

Digital Systems & Technology

Tiered Application Management: Meeting the Need for Speed and Reliability

Deploying a multitiered approach to application management, guided by analysis of historic performance issues, helps companies respond to digital requirements while cutting costs.

Executive Summary

In the digital age, customers demand a steady stream of new and improved services. If one company fails to provide them, they will quickly move on to a competitor. Customers also demand ever-lower prices that match those provided by new digital competitors.

As a result, organizations must meet two seemingly contradictory needs. The first is to provide more engaging, innovative applications that drive business outcomes more quickly than ever. The second is

to deliver higher levels of functionality, reliability, performance and throughput at ever-lower cost.

Both of these needs can be met through a multitiered approach to application management that determines whether to contain IT (just keep the application running), maintain it (minimize ongoing enhancement and repair costs) or invest in applications based on their business priority, using data that chronicles past application issues and the effects of technical debt – i.e., the cost of

maintaining legacy applications. This approach helps organizations move from a complex, heterogeneous and expensive IT ecosystem to a

more nimble, cost-efficient and consumer-focused modern architecture.

Raising the bar, reducing complexity

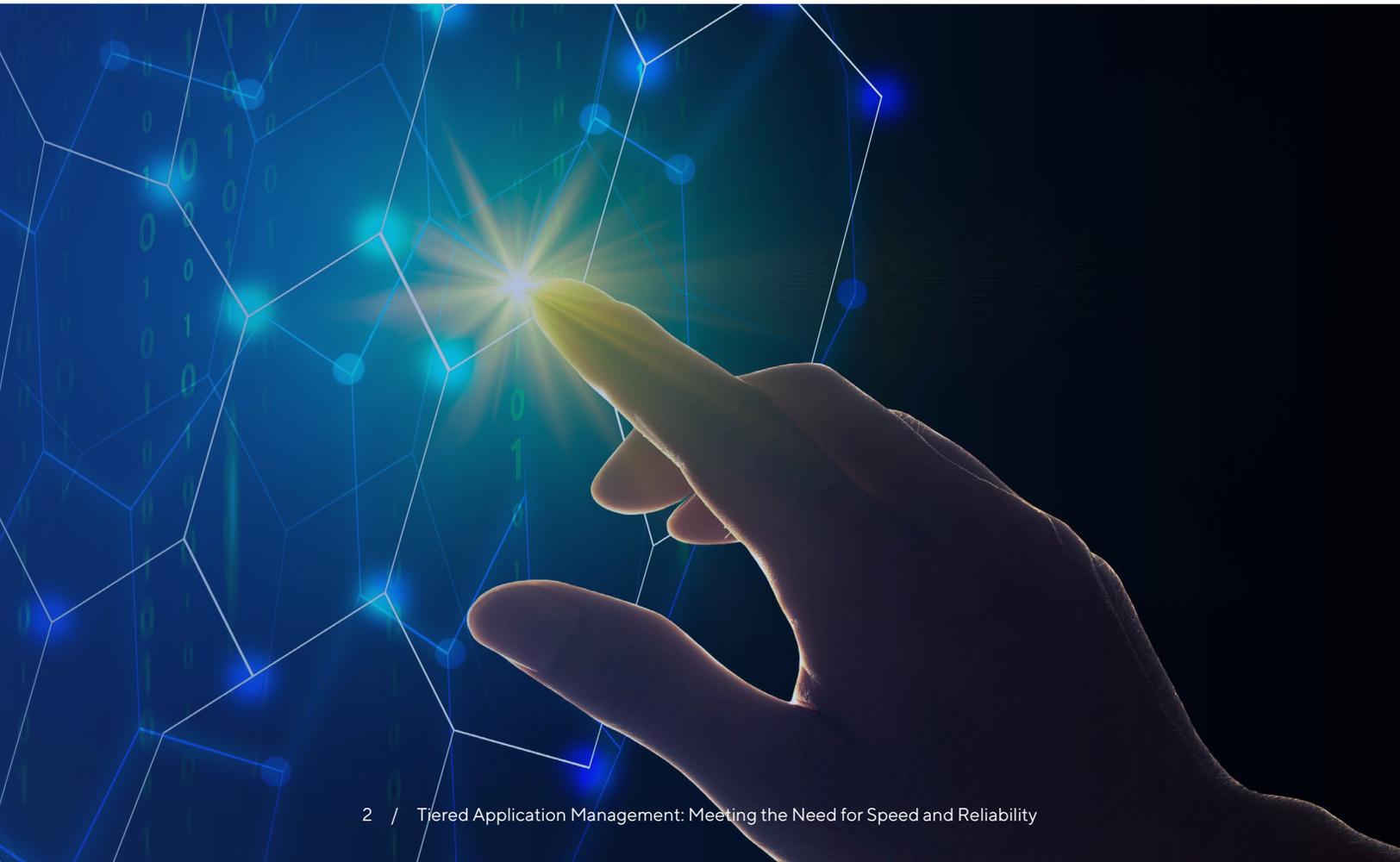
Given the often contradictory demands of speedy application development and great functionality delivered at reduced costs, CIOs are under unceasing pressure to beat competitors to market with innovative products and services. These range from location-based shopping to lending and banking services delivered through mobile chat. All of these applications require constant improvement to their user interfaces and functionality, as well as data analysis about customer needs to drive continual improvement.

