Using Application Maintenance to Fund Digital Initiatives

By applying a tier-based strategy, the role of application maintenance can become increasingly contextual in a digitally transforming world, allowing the CIO to holistically reduce nondiscretionary spend on application maintenance to fund digital modernization.

Executive Summary

The storyline has become increasingly repetitive: IT budgets are constant or decreasing every year; IT velocity to support business change is not fast enough; bots are automating rote and routine tasks; and business is forced to contend with newer operating models. To succeed, CIOs must rethink their strategy; failing to do so will be detrimental to their – and their organizations’ – existence.

Conventional wisdom suggests that IT operating costs constitute a majority of budgets, and that the obvious candidate for spend optimization is application maintenance.

Thus, for CIOs, there are four basic questions to address in order to apply advanced application maintenance thinking and techniques to reduce IT spending:

- How can I reduce maintenance costs in my IT portfolio and enable digital transformation?
- Can we reduce spend without compromising speed to market as the portfolio evolves to an increasingly Agile-DevOps, Bimodal IT model?
- How can we create a future-proof next-generation application maintenance organization?
EXECUTIVE SUMMARY

- Are there opportunities to simplify, modernize and secure my portfolio in the process?

The end goal should be to reduce the IT operating budget by 30% to 40% over three years through prudent application maintenance, while delivering business agility to fund IT modernization and digital initiatives.

Given that application maintenance has become increasingly commoditized, with all service providers promising similar benefits, obituaries already are being written for this discipline. The time has come to realize that the drive to digital requires organizations to have a solid IT backbone - one that is agile, resilient and equipped to accommodate business demands. In other words, the IT enterprise needs a simplified and modernized IT landscape to bolster progress toward digital. (See our latest white paper, "Going Digital? Not Without a Simple, Modern & Secure IT Backbone.")

This white paper discusses why application maintenance is increasingly critical to a next-generation IT portfolio strategy, and how a tier-based strategy can help CIOs address cost, agility and business transformational objectives.

ENTER CONTAIN-MAINTAIN-INVEST

A Tier-Based Strategy for IT Portfolio Segmentation

For CIOs, the journey typically starts with conducting an application portfolio rationalization (APR) exercise to arrive at a 4-R strategy for IT simplification and modernization: retire, retain, reengineer and re-factor (to re-host or re-platform). A simplified IT backbone helps to unlock business value, streamline IT processes and align IT with business objectives. These outcomes achieve lower costs via reduced staffing needs and vendor consolidation, which powers a lean, flexible organization that can deliver services quickly and efficiently.

On the other side, a modernized IT landscape is imperative to compete in today’s customer-aware, hyper-personalized and always-on digital marketplace. It allows for the creation of unified user experience and sustains the quality of delivered service. In designing the follow-on app maintenance strategy, a good first step is to break down the applications into the categories of contain-maintain-invest (CMI):

- **Contain**: Applications with stable or trickled ticket volume, marked for decommissioning, etc.
- **Maintain**: Applications that are marked for reengineering, or platforms that are chosen for upgrades and enhancements.
- **Invest**: Applications marked for greenfield development - e.g., mobile, microservices/nanoservices development and new cloud-based platform deployments.

We overlay our apps maintenance strategy with a front-to-back office transformation plan that enables our clients to transform their businesses at scale and to be truly digital. This produces business process outcomes via multiple channels, aligns legacy/modern IT portfolios to support increasing transaction volume, and connects IT with business operations to advance operational agility and contain costs.
Once the CMI categorization is complete, the next step for a tiered application maintenance strategy is to use a predictive analytics framework that consumes past data to predict the future.

**DESIGNING THE APP MAINTENANCE STRATEGY WITH CMI IN MIND**

Once the CMI categorization is complete, the next step for a tiered application maintenance strategy is to use a predictive analytics framework that consumes past data to predict the future. By using historical ticket data, a CIO can derive key insights into the operational performance of the app maintenance organization. We use a proprietary “debt analytics” framework that categorizes operational excellence and service management gaps into debt categories—technical, operational, functional and knowledge. These debt categories are further classified into avoidable and unavoidable (see Figure 1).

**Sample Debt Analytics Framework**

<table>
<thead>
<tr>
<th>Debt Category</th>
<th>Technical Debt</th>
<th>Operational Debt</th>
<th>Functional Debt</th>
<th>Knowledge Debt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicative</td>
<td>50%</td>
<td>40%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Avoidable:</td>
<td>25%</td>
<td>20%</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>Unavoidable:</td>
<td>23%</td>
<td>19%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Residual:</td>
<td>4%</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
</tr>
</tbody>
</table>

**Top Categories**

- Defect/Code Fix
- Data Issue/Fix
- Report Issues
- Access Issues

- Access Request
- Vendor Rem Request
- Invoice Request
- Delete Request

- Change Requests
- New Feature
- Functionality Issues

- User Guide/Manual
- User Training

Transform for Residual “Debt” & “Principle” Management for Enabling Business Growth

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*Figure 1*
The focus is more on cloud-native application development, platform hosting services (e.g., SAP S4 hosted on a Microsoft Azure or AWS cloud) and deployment of low-code, serverless architectures where newer apps are designed and built for zero maintenance.

