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Combine ITIL and COBIT to Meet Business Challenges

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Abstract

IT organizations are under increasing pressure to meet the business goals of their companies. This challenge can be particularly daunting because it involves complying with regulations, such as the Sarbanes-Oxley Act (Sarbox) and Basel II. Compliance requires strong corporate governance capabilities that are demonstrable to outside auditors. Because IT plays such a major role in business processes, the IT organization not only creates complexity for the business, but at the same time, provides the means to demonstrate this compliance. Organizations rely on guidelines such as the IT Infrastructure Library (ITIL®) and Control Objectives for Information and related Technology (COBIT) to help understand and address these challenges.

ITIL and COBIT can enable organizations to achieve three objectives:

> Establish proven best practice IT service management processes to manage IT from a business perspective and achieve business goals, including that of compliance

> Put in place clear process goals, based on the organization's business goals, and provide a means of measuring progress against them

> Ensure effective IT governance and control at the process level, and enable IT to demonstrate that it meets or exceeds the requirements set forth by government or external regulations

There is, however, confusion in IT organizations concerning these frameworks. Some think they are two alternate approaches to the same goal, and others think they are mutually exclusive. Actually, they are highly complementary, and together provide greater value than using just one or the other. COBIT outlines what you need to do to meet these challenges and ITIL shows you how to get there.

This paper discusses how ITIL and COBIT can be used together. The paper:

> Presents overviews of ITIL and COBIT

> Describes how ITIL and COBIT are complementary

> Discusses the need to use systems-based solutions to ensure success in implementing these frameworks, and presents criteria that these solutions should meet

ITIL Overview

ITIL defines a guidance of best practice processes. First developed in the 1980s by the Office of Government Commerce (OGC), a branch of the British Government, ITIL defines processes at a high level. It is left to the organizations to implement the processes in the manner most suitable to their particular situations and needs.

ITIL is becoming a de facto standard worldwide as organizations adopt it as their guideline for establishing IT service management (ITSM) processes. A major thrust of ITIL is to promote the alignment of IT with the business. ITIL defines service quality as the level of alignment between the actual services delivered and the actual needs of the business. Organizations looking to receive certification in ITSM processes can now do so by meeting the new ISO 20000 standards, which were established last year.

Although ITIL covers a number of areas, its main focus is on ITSM. ITIL provides a comprehensive, consistent, and coherent framework of best practices for ITSM and related processes, which promotes a quality approach for achieving business effectiveness and efficiency in the use of information systems.

ITIL Books

ITIL consists of seven core books that define seven sets of processes covering seven different IT areas:

> Service Support
> Service Delivery
> Planning to Implement Service Management
> Information Communications Technology (ICT) Infrastructure Management
> Applications Management
> The Business Perspective
> Security

Two areas deal specifically with ITSM:

Service Support, consisting of:

> Incident management
> Problem management
> Change management
> Configuration management
> Release management
> Service desk function

Service Delivery, consisting of:

> Capacity management
> Availability management
> Financial management for IT services
> Service level management
> IT service continuity management (ITSCM)

For more information on ITIL, please visit:
www.ogc.gov.uk/index.asp?id=1000365

COBIT Overview

COBIT is an IT-focused governance and control framework created by the IT Governance Institute (ITGI) and Information Systems Audit and Control Association® (ISACA). Developed as an open standard, COBIT is being increasingly adopted globally as the governance and control model for implementing and demonstrating effective IT governance. The first, second, and third editions of COBIT were published in 1994, 1998, and 2000, respectively. COBIT is now in its fourth edition (COBIT 4), published in 2005.

COBIT IT Control Objectives

As shown in Table 1, COBIT establishes a set of 34 high-level IT processes divided into four categories:

> Plan and Organize (PO)

> Acquire and Implement (AI)

> Deliver and Support (DS)

> Monitor and Evaluate (ME)

COBIT High-Level IT Processes	
Plan and Organize (PO)	**Deliver and Support (DS)**
PO1 define a strategic IT plan	DS1 define and manage service levels
PO2 define the information architecture	DS2 manage third-party services
PO3 determine technological direction	DS3 manage performance and capacity
PO4 define the IT processes, organization, and relationships	DS4 ensure continuous service
PO5 manage the IT investment	DS5 ensure systems security
PO6 communicate management aims and direction	DS6 identify and allocate costs
PO7 manage human resources	DS7 educate and train users
PO8 manage quality	DS8 manage service desk and incidents
PO9 assess and manage IT risks	DS9 manage the configuration
PO10 manage projects	DS10 manage problems
Acquire and Implement (AI)	DS11 manage data
AI1 identify automated solutions	DS12 manage the physical environment
AI2 acquire and maintain application software	DS13 manage operations
AI3 acquire and maintain technology infrastructure	**Monitor and Evaluate (ME)**
AI4 enable operations and use	ME1 monitor and evaluate IT performance
AI5 procure IT resources	ME2 monitor and evaluate internal control
AI6 manage changes	ME3 ensure regulatory compliance
AI7 install and accredit solutions and changes	ME4 provide IT governance