Such applications must meet not only service level agreements (SLAs) assuring minimum levels of performance and uptime, but experience level

agreements (XLAs) that measure how users rank the overall experience. They must leverage artificial intelligence (AI) to automatically monitor and heal the application infrastructure, and to understand how users interact with the application to drive continual improvement.

To meet these new requirements IT leaders must:

- Move toward digital by modernizing core IT systems and shifting away from development models based on formal methodologies such as Information Technology Infrastructure Library (ITIL) and Waterfall to more agile processes such as Kanban and DevOps.



For consumer engagement applications, the key requirements are driving innovation and agility. For business differentiation applications, performance improvement and scalability are most vital. For systems of record, resiliency and cost reduction are the primary objectives.

- Enhance the customer experience through persona-based offerings and predictive capabilities that offer real-time insights into consumer needs.
- Increase application performance and resiliency by developing more reliable, high-performing systems.
- Reduce costs through continuously reducing legacy debt and automating infrastructure monitoring, management and remediation.

IT applications are the fulcrum in the pivot to digital, driving the transformational change that keeps businesses competitive. But as the enterprise grows and changes over time, the application landscape becomes heterogeneous, leading to increased complexity and islands of sometimes redundant applications that are inefficient to manage and difficult to adapt to new needs.

A multitiered application management strategy

A digital application management strategy meets today's requirements for innovation, speed, reliability and efficiency by tailoring spend to the three types of applications all organizations must support:

- **Consumer engagement:** Applications that provide data or services to consumers and determine the quality of their experience.
- **Business differentiation:** Applications that provide business capabilities such as faster product launches, business workflows and enterprise resource planning (ERP).

- **Systems of record:** Applications that facilitate smooth functioning of routine services such as payroll processing, travel and expenses, and related internal administrative functions.

Each of these application types has different needs (see Figure 1, next page). For consumer engagement applications, the key requirements are driving innovation and agility. For business differentiation applications, performance improvement and scalability are most vital. For systems of record, resiliency and cost reduction are the primary objectives. Tailoring management strategy to suit each application type delivers the greatest ROI.

