the product-engineering and DevOps processes.

OUR SERVICES

At the outset of our engagement, we’ll find out where you are on your journey and meet you there.

<table>
<thead>
<tr>
<th>YOUR GOAL</th>
<th>OUR SERVICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discover unmet customer needs through field research</td>
<td>“Insight to Code”</td>
</tr>
<tr>
<td>Develop a new application that you’ve identified</td>
<td>Greenfield Application Development</td>
</tr>
<tr>
<td>Revise legacy applications to move them to the cloud</td>
<td>Application Transformation</td>
</tr>
<tr>
<td>Identify the work needed to move applications to the cloud without actually doing the work</td>
<td>Value Stream</td>
</tr>
</tbody>
</table>

“Insight to Code”

When the term was introduced, “design thinking” meant developing a hypothesis about user needs and then building software to prove or disprove that hypothesis. Guess right, win big. But you’re gambling with time and budget.

Our “Insight to Code” service represents next-gen design thinking. Field researchers from our partner ReD Associates observe users at work or home to understand their attitudes and behavior and identify unaddressed needs. Basing your software products on empirical data reduces the need for experimentation and increases value and user acceptance. In fact, “Insight to Code” turns insights about human needs into production-ready code in as little as eight weeks (see auto manufacturer customer story, next page).
Major communication services provider differentiates its Wi-Fi service

Observing how families in several states used the Internet, the ReD team discovered that many customers don’t understand how to use their smart devices and safeguard their connections. What’s more, they feel isolated from other family members who are distracted by their screens. Based on the research, we suggested 19 services. The client has implemented the first two: an app for setting and enforcing family usage policies, and a single app for controlling virtual personal assistants, smart thermostats and appliances.

Auto manufacturer caters to buyers of sport utility vehicles

ReD researchers observed 100+ SUV owners at work and home. These customers craved outdoor adventures with family and friends but were stymied by the complexity of scheduling these adventures, making reservations, finding activities for the getaway and then acquiring and learning how to use the right equipment for those activities. In six weeks we developed a mobile app for SUV owners and rolled it out for testing. SUV owners use the app to schedule outdoor adventures, find new activities, get directions and guidance on needed equipment and where to get it.
Greenfield Application Development

Already have an idea for a new application to increase revenue or strengthen brand affinity? We’ll provide a product team to develop a cloud application. We do the work either on your premises or in one of our North American Cognizant Labs, adding offshore augmentation when appropriate.

Your Cognizant Digital Engineering team includes a project manager (user advocate); anchor (architectural decision maker) and developers. We’ll pair your people with our people. Learn by doing; measure success based on usage and new-feature velocity. At the end of the engagement, you’ll have:

- Software that works.
- People experienced with DevOps, agile, and product-engineering methods — ready to ignite transformation in your organization.

Application Transformation

Application transformation for the cloud helps you move faster, shift budget from running the business to changing the business, and increase revenue or brand affinity. Even if you’ve conducted successful, small-scale experiments with modern software delivery, transforming your entire portfolio can be daunting. Here’s our process:

**Step 1: We assess your application portfolio using our automated scanning tool.** The tool identifies all applications, whether they’re decades-old mainframe apps or new Java apps. The assessment shows you what needs to be changed, the costs and risks. Your code never leaves your premises.

**Step 2: We identify code that needs to be refactored for the cloud by scanning for antipatterns.** Uniquely, we’ve automated this process using machine learning and artificial intelligence. Through automation, a process that ordinarily takes weeks completes in just minutes. The assessment engine initially learned from our best architects — and has since kept learning from over 100 client engagements. The deliverable is a report listing the costs, risks and rewards of transforming individual applications.

**Step 3: Auto-remediation (in testing).** You’re shown the problem code and what it should look like. Apply the recommended fix with a click.

Rapid payback from portfolio assessment

One of our clients spent tens of millions annually on Oracle licenses and maintenance. Our automated portfolio assessment tool identified older, unused versions of software that could be removed without disrupting the business, paying back the cost of the service in just two months. The client also learned which applications could not be modified to run at cloud scale.
European communications provider cuts costs, simplifies user experience

Before, customers had to log on with separate passwords to troubleshoot their Internet, TV, phone and mobile services. We developed a single self-service application for all activities – from managing subscriptions to paying invoices – from any device. Customers log in conveniently via facial recognition and touch ID. Outcomes:

• Self-service issue resolution rose by 800%.
• Call center volume dropped by 50%.
• Agile development practices saved $500 million.
• Building and deploying new applications takes 97% less effort, due in part to 80% more test automation.
• The provider created new revenue streams, including letting tourists use its 4G services while in Europe.
Health insurance provider improves clients’ application experience

Sharp swings in demand degraded the user experience. Application maintenance costs were high. Within 5 months, we migrated 18 critical applications from the company’s legacy infrastructure to Pivotal Cloud Foundry PaaS. Outcomes:

• Application maintenance costs decreased by $400,000 annually.
• Application performance increased by 50%.
• In-house teams gained DevOps experience.

Major European bank reduces legacy application costs and increases agility

We worked with the bank to shift to a new, internally created development platform with Pivotal Cloud Foundry. We also managed application migration to a microservices architecture. Outcomes:

• Time to deploy code dropped from 15 days to just 45 seconds.
• The bank acquired agile capabilities such as auto-scaling and auto-recovery.
• Mean time to repair and time spent on problem management decreased significantly.
We help you compete in the digital economy by bringing your products to market more quickly.

WHY PARTNER WITH COGNIZANT

We help you compete in the digital economy by bringing your products to market more quickly. Here's what sets us apart:

• Our people: 53,000 talented engineers with experience in agile, test-driven development; microservices architectures; containerized or virtualized deployment and DevOps. We have expertise in all industries, from banking to healthcare.
• End-to-end service – from user insight to code to deployment.
• Application transformation at scale – not just one or a few applications but hundreds or thousands.
• Agile, test-driven development process.
• Fast time to value, using AI, our unique machine learning technology and automation.
• Deep understanding of user needs from field research, in conjunction with our partner ReD Associates.

Expect Empathy from Us – for You and Your Users

No matter where you are in your journey to modern software delivery – just thinking or well on your way – we’ve got you covered. We’ll start off with a lot of listening – about your goals for application velocity and value, the friction you see, solutions you’ve considered, what your executive team thinks. Empathy for your business and your users enables us to provide the right people, process and technology to help you deliver more value, faster.
An antipattern is a commonly used process, structure, or pattern of action that has more bad consequences than good - and for which there is a proven solution.

To learn more visit: www.cognizant.com/insight-to-code
ABOUT COGNIZANT

Cognizant (Nasdaq: CTSH) is one of the world's leading professional services companies, transforming clients' business, operating and technology models for the digital era. Our unique industry-based, consultative approach helps clients envision, build and run more innovative and efficient businesses. Headquartered in the U.S., Cognizant is ranked 195 on the Fortune 500 and is consistently listed among the most admired companies in the world. Learn how Cognizant helps clients lead with digital at www.cognizant.com or follow us @Cognizant.