Table 1. COBIT high-level IT processes

COBIT 4

COBIT 4 is an enhancement of, and fully compatible with, COBIT 3rd Edition. One of the main thrusts of this enhancement is closer harmonization of COBIT with ITIL. COBIT 4, which is focused on business orientation, does not invalidate any implementation or execution activities based on COBIT 3rd Edition. COBIT 4 consolidates the separate components of COBIT 3rd Edition (Executive Summary, Framework, Control Objectives, and Management Guidelines) into a single volume. Its target audience is senior business management, as well as senior IT management and auditors.

The COBIT 4 volume consists of four sections:

> Executive overview

> Framework

> Core content

> Appendices

The core content section is divided according to the 34 IT processes. Each process is covered in four subsections of about one page each. Each subsection describes:

> **A high-level control objective** — Includes a summary of process goals, metrics, and practices; a process description summarizing the process objectives; and a mapping of the process to the process domains, information criteria, and IT resources

> **Detailed control objectives of the process** — Provides a total of 214 detailed control objectives divided among the 34 high-level processes

> **Management guidelines** — Includes process inputs and outputs, RACI (responsible, accountable, consulted, and informed) chart, goal, and metrics

> **Maturity model** — Presents a maturity model for the process

The management guidelines are generic and action oriented. They are intended to help the organization answer management questions, such as:

- How far should the organization go, and is the cost justified by the benefit?
- What are the indicators of good performance?
- What are the critical success factors?
- What are the risks of not achieving the organization's objectives?
- What are others in the organization's industry doing, and how does the organization measure and compare?

In combination, the four sections of the core content provide guidance in controlling, managing, and measuring the process:

- Process inputs indicate what the process owner needs from others
- Process descriptions review what the process owner needs to do
- Process outputs are what the process owner must deliver
- Goals and metrics show how the process should be measured
- The RACI chart defines what must be delegated, and to whom
- The maturity model shows how the process can be improved

The appendices include various mappings and cross references, additional maturity model information, reference material, a project description, and a glossary of terms.

A Unifying Framework

COBIT is based on established frameworks, such as the Software Engineering Institute's Capability Maturity Model, ISO 9000, ITIL, and ISO 17799 (standard security framework, now ISO 27001). In fact, 13 of the 34 high-level control objectives are derived directly from the ITIL Service Support and Service Delivery areas.

Because of its high-level, broad coverage — and because it is based on many existing practices — COBIT can act as an integrator that brings disparate practices under one framework and helps link those practices to strategic business objectives.

COBIT is intended to be used at the highest level of IT governance. It provides an overall governance framework based on a high-level process model of a generic nature that makes it applicable to most organizations. Processes and standards that cover specific areas in more detail, such as ITIL and ISO 27001, can be mapped to the COBIT framework to create a hierarchy of guidance materials.

For more information on COBIT, please visit: www.isaca.org.

Leveraging the Combination

Much of the information in this section has been obtained from the document *Aligning COBIT, ITIL, and ISO 17799 for Business Benefit Management Summary* [1], a management briefing from the IT Governance Institute and the Office of Government Commerce. Although the document is based on COBIT 3rd Edition, it is still applicable because of the high level of compatibility between COBIT 3rd Edition and COBIT 4.

For a copy of the document, please visit: www.itsmf.com/index.asp.

Organizations wanting to adopt ITIL need an effective IT governance and control framework for a successful ITIL implementation. COBIT provides a broad-based governance framework that includes guidelines to help the organization drive toward the business requirements. COBIT also provides a mechanism for measuring the capability of the organization (people, processes, and technology) to achieve a successful outcome in meeting the business requirements, and for measuring performance.

Although COBIT is oriented to IT processes, it does not include process steps and tasks. It focuses on *what* an enterprise *needs* to do rather than *how* to do it. COBIT processes are focused on business requirements, and provide guidance in determining what is sufficient to meet these requirements.