Different strokes

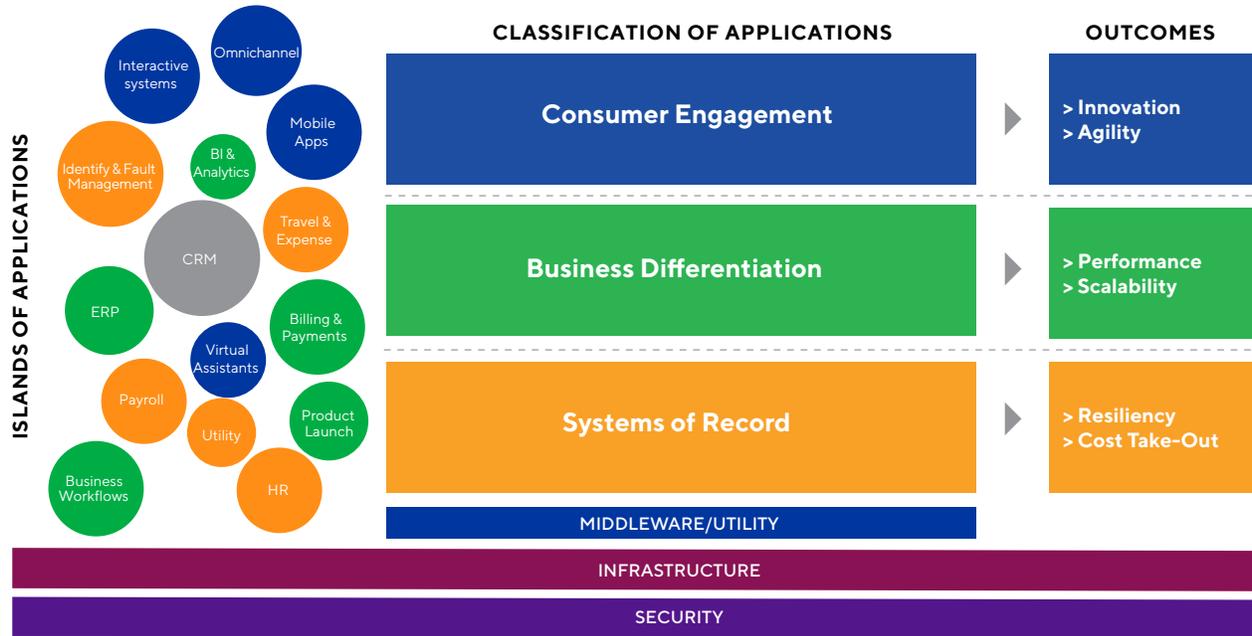


Figure 1

The first step: Identify application relevance

Categorizing the applications helps determine which deliver the most, and least, business value and which should be eliminated, retained, rewritten or moved to new platforms. The resulting simplified IT backbone helps to unlock business value, streamline IT processes and align IT with business objectives. This helps meet the perennial need for lower costs through reduced management and licensing overhead, powering a lean and flexible organization that can deliver services quickly and efficiently.

We recommend using three management categories – contain, maintain and invest (or CMI) – to classify applications:

I Contain: Applications that generate a stable or low level of trouble tickets whose business value is decreasing and/or that are ripe for decommissioning.

I Maintain: Applications that continue to provide value to the business but that can be reengineered or re-hosted on lower cost or more agile platforms.

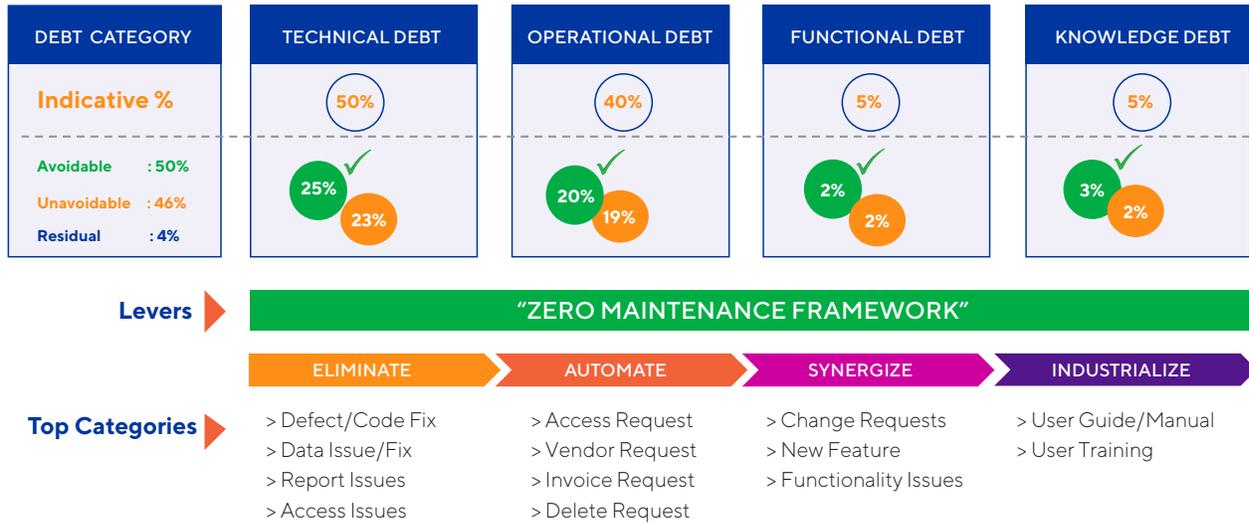
I Invest: Applications that will drive business growth, typically delivered through mobile, microservices/nanoservices¹ and cloud-based platforms.

