
Keane White Paper

Application Lifecycle Optimization

Maximizing the Value of
IT Investments

EXECUTIVE SUMMARY

By applying a systematic and holistic Application Lifecycle Management approach, companies are able to optimize their IT Portfolios via reduced costs and rationalized investments, thereby increasing the strategic value to the enterprise as a whole.

About Keane

Keane, an NTT DATA Company, is an IT services firm headquartered in the US with more than 12,500 professionals worldwide. For 45 years, Keane has been an Application Services specialist with distinguished project management credentials. Today, we offer a flagship suite of Application Services, as well as Infrastructure and Business Process Outsourcing solutions delivered through onsite, nearshore, and offshore resources.

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Abstract

An organization's portfolio of software applications is among its most valuable assets, representing years of accumulated knowledge and financial investment. Dynamic and constantly evolving, application portfolios must accommodate a steady stream of new business requirements as well as shifts in technology and business strategy. Each application within the portfolio represents a targeted investment with its own challenges, objectives, and expected rate of return. The primary role of an IT organization is to manage the company's portfolio of applications in a way that supports changing requirements while maximizing the business value provided by these critical assets.

Application Lifecycle Optimization is a systematic, proactive, and investment-oriented approach for managing application portfolios. Each application within a portfolio travels through a lifecycle that begins with its development, moves into active production, and ends with its eventual retirement. An application's needs, business value performance, and opportunities for improvement differ by its place within these three lifecycle phases. Every portfolio contains a mixture of applications at various positions within each lifecycle phase. Application Lifecycle Optimization addresses the unique needs of the lifecycle phases through targeted strategies for applications development, management, and rationalization.

This white paper provides executives with an introduction to Application Lifecycle Optimization. It describes the evolution of an application through

the three phases of its lifecycle and how its lifecycle position affects its investment requirements, support needs, and business performance. By demonstrating the benefits of Application Lifecycle Optimization and revealing the critical success factors for achieving them, this paper, Application Lifecycle Optimization: Maximizing the Value of IT Investments, will help readers develop a holistic strategy to maximize the business value of their application portfolios.

Introduction

Since the generation of the first business applications almost fifty years ago, application portfolios have evolved to become extremely valuable corporate assets. They facilitate all aspects of corporate operations, service customers, manage supply chains, provide competitive advantage, and in cases such as clearinghouses, reservations centers, and certain types of financial services firms, the applications define the company. In short, applications are hard assets every bit as crucial to their companies as foundries are to a steel manufacturer or aircraft to an airline.

Application portfolios are highly dynamic assets. They are continually growing and evolving as new applications are added, technologies change, and business objectives shift. The applications within the portfolios are similarly dynamic and differ by value generated, operational costs, and support requirements. They follow a defined lifecycle and have different needs at each stage.

Every application portfolio contains a multitude of applications at differing lifecycle stages. Given this