ITIL, on the other hand, defines best practice processes for ITSM and shows how to get there. It focuses on method and defines a more comprehensive set of processes than COBIT, providing a roadmap for building processes.

COBIT and ITIL provide a valuable combination for helping an organization manage IT from a business perspective, an approach known as Business Service Management (BSM). ITIL provides guidelines in best practice ITSM processes geared toward aligning IT with the business. COBIT helps the organization mold the ITIL processes to the business needs and goals of the organization. It helps the organization to establish a start and an end point; that is, determining where the organization is now and where the organization wants to be. Knowing the goals, IT can then activate business objectives.

COBIT also provides an effective mechanism for managing and measuring progress in implementing ITIL processes by helping the organization understand its goals and measure progress in achieving them. In addition, COBIT provides a mechanism for measuring improvement, and continual improvement is a major thrust of ITIL.

Specifically, COBIT provides management directions for getting the enterprise's information and related processes under control, monitoring achievement of organizational goals, monitoring performance within each IT process, and benchmarking organizational achievement. These directions include:

- **Assurance Guide** — Provides an audit guideline for each of the high-level control objectives. The guideline permits review of IT processes against the detailed control objectives listed under the high-level control objective, providing management assurance and indicating potential areas of improvement.
- **Maturity models** — Helps the organization determine where it is today, and where it wants to be.
- **Critical success factors** — Presents the most important management-oriented implementation guidelines to achieve control over and within IT processes. In COBIT 4, the Key Management Practices are the main management practices that the process owner needs to perform to achieve process goals.
- **Key goal indicators** — Provides measures that tell management (after the fact) whether an IT process has achieved its business requirements, usually expressed in terms of information criteria.
- **Key performance indicators** — Defines measures that determine how well the IT process is performing in enabling the goal to be reached. They are lead indicators of whether a goal will likely be reached or not, and are good indicators of capabilities, practices, and skills. They measure the activity goals, which are the actions the process owner must take to achieve effective process performance.

Aligning COBIT, ITIL, ISO 20000, and ISO 17799 for Business Benefit Management Summary presents guidelines on how to best implement the combination of COBIT, ITIL, and ISO 17799 (now ISO 27001). The guidelines are divided into five areas:

- **Tailoring** — Tailoring the use of standards and practices to the specific needs of the organization
- **Prioritizing** — Prioritizing where and how to use standards and practices
- **Planning** — Establishing an implementation approach
- **Avoiding Pitfalls** — Providing examples of lessons learned to increase success
- **Aligning Best Practices** — Offering approaches to facilitate business benefits

The document also includes highly detailed mappings of ITIL processes to COBIT control objectives and vice versa.

Criteria for Systems-based Solutions

Implementing the combination of ITIL and COBIT is by no means a trivial task. It requires an organization to address high complexity in three areas: IT infrastructure, ITIL processes, and COBIT control objectives. Processes are often in silos supporting specific organizational entities, requiring a complex organizational structure to ensure compliance is maintained. Further complicating the problem is that the IT environment is in a constant state of flux. Therefore, manual processes are not viable. They are not sustainable because they are difficult to enforce and monitor. They are not cost efficient. And they depend on dedicated staff willing to maintain a reliable paper trail that can stand up to a rigorous compliance audit.

Organizations need to deploy systems-based ITSM solutions to help them conquer the complexity and establish sustainability. This section provides criteria that ITSM solutions should meet to help organizations speed the adoption of ITIL and COBIT.

Comprehensive and Integrated

Well planned systems-based solutions should cover the full spectrum of ITSM disciplines, including incident management, problem management, change management, configuration management, identity management, service level management, performance management, and capacity planning. What's more, the solutions should be integrated to drive maximum efficiency and permit integration of ITSM processes across disciplines.

Business Orientation

An especially important criterion of COBIT is that the solutions permit monitoring and management of the IT infrastructure from a business perspective. For example, in measuring service levels, the solution should be capable of measuring the overall availability and performance of business services, such as transactions, rather than only those of the individual components such as servers, network switches, and databases that combine to deliver the business services.

In supporting incident management and problem management, the solution should permit help desk technicians to respond to incidents and problems according to business priority. In change management, it is important for the change team to understand the business impact of changes to help minimize or even eliminate disruption to the business caused by changes. To provide these capabilities, the solutions must be able to determine the relationships of the IT infrastructure components to the business services they support, such as through a service impact model. The service impact model is the link between the IT configuration items, topology, and the vital business functions. Having this level of mapping ensures that all IT decisions are made in context of the impact to the business and not just IT.

