INFORMATION TECHNOLOGY SERVICES

Optimizing the Application Portfolio

Cutting through complexity

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Today’s fast-paced global economy demands IT organizations focus on delivering value and enabling agility in their business partners. But overly complex and divergent inventories of existing applications increase operational costs and risks and reduce the ability of organizations to innovate, rapidly adapt to change, and capitalize on emergent business opportunities. KPMG calls the natural tendency of inventories of applications to grow overly complex, disordered and difficult to maintain over time “applications portfolio entropy.”

Traditionally, IT executives have used application rationalization and consolidation to address the entropy challenge. Reactive by nature, these approaches are often difficult to implement and sustain, as they require tough tradeoffs to eliminate duplicate functionality, standardize delivery processes and reduce and reallocate resources.

KPMG has developed an assessment and planning framework for client organizations to help them manage the growing complexity of their applications and transition from reactive inventory management to proactive application portfolio optimization (APO). The framework, which has been validated during numerous client engagements, is aimed at increasing business agility and value from technology investments, and controlling entropy. The framework relies on a few leading management practices, including:

- Managing the inventory as a business asset
- Employing a capability framework aligned with business priorities
- Continuously assessing the risks of constituent applications
- Establishing strong program management and governance capabilities
- Employing a collaborative approach for decision-making between business and IT

This document provides an overview of the APO framework and makes recommendations for CIOs, who are inherently positioned to drive optimization initiatives at the enterprise level and across multiple lines of business. The presented practices and recommendations also provide useful insights and guidance to senior business executives, business and IT architects, and application suppliers whose contributions are critical in setting APO initiatives for success.
Entropy is the natural tendency of applications to grow overly complex, disordered, and difficult to maintain over time. Traditionally, business stakeholders have viewed the growing entropy as an IT issue, and most IT organizations have learned to live with the fact that the maintenance of ever more complex application inventories typically consumes the majority of IT resources and 60 percent or more of the technology budget.

To control entropy IT executives have routinely used application rationalization and consolidation – with limited success. Rationalization and consolidation projects are reactive by their nature and often difficult to implement and sustain. They face resistance from application owners and users, and require tough management tradeoffs to reduce low value/high cost legacies, eliminate redundancies, and standardize delivery and support processes. Additionally, these kinds of projects are also difficult to fund since they require time and resources that business sponsors may prefer to allocate to the development of new applications.

But maintaining the status quo is no longer an option. Today, businesses across all industries and geographies are deploying a new generation of applications based on technologies such as mobile, social, analytics and cloud. These new applications, aimed at supporting product and process innovations, continue to increase the size and complexity of existing inventories beyond the organizations’ ability to manage them. If not brought under control, the increasing entropy may become a barrier to innovation and growth. As recent research shows, in many organizations:

- Business stakeholders increasingly view digital technology as a top management priority. IBM’s 2013 CEO Study demonstrates that today the majority of CEOs prioritize technology, in particular digital innovation, as the most important external force shaping the future of enterprises. In most cases digital innovation isn’t a single project delivering one-time benefits, but rather an ongoing process of creative disruption that uses existing and innovative technologies to change jobs, business processes and entire organizations.
- The pressure on IT “to do more with less” continues to be very high. Since the collapse of the dot-com bubble, IT organizations have been under continuous scrutiny to reduce costs and increase efficiencies. The current wave of digital innovation has relaxed this pressure only partially. According to recent research from McKinsey, while the concerns about managing costs are down and the recognition of IT’s strategic importance is growing, large shares of executives are dissatisfied with IT’s effectiveness.
- Many IT leaders are not well prepared to manage the digital “torrent”. According to KPMG’s Evolution of IT: The IT Workforce of the Future survey, 82% of organizations say necessary IT skills of today will not meet needs in the next 3-5 years.

Case Study - KPMG Helps Utility Company Reduce the Application Footprint

KPMG member firms recently helped a utilities company reduce its application footprint. Using a combined top-down and bottom-up approach, KPMG professionals identified ways to reduce 20 to 30 percent of the company’s portfolio by targeting functional redundancy and high-risk technology concerns. The application rationalization strategy introduced by the KPMG team also increased the company’s ability to forecast resources and improve the reliability and availability of business services.