After this data has been gathered, operationalizing the CMI strategy can be tiered as follows:

- **Contain**: This is a quick win. The operational team supporting this portfolio (~40% to 50% of the total) can be totally driven on a fix-on-fail support model and optimized heavily using a global delivery model. CIOs should consider strengthening the model commercially by not paying for support until something breaks.

- **Maintain**: This portfolio (~20% to 30% of the total) is a critical ticket-producing bucket, and a three-prong strategy must be applied to it: demand elimination of tickets, automate tickets that cannot be eliminated and industrialize what cannot be automated - all done in synergy with other units like app development, infrastructure, etc. Our debt management framework can help greatly to determine sources of debt elimination and automation, or in industrializing residual debt.

- **Invest**: For this ~20% of the portfolio, time to market is critical. So in addition to leveraging service-management-based automation, the focus also shifts to building automation, implementing end-to-end testing and moving to a continuous integration/continuous delivery (CI/CD) model. The focus is more on cloud-native application development, platform hosting services (e.g., SAP S4 hosted on a Microsoft Azure or AWS cloud) and deployment of low-code, serverless architectures where newer apps are designed and built for zero maintenance;

In addition, the maintain portfolio requires technology-functional business alignment and a bots-first (automation software that can execute repetitive tasks faster and more accurately), self-help and self-heal approach toward service management. These apps also need to have feedback amplification built in - from app support to app dev - to harden the application’s resilience and performance. For instance, rather than automating a Weblogic server restart every four hours, it is better to fix poorly written code that causes memory leaks.

After eliminating debt, modernizing the portfolio is the next key step to keep the organization’s operational costs lower, speed time to market and drive consumer-centricity. Typically, IT modernization can include any or all of these reengineering mechanisms: refresh the legacy landscape through value-driven accelerators; transform processes through business process mapping and Agile/DevOps adoption; and switch to operating models such as pay-per-use and managed services.
• Integration synergies between contain-main-maintain-invest: In addition to leveraging a common automation platform, a fully operationalized CMI model can merge enhancements from L3/L4 work with app dev to drive greater synergies and move to a “product-based development model” – where a single product owner handles functional requirements, bugs from testing and production bugs/CRs. Over time, CMI applications will move across categories (i.e., applications that were initially part of the “invest” category will move into “maintain”; similarly, “maintain” applications will move into “contain” depending on business-criticality and customer preferences). In the long run, therefore, simplifying and modernizing the application portfolio will require decommissioning all “contain” apps, leaving cloud-native apps to prevail. More important, the portfolio support model is aligned more to business SLAs and outcomes than to IT outcomes.

Our CMI strategy is summarized in Figure 2.

FUNDING DIGITAL VIA CMI

The CMI tiering strategy enables the CIO to do the following (see Figure 3, following page).

• Deliver significant cost reductions for “contain” and “maintain” parts (~80%) via the underlying fix-on-fail, automation and analytics components.

• Align the “maintain” and “invest” parts of the portfolio with business goals, and bring faster time to market.

• Coupled with reduced costs, use freed-up dollars to enable further digital work.

• Future-proof AVM with a bots-first, self-help, self-heal, predictive-analytics-based support model; use the debt analytics framework to control future debt.

At a Glance: CMI

<table>
<thead>
<tr>
<th>Focus Area</th>
<th>Contain</th>
<th>Maintain</th>
<th>Invest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solution Strategy</td>
<td>Fix on fail</td>
<td>Stability plus business aligned</td>
<td>Stability plus agility business aligned</td>
</tr>
<tr>
<td>Support Strategy for L1</td>
<td>Enrich KEDB</td>
<td>White glove support</td>
<td>Self-help</td>
</tr>
<tr>
<td>Support Strategy for L2/L3</td>
<td>NA</td>
<td>Preventative care + tech debt elimination</td>
<td>Self-contained teams, build for zero maintenance</td>
</tr>
<tr>
<td>Automation Strategy</td>
<td>Script based</td>
<td>BOTS first, self-help, self-heal, analytics led support</td>
<td>Maintain PLUS build automation + shift test automation left</td>
</tr>
<tr>
<td>People &amp; Org</td>
<td>Highly junior &amp; globally optimized</td>
<td>Domain aligned &amp; techno-functional</td>
<td>Full stack development teams, multi-skilled ops + dev</td>
</tr>
<tr>
<td>Process</td>
<td>ITIL</td>
<td>Mostly Agile + Kanban based support</td>
<td>Agile + DevOps &amp; product aligned</td>
</tr>
<tr>
<td>Transformation</td>
<td>Decommissioning factories</td>
<td>User experience led, predictive analytics driven, self service, cloud native development, CI/CD operationalized. Business outcome aligned.</td>
<td></td>
</tr>
</tbody>
</table>