Underpinned by a CMDB

A configuration management database (CMDB) is essential to an IT service management implementation based on both ITIL and COBIT. It provides a single source of reference and control across all IT disciplines to ensure that all processes are working from consistent and accurate data. The CMDB also provides a point of integration across individual solutions to permit integration of the ITIL processes supported by the solutions.

The CMDB should maintain information on the relationships of the IT infrastructure components to business services they support. This mapping is essential to address both the COBIT and ITIL emphases on aligning IT with the business. In addition, the CMDB should provide autodiscovery capability that can automatically build asset registers and populate the database with detailed information about the assets in the IT infrastructure, including their location and configuration, as well as their physical and logical interrelationships.

The CMDB should be capable of accepting and consolidating input from a variety of other discovery tools, thus permitting the organization to leverage its investment in these tools. This requires that the CMDB has an automatic reconciliation capability to fulfill the ITIL verification phase and ensure a single common source of the reference. A well designed CMDB also provides data integrity verification through such mechanisms as authorization checks, name consistency, and mandatory fields.

A CMDB built on a federated architecture enables the creation of a single, logical data store that consolidates data residing on multiple data sources. A federated architecture refers to a central repository that holds some data directly, while linking or connecting to other data in other sources. There are two types of data to federate:

- Data you might choose to federate if you want to track it, but not track it as often or as vigorously as key attributes of a configuration item (CI)
- Data referenced by a CI to provide additional content on extended functionality to the CI, but that is not actually part of the CI

A federated CMDB eliminates the need for a monolithic repository to which all data must be migrated. The CMDB should include an open API and enterprise integration capabilities that expose the CMDB to other business processes and tools supporting the IT environment. IT should also offer a high level of scalability to allow its use by large enterprises.

Support for ITIL and COBIT

To help IT meet business goals, the solution should be capable of helping IT automate and integrate ITIL best practices in line with business requirements. This includes the ability to deliver out-of-the-box support for ITIL processes and functions.

Appendix A includes a table that shows the primary criteria to look for when selecting systems-based ITSM solutions to help in ITIL implementation. To verify ITIL compatibility, the solution should be validated as ITIL-compatible by an independent organization, such as Pink Elephant. (ISO 20000 certification is the proof point that an organization has reached an ITIL level of adoption.)

Technology plays an indispensable role in helping companies achieve the COBIT control objectives. As a result, it's important that the solution also support COBIT. Appendix B includes a table that shows the primary criteria to look for in gauging how effectively a solution can help IT meet COBIT control objectives.

Conclusion

IT organizations are facing the challenging, but necessary, transition to manage IT based on business priorities. They are looking to frameworks, such as ITIL and COBIT, to help them meet the challenge, but there is some confusion about how best to use them.

ITIL and COBIT are complementary and can be used together to facilitate the transition to Business Service Management. ITIL provides a framework for best practice processes in ITSM that help IT manage resources from a business perspective. COBIT provides the framework for setting business goals and objectives, and measuring the progress of "ITIL-izing" the organization to meet those goals and objectives.

With the combination of ITIL and COBIT, IT can meet business objectives and reap the resulting rewards, including the delivery of higher quality business services at lower costs to the organization.

For more information about BMC solutions that help organizations speed the adoption of ITIL and COBIT, please visit: www.bmc.com/itil

Footnote

1 *Aligning COBIT, ITIL, and ISO 17799 for Business Benefit: Management Summary,* IT Governance Institute, Office of Government Commerce, IT Service Management Forum, 2005

Appendix A

Table A shows the primary criteria to look for when selecting systems-based ITSM solutions to help in ITIL implementations.