Designing a CMI-based app maintenance strategy

The next step is using a predictive analytics framework to forecast future spending needs and the effect of such spending on the performance of consumer engagement, business differentiation and systems of record applications. Our proprietary debt analytics framework categorizes operational excellence and service management gaps into technical, operational, functional and knowledge debt. These debt categories are

Debt analytics framework

SAMPLE DEBT ANALYTICS FRAMEWORK REPORT



TRANSFORM FOR RESIDUAL "DEBT" & "PRINCIPAL" MANAGEMENT FOR ENABLING BUSINESS GROWTH.

Figure 2

further classified into avoidable and unavoidable debt (see Figure 2).

The output from this model defines how the CMI strategy is implemented:

- I Contain:** This is a quick source of savings, because the operational team supporting this 40-50% of the application portfolio can provide only "fix on fail" support and relies heavily on global support.
- I Maintain:** This is a critical source of trouble tickets and must be addressed with a three-prong strategy: eliminating trouble tickets wherever possible, automating tickets that cannot be eliminated and industrializing all functions that cannot be automated in cooperation with other functional units such as application development and infrastructure. Our debt management framework significantly helps to determine sources of debt elimination and automation, and to minimize residual debt through industrialization.
- I Invest:** This is the 20% of the portfolio where time-to-market is critical. In addition

to leveraging service management-based automation, organizations should incorporate build automation, end-to-end test automation and move to a DevOps continuous integration/continuous delivery (CI/CD) model. They should also focus more on cloud-native application development, platform hosting services such as SAP S4 hosted on Microsoft Azure or AWS clouds, and deployment of low-code, serverless architectures where newer apps are designed and built for zero maintenance (i.e., self-healing applications that increase resiliency, availability and throughput). The last step is to create full-stack development teams, whose roll is not only to provide Kanban-based support but to operationalize CI/CD environments focusing on configuration and change management.

Over time, applications will move across categories, with those initially in the "invest" category moving into the "maintain" category and those in "maintain" moving into "contain" as business needs and customer preferences change. Eventually, simplifying/modernizing the application portfolio will require decommissioning all "contain apps"