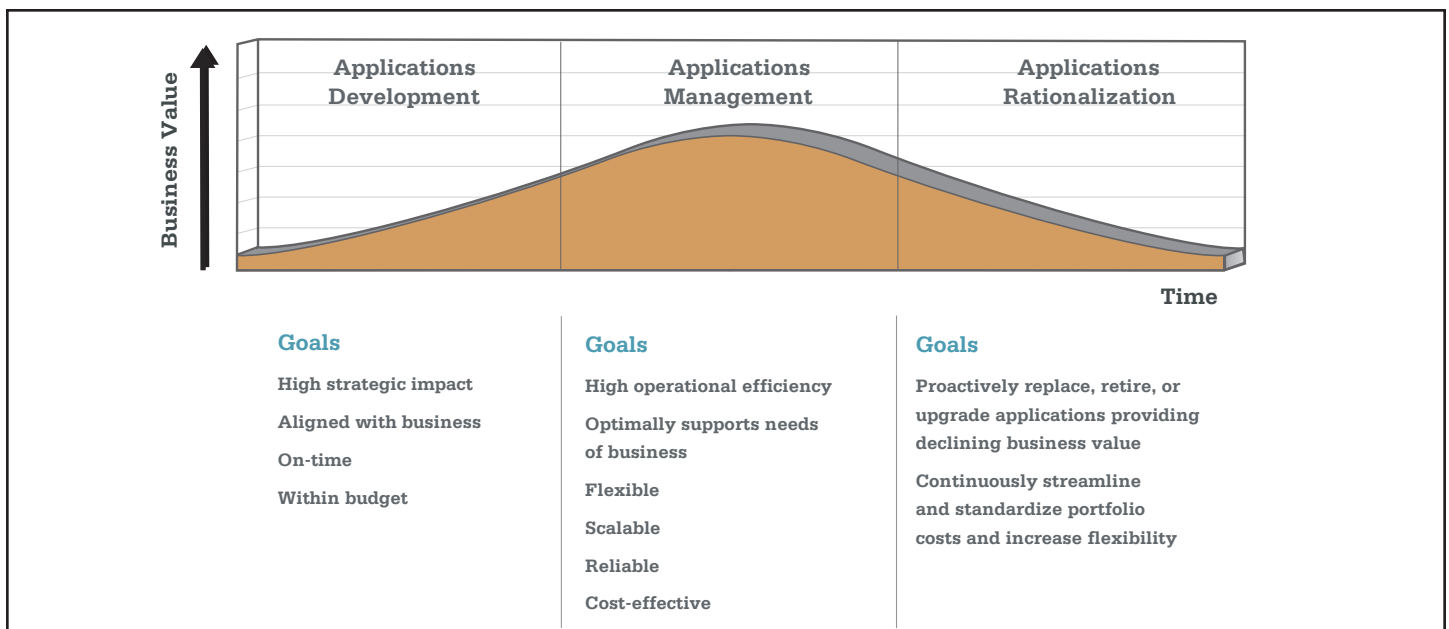
diversity, application portfolios are costly to build, enhance, and support. And without careful tending, they run down. Low-value applications proliferate, and detritus accumulates from mergers and acquisitions business strategy transformations, and technology transitions. Effort is spent on activities and projects that do not maximize business value. Support costs rise due to inefficiencies and functional redundancies. Short-term fixes and failure to apply consistent standards and implement regular upgrades reduces the useful life of application assets.

The primary role of a corporate IT organization is to build and manage corporate application portfolios to support and enable the company's business strategy. Despite the importance of this role, IT organizations

rarely manage them in a holistic, systematic, and proactive manner. As a result, these portfolios are frequently under-performing assets. Much as active management can improve the performance of a stock portfolio, proactive attention to application portfolios enables businesses to achieve maximum value from their IT investments. Disciplined management of application portfolios allows these assets to achieve their full potential by capturing greater benefit from production systems, freeing funds and IT resources to pursue high-value opportunities, and providing the foundation and flexibility to respond more quickly to changing business requirements.

The following describes Keane's approach to building a high-performance IT organization through

Figure 1: Application Lifecycle Optimization



Application Lifecycle Optimization. Based on its years of experience in applications management, Keane strongly advocates a strategy that addresses applications by their stage in the application lifecycle. This strategy optimizes the performance of the overall portfolio by actively managing each application by needs and value, from birth to retirement.

Phases of the Application Lifecycle

For the purposes of Application Lifecycle Optimization, consider a portfolio as a community of applications of varying ages and with different support requirements. Every application in the community follows the same basic three-phase lifecycle. They are born through development, reach maturity in production deployment, and are decommissioned when they are no longer producing significant business value. In Keane's approach to Application Lifecycle Optimization, these phases are called Applications Development, Applications Management, and Applications Rationalization.

While generating minimal direct business value today, Applications Development creates the assets that will be core to a company's business strategy tomorrow. These assets may be internally built applications or software packages.

The three major goals for this phase are:

- » Maximizing future business performance by selecting the highest value opportunities for new applications

- » Ensuring the continuing viability of those assets by building applications that are effective and adaptable
- » Enhancing development ROI through cost-effective design and delivery

The latter two of these objectives are crucial for reducing a new application's total cost of ownership throughout all three phases of its lifecycle.