Service Support	
Service Desk	Provide a single integrated solution for the management and resolution of all requests submitted to the service desk Employ certified best practices and IT process alignment to consolidate, log, track, manage, and escalate all types of incidents and problems from users, third-party organizations, and other IT applications, such as event management and security Support both centralized and distributed service desks with a consolidated service desk function Provide multichannel (Web, phone, e-mail, desktop client) customer request interface for information, installs, moves, additions, changes, incidents, and problems
Incident Management	Enable the IT organization to track and solve incidents in a procedural manner, as specified by the ITIL incident management guidance Provide a classification system for all incidents Provide an integrated, searchable knowledge base of common solutions and workarounds to known errors and problems Provide an escalation system that automatically prioritizes and routes incidents according to service level agreements (SLAs) Help IT identify the business impact of incoming incidents, and identify dependent IT infrastructure related to the configuration item (CI) impacted by the incident Provide real-time information to alert when incident-related SLAs are about to be exceeded
Problem Management	Directly support ITIL-compatible problem management processes Integrate with incident management and change management processes to avoid data duplication and enhance process flow Provide a classification system that creates problem records separate from incidents and tracks them according to ITIL Automate matching of incidents with problems and known errors Track and monitor problems through defined stages with audit records for previous work Enable routing and escalation of problems by urgency and severity code, to the location, work group, or individual
Change Management	Directly support ITIL-compatible change management processes with capabilities that expedite changes without the loss of service Track changes from the moment they are proposed, through the implementation in the live environment, to the evaluation of the end result Provide the ability to track change requests through stages of review, authorization, and implementation with routing and approval path determined by various criteria Facilitate gathering changes from all identified stakeholders into a change management database (including planning changes based on priority, impact, or urgency) Permit determination of business and technical impact, impact on other services, the effect of not implementing the change, and the resources required Provide support for back out procedures if incidents arise as a result of an implemented change Provide a classification system for accepting, logging, and storing change requests that track information, such as category of change, priority, reason, scope, and the nature of change request Maintain relationship information in the change management database that identifies risks to the change requests Provide priority, urgency, and impact fields as described by ITIL
Configuration Management	Provide autodiscovery of a broad range of CIs, including the physical and logical relationships among them Populates the CMDB with all baseline and deviation configurations to provide full asset lifecycle information Log historical changes that are available for audit purposes Provide standardized and easily configured reports that allow analysis of standards compliance, security audits, asset configurations, warranty management, and financial cost and recovery Implement the control function in ITIL configuration management in which all CI updates result from a change request Provide software release capabilities that implement the verification function in ITIL configuration management

Service Support	
Release Management	Directly support the ITIL release management process for patch management, operating system (OS) migration, application management, and content management Integrate with change management for continual process handling throughout the lifecycle of the change to completion Integrate with the CMDB to ensure a 360-degree view of the affected CIs and the dependencies or outstanding issues known, enabling risk review before release Integrate with the help desk solution to automate the raising of incidents Provide the capability to define business, governance, and best practice process rules for a software release Provide the ability to automatically back out or restore a failed release, ensuring that the user is unaffected Include escalation capabilities for adherence to SLAs and improved service Enable systematic management of the risk and impact of proposed releases, and ensure that they adhere to predefined rules and are monitored and managed in an automated controlled manner
Service Delivery	
Service Level Management	Directly support the service level management process as defined by ITIL Enable management of the entire lifecycle of SLA processes — from defining agreements and monitoring compliance, to collecting and analyzing performance data, to refining the services offered to ensure that expectations are met or exceeded Maintain SLA records that contain information on the IT provider, customer, specific services, and specific service performance that can be created, changed, and deleted Track all service desk requests to contractual parameters Provide proactive alerts that can identify issues and trigger actions prior to service levels being violated Provide predefined reports that show performance of IT services compared to SLAs
Financial Management for IT Services	Support ITIL financial management guidance Capture the costs associated with delivering the service, as required by the SLAs, to support service level management applications and processes Ensure that planned, required, and forecasted capacity expenditures are reviewed against budgets, to support capacity management applications Ensure that all pertinent information related to the IT service management functions, as defined by ITIL, is available for analysis in the CMDB
Capacity Management	Support capacity management processes and disciplines outlined within ITIL Monitor all IT infrastructure components Integrate with the service desk to raise incidents for formal resolution Integrate with the CMDB to facilitate analysis Integrate with service level management solution to help ensure that capacity meets the business requirements and demands Enable mapping of CIs to business services Integrate with change and release solutions, ensuring ITIL compliance for the main phases of monitoring, analysis, tuning, and implementations Provide historical trending and usage reporting to enable high-availability resource optimization Provide tuning capability to help ensure that CIs are functioning optimally Provide visibility into the capacity requirements from a business perspective, such as by using service impact modeling

Service Delivery	
Availability Management	Permit monitoring and review of ITIL's six main areas within availability management: availability of components, reliability, maintainability, security, serviceability, and vital business functions Maintain performance and availability data in the CMDB Provide effective reporting on service and component availability, based on agreed-upon SLAs Enable forecasting and input into capacity management to protect the future availability needs and demands Enable determination of the effect of availability of the CIs on business processes and functions, such as by service impact modeling Automate the generation and tracking of trouble tickets to speed incident resolution, and update problem ticket status, based on events received from monitoring tools Provide integration that includes ICT infrastructure management and continuity management
IT Service Continuity Management	Support ITIL continuity management guidance Have access to data, through the CMDB, from all the necessary key ITIL functions: configuration management, service desk and incident management, change management, availability and capacity management, service level management, and ICT infrastructure management Integrate with the service level management solution to ensure that the agreed services are restored and available within the timeframe specified in the SLAs, operating level agreements (OLAs), and the underpinning contracts

Table A. Criteria for ITIL support

Appendix B

Table B shows the primary criteria to look for when selecting systems-based ITSM solutions to help in COBIT implementation.