Driving digital success

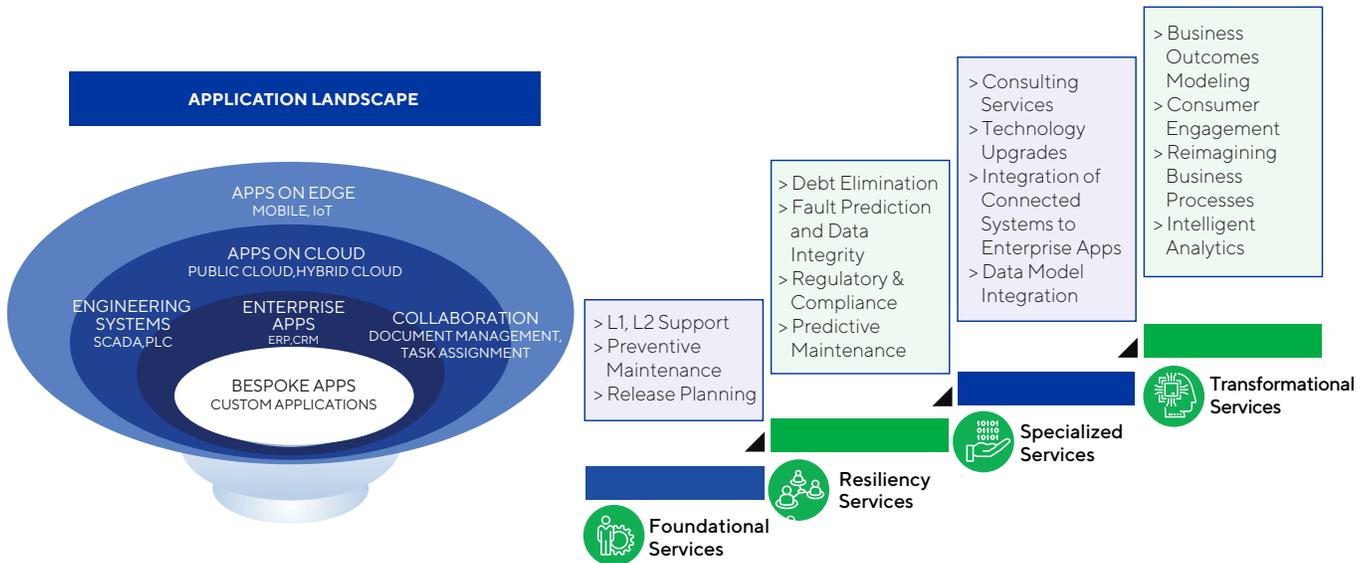


Figure 3

in favor of cloud-native apps, with the portfolio support model aligned to business SLAs and outcomes rather than IT outcomes.

From efficiency to service-centricity

The number and type of applications will only rise, ranging from customer applications to enterprise and utility applications, as well as apps in the cloud and on the edge of the network. In this complex and dynamic environment, traditional application management services may not be enough to sustain business momentum and create delightful customer experiences.

Digital success will mean supporting these applications through a holistic service strategy that provides foundational and resiliency services that drive efficiency and cost reduction, as well as specialized and transformational services to assure business differentiation and consumer engagement (see Figure 3). Cognitive automation (AI techniques that automate specific processes) play a central role in functions such as intelligent operations, self-help ticket resolution and self-healing applications. It also provides intelligent real-time insights for business decisions, the development of digital business platforms through industry-specific value streams and persona-based consumer journey-mapping.

Quick Take

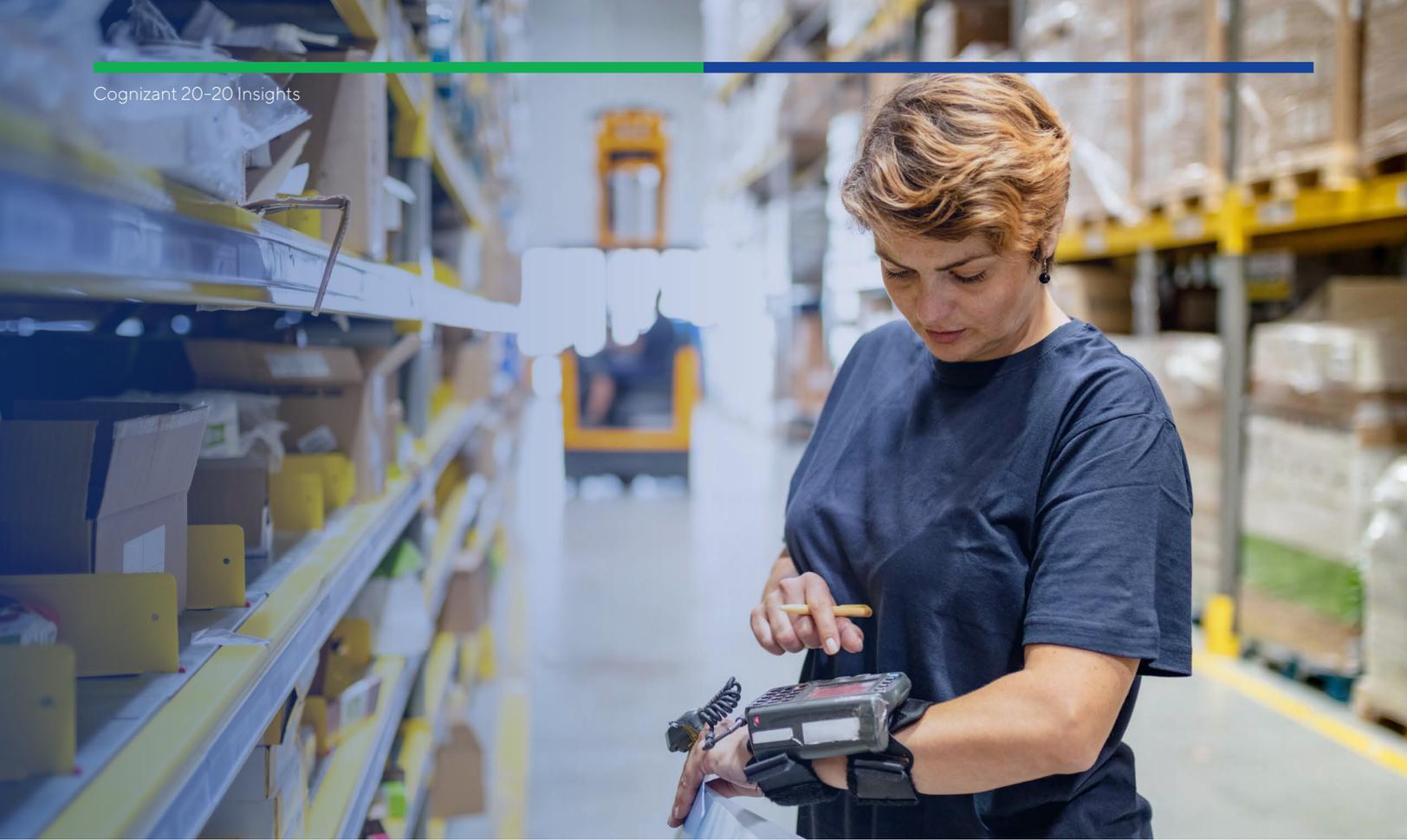
App Maintenance Funding Digital Transformation