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INTRODUCING KPMG’S PORTFOLIO OPTIMIZATION FRAMEWORK

Given the increasing criticality of IT to the business, the growth of application inventories, and the limitations in existing management capabilities, CIOs and business leaders must take a systematic management approach. Building upon industry leading practices, KPMG has developed a range of assessment and planning frameworks for client organizations to help them transition from reactive and ad-hoc management practices to proactively managing IT as a business. Beginning with Technology Business Management (TBM) as the foundation, the application portfolio optimization framework, which has been validated during numerous client engagements, is aimed at increasing business agility and value from technology investments, and controlling entropy with help from good governance and leading management practices.

Figure 1: Overview of the KPMG Framework for Application Portfolio Optimization

KPMG Framework for Application Portfolio Optimization (APO)

Objective:
» Increase business agility and value from tech investments

Leading Practices:
» Manage the application inventory as a business asset
» Employ a capability framework for business alignment
» Continuously assess the risks of constituent applications
» Establish strong program mgmt. and governance capabilities
» Employ a collaborative approach for decision-making

Assessing Portfolio Optimization Opportunities
» Build the essential fact base for decision-making
» Balance rationalization and prevention for optimal results

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6 http://www.itil-officialsite.com/
7 https://www.isaca.org/
Focus on Agility and Business Value
As many organizations undergo a transformation to digital businesses the IT focus shifts from systems of record (transaction based) to systems of engagement (interaction based) and the integration between the two, IT is a critical enabler called upon to develop new innovative applications. These new applications are expected to deliver agility and business value to the enterprise. The purpose of the Application Portfolio Optimization (APO) framework is to enable this shift by:

» **Supporting business agility.** Research has demonstrated that agile organizations generate more revenue from product innovations and have a high percentage of their core business processes being digitized. APO directly supports these agility goals, as its purpose is to identify, prioritize and monitor investments in innovative applications while increasing the efficiency and reducing the cost of the current applications portfolio.

» **Increase the value of application investments during business change.** Business change happens all the time, for example when organizations enter new markets, face mergers, divestitures, and regulatory changes, engage in new partnerships, and for many other reasons. During such events, APO monitors the overall performance of application inventories, assesses the impact in terms of benefits and risks, and provides direction and recommendations for increasing their value.

» **Proactively controlling entropy through IT governance and management.** Many organizations manage their application inventories using processes and resources that are just good enough to address on-going operational needs. Under constant pressure to deliver more with less, they underestimate the critical importance of building the leading governance and management capabilities for controlling entropy. APO assesses the maturity of these capabilities and makes recommendations for improving them.

Implement Leading Practices
Making decisions about optimizing the application portfolio is not an IT responsibility; it is a collaborative exercise on the part of both IT and business leaders. APO provides essential insights for proactively combating entropy by guiding executives through the implementation of leading practices that:

» **Manage the inventory as a business asset.** Experience shows that the most effective way to manage an inventory of applications is by viewing it as a business asset, rather than an IT asset. The methodology supports the deployment of an active life-cycle management process that continuously assesses the business value of inventory assets from requirements development through retirement, using business relevant criteria; for example, to identify systems with high levels of risk, non-compliance with corporate strategy or duplication involving systems or processes across business units. APO includes the development of business cases for understanding the potential cost savings from implementation of decommissioning and archiving plans for legacy systems.

» **Employ a capability framework aligned with business priorities.** Managing the application portfolio as a business asset can only work well when CIOs use a business capability framework as the baseline model for defining business goals, projecting the growth of the IT environment, and retiring applications. A leading practice is to structure application inventories according to the business capabilities they enable and use this as the primary source for driving decisions.

» **Continuously assess the risks of constituent applications.** Experience has demonstrated that software risk assessment is often neglected as a major aspect of portfolio management. Many organizations are unable to assess the threats that technical complexity presents to their software as a consequence of operating with poor data, inconsistent definitions, and conflicting points of view on need, priority, and value. As a result, companies make poor decisions, take unintended risks and mismanage related costs. APO explicitly includes a risk management process that covers the entire application inventory, and develops risk profiles for the components in the language of operations and financial consequences.
Establish strong program management and governance capabilities. Organizations that perceive IT management capabilities as not business critical also pay little attention to developing good IT governance. When business and IT stakeholders cannot agree on the principles, processes, roles, responsibilities, and controls, entropy grows rapidly, i.e. developers do not comply with standards, budget owners start rogue development projects, asset duplication proliferates, rationalization efforts are blocked and innovation budgets are wasted on integration and capacity expansion that may not be needed.