Applications Management is the largest and most important phase in the lifecycle. Applications in this phase are in full production, generating most of a portfolio's ongoing business value. Moreover, their maintenance, enhancement, and support accounts for as much as 70% of overall IT effort. The goal of this phase is to achieve a high degree of operational efficiency in providing maximum value to the business.

Applications Rationalization is the final phase of the lifecycle, and having a defined strategy for addressing applications in this phase is critical to optimizing overall performance. At this point in the lifecycle, applications are providing diminishing business returns and nearing the end of their useful lives. Without disciplined attention, they under-perform their objectives and draw funds and resources away from more strategic applications in the other phases.

Figure 1 illustrates the different characteristics of each lifecycle phase, and how those characteristics influence optimization goals. Strategies for optimizing these phases appear in the subsequent sections of this white paper.

Application Cost by Lifecycle Phase

The largest annual IT investment in a single application occurs throughout the development and deployment stages. During Applications Management, annual costs consist of maintenance, operations, and support. Although typically lower on a per-year basis, these costs accrete over many years, eventually eclipsing development expenditures. Annual costs rise towards the end of an application's life, as it becomes more difficult to maintain.

Application Business Benefit by Lifecycle Phase

Business benefit arises only from application use, thus no benefit is received until the application is deployed in production. These benefits peak during Applications Management, and start to decline as the application ages.

Application Challenges by Lifecycle Phase

Superimposing costs on benefits illustrates the high level optimization objectives for an application during each phase. Improving delivery time-to-market and decreasing development and deployment costs in

Applications Development enables a company to gain benefits quickly while enhancing overall ROI. In Applications Management, the main objective is to protect and enhance each application's performance by finding ways to increase the application's business value while reducing the cost of support and operations. Applications Rationalization objectives are to stem declining value where possible through targeted improvements and by proactively decommissioning costly, low-value applications.

Relating Application Cost to Portfolio Cost by Lifecycle Phase

When viewed at the portfolio level, overall IT expenditures per phase follow a classic bell curve distribution. Although a portfolio's costs reflect the cumulative spending of all its applications, the number of applications in each phase and the length of time an application spends in the phase influence the distribution. While individual cost is highest during Applications Development, relatively few applications are in this phase at any given time. Conversely, the vast majority of the portfolio resides in the Applications Management phase, resulting in higher cumulative costs despite lower per-application expenditures. Applications Rationalization balances increasing per-application costs with declining numbers of applications.

Identifying Opportunities for Optimization

The following provides an overview of Keane's process for evaluating an IT organization and identifying opportunities to optimize the management of its application portfolio.

Keane typically begins its assessment by focusing on the Applications Management phase of the lifecycle. This phase, representing applications that are in production, generates the greatest business value today and is the most costly to support based on allocation of budget dollars. Keane's experience with hundreds of client organizations also suggests that this phase provides tremendous opportunities to increase value and reduce costs by implementing proven applications management and program management disciplines.

Applications Management

Goal: Protect and enhance the business value of the application portfolio, and achieve a high degree of operational efficiency

Applications management seeks to maximize the business value of the longest and most important phase of the application lifecycle. In the prime of their lives, applications in this phase are in full operation and should be providing their peak business value to the company. The primary management objective for

this phase is to maintain and enhance application quality and performance to maximize business benefit and increase application return on investment. Targeting resources and process disciplines to the applications that provide the greatest business value disproportionately increases the overall performance of the portfolio. Enhancing operational efficiency lowers the cost per unit of work completed, and frees resources for higher priority assignments. Increasing application flexibility and reducing time-to-market improves responsiveness to inevitable business and market changes.

Unfortunately, many companies lack the rigorous processes, management disciplines, and tools to manage and optimize their application portfolios effectively. As a result, they face ever-growing portfolios, spiraling costs, and increasing numbers of under-performing application assets. Without metrics to adequately measure IT performance and calculate the level of business value delivered, IT organizations spend too much time reacting to problems and applying minor enhancements rather than proactively adding value to the business.