For a leading Fortune 500 pharmaceutical company with 2,200-plus applications, we found:

- | In the contain category, 73% of the applications generated 7% of the problem tickets.
- | In the maintain category, 23% of the apps generated 68% of the problem tickets.
- | In the invest category, 7% of the applications generated 25% of the problem tickets.

Our CMI strategy allowed us to:

- | Increase the productivity of developers and support staff by more than 40% and cut costs by 35%.
- | Automate approximately 35% of the incidents and service requests through automation as a service.
- | Tier the support model from ITIL to Kanban to full-stack development models resulting in 3x faster time-to-value.
- | Implement greenfield and cloud-native development on applications that are strategic to business and revenue generation, thus improving competitiveness.
- | Adapt all phases of the development lifecycle to reflect the CMI app categorization, ensuring the most efficient spend at each step.
- | Eliminate customer spending on the contain part of the portfolio by preventing incidents and service requests.
- | Reinvest 10-12% of the savings toward digital initiatives.



Looking Forward

With the critical role applications play in today's digital market, CIOs must find new ways to meet the dual demands of speed-to-market and application reliability. As they move toward a multitiered application management strategy, CIOs should:

- Take a holistic view of their IT landscape aligned with key business processes.
- Develop a digital strategy to meet organizational goals.
- Use application segmentation to develop and manage a modern architecture that fuels the digital business.
- Embark on an application portfolio journey and categorize applications based on their business-criticality and support needs.
- Gain an in-depth understanding of the heritage debts that reduce agility and increase maintenance costs.
- Simplify and modernize the IT landscape with the help of a proven methodology/framework to accelerate time-to-market and enhance user experiences.
- Develop a comprehensive application strategy that addresses the vast array of applications and the critical demands of the digital business.

Endnote

¹ <https://stackoverflow.com/questions/41024771/micro-service-vs-nano-service>

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Srini Thiagarajan is the Chief Technology Officer within Cognizant Digital Systems and Technology's Application Management Services Practice. He has over 20 years of experience in delivery management, account management, business consulting and general management. In his current role, Srini articulates, designs and implements models that help companies embrace next-generation application services strategies. He has a master's degree in engineering from BITS, Pilani, and can be reached at Srinivasan.Thiagarajan@cognizant.com | www.linkedin.com/in/srinithiagarajan.

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Digital Systems & Technology Consulting

Cognizant's Digital Technology Consulting (DTC) Practice provides advisory consulting infused with cross-functional capabilities to enable enterprise-wide digital transformation. DTC's core capabilities span the software and platform landscape. We leverage Agile/DevOps, security and automation to enable businesses to unlock digital capabilities across their front, middle and back offices. Our objective is to help clients eradicate release weekends by enabling continuous delivery. This ultimately helps them to achieve improved end-customer experiences, lower operating costs, improve time to market, enhance operational stability and create a happier workplace. To learn more, visit us at www.cognizant.com/consulting.

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Cognizant (Nasdaq-100: CTSI) 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 193 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](https://twitter.com/Cognizant).

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