Employ a collaborative approach for decision-making between business and IT. What distinguishes APO as a proactive approach is its model of engagement between IT and business stakeholders that requires them to collaborate and clearly answer fundamental questions such as: How much should the organization spend on new applications versus managing existing ones? Which applications are business critical, and which are nice to have? What levels of performance does the organization expect from its applications? What levels of risk is the organization prepared to accept from developing new applications and maintaining the existing ones?

You have retired your legacy applications, so why do they continue to collect a paycheck?

Today’s organizations clearly understand the cost benefits and business drivers of application rationalization. What is less understood is that many legacy applications that have been decommissioned and retired are still running and generating significant hard and soft costs. This situation is about to get exponentially worse in the era of enterprise mobile apps where multiple platforms (iOS, Android, Windows Phone) rapidly iterate new releases. Organizations can find themselves supporting twelve or more versions of the same app in less than three years.

Despite its importance, application rationalization is sometimes only a “paper exercise” where applications marked for retirement are later found to be still running, if only for read-only purposes. These legacy applications are no longer adding business value but are still adding costs by —

» taking up server space
» contributing to the number and size of servers
» increasing data center power and cooling costs
» adding to data management and storage costs
» contributing to support costs
» retaining data relevant to possible litigation and court-ordered discovery processes

To help mitigate or avoid these hidden costs, an application lifecycle management strategy can be used to manage applications as a business asset, developing a retirement strategy even before the application is implemented.

Properly designed and implemented, an application lifecycle management strategy can help ensure that retired applications are truly “turned off.” For example, the retirement phase should include decommissioning steps such as the following:

» disable all user accounts on the legacy systems
» archive supported data
» switch off interfaces
» decommission the application interface
» confirm that the application is fully decommissioned

KPMG members firms offer proven methodologies like TBM to help organizations support business transformation and reduce costs with application lifecycle management. Based on criteria such as business value, cost, vendor, technical viability and governance, organizations can —

» define a strategy based on rapid-return, high-impact actions aligned with management priorities
» formulate business cases building on existing tools and models
» identify major legacy costs and develop a benefits realization plan to optimize savings
» communicate with business stakeholders and foster buy-in and commitment
» rationalize their application portfolio to ensure that only standardized processes and systems are in place
» plan, develop, and execute a decommissioning strategy to completely retire all legacy systems

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Enterprise level CIOs are naturally positioned to own, plan and lead APO initiatives, which typically span multiple lines of business, and require deep insights of what is technologically possible now and in the future. CIO leadership plays the most critical role in deploying the APO practices introduced in the previous section. This framework can help them to assess their organization and create the transition plan that will take them from reactive inventory management to proactive portfolio optimization.

Assessing the Opportunity – Five Steps

Stakeholders should view the development of the transition plan as a change management initiative that requires careful orchestration. The methodology employs five steps (Figure 2):

» 1. Mobilize. The first step in the transition plan is to develop the value proposition, a clear understanding of why it will be good for the organization. Whether the purpose is to increase business agility, reduce costs, realize efficiencies from post-merger integration or IT transformation, the planned actions must have impact on the bottom line. A credible financial business case coupled with a top-down driven sense of urgency makes APO real and prevents it from becoming a nice to have exercise. The goal from this initial step is to validate the purpose of the optimization effort, articulate the scope and objectives, agree on the guiding principles and approach, determine sponsorship and project governance, establish the project organization and plan, and define measurements in alignment with management expectations.

» 2. Build the fact base. This step begins with the identification of the applications in scope and the conceptual definition of the inventory. It also includes the mapping of the applications to business capabilities to identify their functionality and business criticality, as well as any interdependencies. The fact base also includes the identification of application owners, users, and suppliers; development and operational processes; and the estimation of end-to-end costs, i.e. from initial planning to disposal.