Keane recommends a three step process for applications management. First, an organization should implement and follow a rigorous set of IT processes and management disciplines that achieve at least Level 3 as measured by the Software Engineering Institute's (SEI) Capability Maturity Model (CMM). The SEI CMM has become the standard for world-class IT organizations, and achievement of higher levels of process maturity is statistically correlated with tangible business benefit.

The next step includes selecting and capturing meaningful metrics to evaluate IT performance and calculate the business value delivered by the

applications in the portfolio. These metrics will be used to target project efforts, and will serve as a basis for continuous improvement efforts. Finally, application performance and maintainability can be continually enhanced through root cause analysis, preventative maintenance, targeted fixes, and technical improvements.

Bottom Line Results

Since applications management covers the operational peak of an application's life, improvements in this stage provide highly leveragable benefits:

- » Enhances the business value provided by production applications
- » Increases application ROI by gaining significant reductions in support costs
- » Improves efficiency and IT performance free IT staff and budget for more strategic purpose

Applications Rationalization

Goal: Free resources and budget for value adding activities

Applications Rationalization addresses the under-performing applications in the IT portfolio. It seeks to improve the business performance of IT application portfolios systematically and proactively by quantifying the value of each application, eliminating or retiring redundant and end-of life applications, and renovating applications that still have residual value.

Over time, application portfolios accumulate low-value applications through aging, mergers and acquisitions,

technology shifts, and unfinished replacement projects, as well as “odds and ends” of isolated and incompatible systems. Likewise, applications decline in quality as they age, when years of maintenance, enhancements, and production patches degrade technical and functional quality, increasing error rates, support costs, and the difficulty of incorporating new changes. These older applications lack the flexibility and scalability to keep pace with new requirements and business opportunities.

Applications Rationalization improves portfolio performance through a four-step process. Portfolio analysis evaluates the business value, fully-loaded costs, current condition, and lifecycle positioning of each application in the portfolio. The next step identifies and eliminates redundant functionality. The third step finds and retires aging or non-core applications that no longer provide sufficient ROI to justify their continued use. The final step extends the life of still useful applications through targeted improvements and migration to newer and more flexible architectures.

Bottom Line Results

By reducing time and effort spent on maintaining and supporting low-value applications, Applications Rationalization provides benefits that are straightforward, immediate, and easily quantifiable:

- » Provides immediate and significant cost reductions
- » Frees IT staff and budget for more strategic purposes
- » Enables the consolidation of IT platforms
- » Extends life of value-generating functionality
- » Increases responsiveness to change by improving application flexibility and scalability portfolios

Applications Development

Goal: Maximize the business value of development investments

Applications development is the crucial first phase of the application lifecycle. Not only is this phase essential for defining and developing the applications that are core to a company's future competitiveness, but it also sets the foundation for future portfolio performance through the applications it creates and how it creates them. If this stage starts with bad investment decisions or produces poor-quality assets, it is impossible to reap strong returns later. Important goals for this phase include:

- » Identifying and investing in the projects that achieve the highest return
- » Ensuring that those projects are delivered successfully in terms of quality of deliverables and fitness to business purpose
- » Improving a project's time-to-market to gain business benefits
- » Controlling development and deployment costs to increase its ROI
- » Ensuring that applications are built on a platform and with constructs that promote maximum flexibility, scalability, and maintainability

Development projects present significant challenges for many IT organizations. Studies by the Standish Group found that over 70% of development projects were troubled or failed outright, an alarming statistic. Projects fail for numerous reasons, but inadequate project management is the most significant contributing factor. Unclear business objectives and

lack of executive sponsorship doom many development projects before they begin. Project objectives, requirements, and priorities must be business-driven to ensure that the resulting application provides high value to the company. Technical considerations are also important. Selecting the right technology and architecture for a new application provides it with the flexibility, scalability, and adaptability needed to support a long and useful life in a fast-changing business environment.

To gain the greatest benefit from applications development efforts, Keane advocates that IT organizations invest in obtaining world-class development processes and building project management expertise. These capabilities will increase project success rates while improving time-to-market and enhancing the quality of project deliverables. Further, IT organizations can obtain significant benefits by applying a disciplined approach to identifying and prioritizing project opportunities based on tangible ROI opportunities.