Figure 2
Using Application Maintenance to Fund Digital Initiatives

CMI's Advantages

<table>
<thead>
<tr>
<th>CATEGORY 1</th>
<th>CATEGORY 2</th>
<th>CATEGORY 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CONTAIN</strong></td>
<td><strong>MAINTAIN</strong></td>
<td><strong>INVEST</strong></td>
</tr>
</tbody>
</table>
| - Applications with low/stable ticket volume  
  - Not strategic and identified for retirement/archival  
  - Applications with not many changes  | - Platforms being upgraded and enhanced  
  - Low velocity of changes  
  - Applications with high ticket volumes  | - Systems of innovation  
  - High volume of changes  
  - Strategic to business/revenue generating  
  - Greenfield, cloud-native development  |

|  | Industrialize & Synergize | Eliminate & Automate | Agility & Stability |
|  | | | |
|  | Service Transformation | Portfolio Transformation | Digital Transformation |
|  | | | |
|  | Transformation & Innovation | | |

<table>
<thead>
<tr>
<th>CATEGORY 1</th>
<th>CATEGORY 2</th>
<th>CATEGORY 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reduce non discretionary spend</strong></td>
<td><strong>Superior User Experience</strong></td>
<td><strong>Optimize discretionary spend</strong></td>
</tr>
</tbody>
</table>

Figure 3

- Enable the organization to evolve from traditional ITIL support to techno-functional to full-stack development-based skills.

- Help reduce app maintenance spend by up to 50%, from 18% to 22% of the overall IT budget to ~10% to 12% - which is more aligned to product companies. The savings can be used to fund digital initiatives.

**LOOKING FORWARD**

A strong business case demonstrates how critical apps maintenance is in the CIO's digital agenda. There is also a clear path for the app support organization to evolve and reskill into newer areas of automation and full stack development.

As for those writing application maintenance obits, digest this: Although IBM Bluemix ended support for mainframe software two years ago, the business is reputedly still going strong. And the pundits wrote off the mainframe 20 years ago! Similarly, app maintenance is primed to drive next-generation digital at the cost of some cannibalization.

Here's what CIOs should be thinking about and doing to stay ahead of rivals:

- Take a holistic view of the IT landscape aligned to key business processes.

- Develop a digital strategy that aligns with organizational goals.

- Start an application portfolio journey by categorizing applications based on the 4R strategy: retain, reengineer, re-factor and retire.

- Find out which debts hamper business throughput - and in turn possibly increase your maintenance spend.

- Simplify and modernize the IT landscape with the help of a proven methodology/framework to deliver faster time to market and enhanced customer experience.

- Executive leadership buy-in and top-down push in executing this massive change is mandatory.

- Last but not least, educate the people supporting IT, business and operations about necessary organizational changes and establish an internal IT task force to address specific challenges.
QUICK TAKE

App Maintenance Funding Digital Transformation

Our client was a leading Fortune 500 pharma company with a ~2,200 app portfolio. We analyzed the IT portfolio as follows:
• **Contain:** 73% of apps, contributing to 7% of problem tickets.
• **Maintain:** 23% of apps, contributing to 68% of problem tickets.
• **Invest:** 7% of apps, contributing to 25% of problem tickets.

Our CMI strategy allowed us to:
• Pass >40% productivity and 35%+ cost reduction over the lifecycle of the engagement.
• Automate ~35% of the incidents and service requests, offering automation as a service.
• Tier the support model from ITIL to Kanban to a full stack development model.
• Optimize – to zero cost – the contain part of the portfolio.
• Reinvest 10% to 12% of savings toward digital initiatives.

FOOTNOTES

1 Coined by Gartner, the term Bimodal IT represents the practice of managing two separate but coherent styles of work – one focused on predictability and the other on exploration. Mode 1 is predictable, improving and renovating in well-understood areas. In Mode 2, business and IT together explore and experiment to innovate and solve new challenges. [www.gartner.com/it-glossary/bimodal/](http://www.gartner.com/it-glossary/bimodal/).


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Vijay Anand is Assistant Vice President of Solutions and Consulting for Application Value Management (AVM) Services within Cognizant’s Digital Systems & Technology Practice. He has 19-plus years of technology management expertise in IT strategy, business development and pre-sales, product management and technology consulting, working for both service providers and IT product companies. Vijay also successfully incubated a global start-up in supply chain management. He specializes in the areas of application development and maintenance and next-generation application services leveraging predictive analytics, automation and commercial model transformation. Vijay has an undergraduate degree in computer engineering from Bharthiyar University, India, and an M.B.A. in international business from Thunderbird at Arizona State University. He can be reached at Vijay.Anand2@cognizant.com.
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