» 3. Develop an initial optimization assessment. The outcome from this step is the development and acceptance of a business case and high-level plan for action. It includes the functional, technical and financial analysis of the inventory to identify duplications and gaps. It also analyses the anticipated demand for new and existing applications to understand how the inventory aligns to business strategy, and determine its operational risks. This step also provides an assessment of the capabilities required to manage the inventory. Just because APO may present compelling benefits doesn’t mean that the organization is ready for it. Therefore a capability analysis of its readiness for change must be part of the assessment.

» 4. Refine the optimization recommendations. All stakeholders should carefully review the result of the initial optimization assessment and produce a refined list of candidate optimizations, prioritized by business criticality and impact, estimated benefits, costs, and risks. Additionally, at this time any obstacles to performing these individual actions and their probability of success are identified.

» 5. Develop the final optimization plan. Lastly, the actions agreed to by the stakeholders and sponsors from the previous steps are assembled into the transition plan and final buy-in is secured. While defining the scope and structure of the portfolio is mostly a function of architecture development, establishing the necessary management capabilities is a function of culture and competency. Sometimes, the gaps inherent in management capabilities may prevent realization of the technology actions as aggressively as desired. Implementing a framework like TBM can help to mature IT business management capabilities which are fundamental to the development of the portfolio management capabilities, however, is vital to success. Therefore the APO plan must explicitly address how to evolve them through change management actions. Based on business priorities the APO plan must align the technical and organizational actions by their order of precedence into a sequence of logical phases, which can be realistically implemented.
Figure 2: Approach to Assess Portfolio Optimization Opportunities

1. MOBILIZE
   - Confirm scope
     - Applications
     - Business areas
     - Options to consider
   - Confirm management objectives
     - Expectations
     - Guiding principles
     - Hypotheses/issues
     - Evaluation criteria
   - Finalize approach
     - Process modeling
     - Timing
     - Roles
     - Sponsorship
     - Governance
     - Communications

2. BUILD THE FACT BASE
   - Map applications to business capabilities
   - Understand business capability needs
     - Outstanding demand
     - Gaps
     - Strategic priorities
   - Assess applications
     - Functional
     - Strategic
     - Technical
     - Operational
   - Determine application costs of ownership
     - Operations
     - Maintenance
     - Development

3. DEVELOP AN INITIAL OPTIMIZATION ASSESSMENT
   - Develop initial optimization recommendations
     - Evaluate fact base
     - Consider guiding principles and evaluation criteria
   - Build cases for actions
     - Economic
     - Business capability enablement
     - Risk
     - Resourcing
   - Validate and prioritize with key stakeholders

4. REFINEMENTS
   - Refine recommendations considering:
     - Stakeholder input
     - Business cases for action
   - Confirm recommendations and priorities with key stakeholders

5. DEVELOP OPTIMIZATION PLAN
   - Develop optimization plan
     - Initiatives
     - Open issue resolution
     - Execution roadmap:
       - Timing
       - Resources
       - Sponsorship
       - Dependencies
       - Change management
   - Seek approval to proceed
Build the Essential Fact Base for Decision-Making

The fact base is a comprehensive representation of the inventory including information about the life-cycle of the applications and the processes and resources used to manage the applications (Figure 3). It is initially developed to provide decision-support input for the transition plan, but once the plan is implemented, the fact base is continually updated to provide insights for subsequent optimization steps. These insights include:

» **Business capability enablement.** The business capability model provides the base for defining the structure of the inventory. At a high-level it provides decision-support information that allows executives to balance investments and resources where they address strategic needs and provide returns. The mapping also provides important information about redundancies, overlaps and gaps. The capability model is also used to develop roadmaps for the evolution of applications, to understand where and when they need to be modernized, deactivated, consolidated or eliminated.

» **Application characteristics.** For each application a description package is created according to a standard template that includes information on business requirements, scope, service levels, functional and non-functional requirements, architecture, design, standards and compliance, consumption, as well as vendor, license, asset and inventory-related information.

» **Organizational and financial assessment.** This standard report provides insights on the capabilities required to manage the inventory. It includes an analysis of the business benefits, financial assessment, organizational assessment with details on skills, and competencies, suppliers and contracts.
Use Tactical and Strategic Actions for Sustainable Results

The transition plan consists of a unique mix of carefully assessed, planned and coordinated actions, which typically fall into two categories:

- **Tactical responses.** Most actions in this category are tactical by their nature as they combat entropy through technical application simplification, tuning, upgrades, rationalization, and platform consolidation and virtualization. The assessment of these types of action is a critical part of any APO initiative. The framework also helps executives evaluate a variety of outsourcing scenarios such as traditional outsourcing and cloud computing.