Bottom Line Results

Investments in building the right applications in the right way provide considerable benefits throughout the application lifecycle:

- » Greater business value per IT dollar invested by ensuring alignment and proper prioritization
- » Extended application life and value generation capabilities with built-in flexibility and scalability
- » Enabling the company to receive business value sooner
- » Reduced long-term cost of application operation and support
- » Increased strategic value of IT portfolios

Application Lifecycle Optimization Success Factors

Given the high value of corporate application portfolios, the benefits of a proactive and systematic approach to portfolio management are large and far-reaching. These benefits are summarized as follows:

- » **Improved business performance**
IT applications touch every aspect of a company. Enhancing application performance enhances the performance of the business activities those applications support. The result is improved revenue, superior operational efficiency, better customer support, higher quality management information, and greater competitive advantage.
- » **Improved IT performance**
Effective application portfolio management increases IT efficiency, reduces costs, and frees up resources and budgets for value-creating activities. By enabling a higher return on IT investment, IT will become a true strategic partner with the company's business areas, therefore enabling IT to respond faster and more effectively to changing business demands.
- » **Significant cost reductions**
As described throughout this paper, poorly managed portfolios are costly and wasteful. By supplying the tools to increase efficiency, eliminate under-performing assets, and streamline IT platforms, Application Lifecycle Optimization provides considerable bottom-line savings.

A company cannot gain these benefits through half-hearted or part-time efforts. Because the requirements for each application are unique, the optimization objectives for each lifecycle phase differ from one another. Decisions made in each phase have ramifications for other applications and phases. There are no simple, "one size fits all" solutions. Through its Application Lifecycle Optimization experience, Keane has identified the following critical success factors:

- » **Accurate portfolio assessments**
Effective optimization decisions require a regular and comprehensive understanding of the state of the application portfolio, including the condition of each application, the level of business value provided, and the cost of support and operations.
- » **Effective program and project management capabilities**
Application Lifecycle Optimization requires discipline and adherence to standards and procedures. Effective project management ensures optimization efforts stay on track. It is the key ingredient for successful applications development.
- » **Solid, high-quality processes**
Formal processes underpin all optimization efforts and guarantee consistent, repeatable, and high-quality results. Keane documents its own world-class applications development, management, and rationalization processes in its Frameworks collection of methodologies.
- » **Meaningful performance metrics**
High-quality metrics provide a window on portfolio performance and enable continuous improvement efforts. Metrics are needed to assess and monitor

business value, IT effectiveness, and process performance. Working from a baseline and a continuous feed of performance metrics, application portfolio managers can become effective business leaders by orchestrating optimization strategies that meet corporate goals.

Moving Forward

Keane recommends a targeted portfolio analysis as a first step for companies interested in optimizing the business performance of their application portfolios. Keane's Portfolio Optimization Plan (POP) service offers specific recommendations on how to protect and enhance the business value provided by your entire application portfolio, free resources and budgets for value-adding activities, and maximize the return on your development investments. During this six to eight week engagement, a Keane business consulting team will perform a functional, technical, and strategic review of your application portfolio, understanding the state of its applications; finding under-performing assets; and identifying, estimating, and prioritizing opportunities for gaining significant benefits from

Application Lifecycle Optimization initiatives. Focusing on providing measurable results, the team will quantify the expected business value of such opportunities and recommend appropriate next steps.

By the end of a Portfolio Optimization Plan engagement, your organization will have a clear picture of the current state of its application assets and their ability to support and enable your company's business objectives. Recommendations cover all phases of the application lifecycle, providing a wealth of information about where to most effectively invest your IT resources. Implementing these prioritized recommendations will deliver immediate results with quantifiable business benefits to your IT organization and company.

The data in the Portfolio Optimization Plan report provides a baseline for evaluating the execution of these initiatives as well as a means for monitoring future portfolio performance. Whether your objectives include lowering costs, increasing efficiency, or better targeting scarce resources, a POP is a means of launching an Application Lifecycle Optimization program within your organization.