- **Strategic actions.** Organizations in pursuit of a sustainable portfolio optimization approach must also implement and continuously improve a core set leading practices, including architecture development, application life cycle management, risk management, program management and governance for sustainable optimization. Because the maturity level of these practices tends to correlate directly with the degree of success of any APO initiatives, recommendations on improving them are an essential part of the framework.

### Key Areas of Focus

- **Technical quality**
  - Performance incl. availability, problems
  - Architecture and design, incl. configuration, integration standards & compliance

- **Resource consumption**
  - Asset and inventory-related incl version, release, vendor
  - Request and enhancement backlog

- **Application support and run costs (license, maintenance, development, operation)**

- **Budgets**

- **Business capability model**

- **Application to capability mapping**

- **Strategic positioning**

- **Functional adequacy of applications supporting**

- **Outstanding demand and gaps**

- **Redundancies**
CRITICAL SUCCESS FACTORS FOR PORTFOLIO OPTIMIZATION

Organizations that adopt the management framework presented in this document benefit from APO beyond the promise of cost reductions realized through reactive rationalization and consolidation. The more sustainable benefits of a proactive APO approach – improved agility and increased value from technology investments – are linked to a few critical factors, which reinforce each other:

» **Validated fact base for decision-making.** In a time when senior executives prioritize technology as the most critical force shaping the business, the availability of a reliable fact base providing insights about the organization’s portfolio of applications becomes the CIO’s most critical business asset. While building this asset IT executives need to effectively leverage relevant facts, seek proxies for missing and difficult-to-obtain data, support estimates and proxies with sensitivity analysis, better collaborate with business stakeholders and efficiently deliver the insights need by the business to make technology related decisions.

» **Pragmatic management process.** The fact base provides not only information about the existing application inventory, but the target state that meets current and likely future business needs. It views applications as business assets, and provides insights about what executives need to know and do in order to pragmatically manage these assets through their life-cycle. The management process needs to involve the key business and IT stakeholders early and throughout and help the organization: build momentum; balance pace and objectives; recognize potential for changing business needs; and demonstrate value and achievable with tangible results.

» **Explicit management of application risks.** The availability of an updated fact base and sustainable portfolio life-cycle management process also enables the development of a repeatable process for assessing the risks of the software portfolio. By creating risk profiles for each application, executives can monitor, and assess the operational risks of application inventories, communicate issues and make better business decisions.

» **Joint business and IT governance.** IT governance is the conscious effort by senior executives to establish strategies, processes and measurements for the management of technology to improve business results. While transitioning from reactive inventory management to proactive APO, business and IT stakeholders need to jointly revisit the existing governance approach and management process and adapt them as needed. For example, when an organization decides to migrate applications to the cloud, business and IT executives will need to perform regular reviews with business users and service providers to balance the capabilities, services and pricing of each provider against future business requirements.

» **Executive commitment.** In most cases, securing executive commitment is the most basic prerequisite for making any IT initiative work, and often a difficult one to sustain. It requires regular communication, which CIOs need to develop with business stakeholders through day-to-day interactions and formal governance. Moreover, the communication process needs to provide decision-support insights from the fact base, covering business enablement, technical characteristics and trends, and organizational, financial and risk related information. And last but not least the fact base needs to be kept updated through data collected through the ongoing management process, which views application inventory as a business asset.

**Case Study - KPMG Helps Telecommunications Company Develop Roadmap**

A Fortune 500 telecommunications company recognized the need to streamline their IT platform. KPMG professionals implemented a strategy to analyze costs and savings at an aggregate level and focus on business capabilities. The team developed a roadmap and plan to reduce their application portfolio by 30 percent over a four-year period. After three years, the company had reduced its application portfolio by 25 percent. Key success drivers have been an executive mandate and consistent governance for target reductions in each function. These factors were backed by a clear understanding of the overall business process complexities inherent in the application portfolio.

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7 KPMG Governing the Cloud
Optimizing the Application Portfolio
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