COBIT	
Plan and Organize (PO)	Provide tools to automatically discover the current IT infrastructure and CIs (IT services, hardware, software, users, relationships, etc.) Provide a strong CMDB foundation to store, manage, and reconcile discovery information Include tools to analyze and view CMDB information from an IT service perspective Include asset and financial information about the costs associated with each CI Allow for identification of risk through the relationships among critical IT services and CIs, and correlation with past incidents and problems Support the management of IT resources, such as staff, budgets, and hardware
Acquire and Implement (AI) AI1 identify automated solutions AI2 acquire and maintain application software AI3 acquire and maintain technology infrastructure AI4 enable operations and use AI5 procure IT resources	Manage the full lifecycle of IT asset procurement, placement, configuration, allocation, maintenance, and retirement Capture the costs associated with the entire lifecycle of IT assets (hardware and software) Ensure that all pertinent information related to the IT assets is maintained in a CMDB
Acquire and Implement (AI) AI6 manage changes AI7 install and accredit solution and changes	Track changes from the moment they are proposed, through the implementation in the live environment, to the evaluation of the end result Provide the ability to track change requests through stages of review, authorization, and implementation, with routing and approval path determined by various criteria Facilitate gathering changes from all identified stakeholders into a change management database (including planning changes based on priority, impact, or urgency) Permit determination of business and technical impact, impact on other services, the effect of not implementing the change, and the resources required Provide support for backout procedures if incidents arise as a result of an implemented change Provide a classification system for accepting, logging, and storing change requests that track information, such as category of change, priority, reason, scope, and the nature of change request Maintain relationship information in the change management database that identifies risks to the change requests Provide an integrated release change management solution for continual process handling throughout the lifecycle of the change to completion Integrate with the CMDB to ensure a 360-degree view of the CIs and the dependencies or outstanding issues known, supporting the change process and enabling risk review before release Integrate with the help desk solution to automate the raising of incidents Provide the capability to define business, governance, and best practice process rules for a software release Provide the ability to automatically back out or restore a failed release, ensuring that the user is unaffected Include escalation capabilities for adherence to SLAs and improved service Enable systematic management of the risk and impact of proposed releases, and ensure that they adhere to predefined rules and are monitored and managed in an automated controlled manner Enable examination of system performance before it goes live, by deploying a transaction management solution to track and measure the transaction performance

COBIT	
Deliver and Support (DS) DS1 define and manage service levels DS2 manage third-party services	Enable management of the entire lifecycle of SLA processes —— from defining agreements and monitoring compliance, to collecting and analyzing performance data —— to refining the services offered, to ensure that expectations are met or exceeded Maintain SLA records that contain information on the IT provider, customer, specific services, and specific service performance that can be created, changed, and deleted Track all service desk requests to contractual parameters Provide proactive alerts that can identify issues and trigger actions prior to service levels being violated Provide predefined reports that show performance of IT services compared to SLAs
Deliver and Support (DS) DS3 manage performance and capacity	Support capacity management processes and disciplines outlined within ITIL Monitor all IT infrastructure components Integrate with the service desk to raise incidents for formal resolution Integrate with the CMDB to facilitate analysis Integrate with service level management solution to help ensure that capacity meets the business requirements and demands Provide the mapping of CIs to business services Provide historical trending and usage reporting to enable high-availability resource optimization Provide tuning capability to help ensure that CIs are functioning optimally Provide visibility into the capacity requirements from a business perspective, such as by using service impact modeling
Deliver and Support (DS) DS4 ensure continuous service	Have access to data, through the CMDB, from all the necessary key service management functions: configuration management, service desk and incident management, change management, availability and capacity management, service level management, and infrastructure management Integrate with the service level management solution to ensure that the agreed services are restored and available within the timeframe specified in the SLA, OLA, and the underpinning contracts Note: Information cited in the Availability Management section of Appendix A also applies here. In summary, this includes: the following capabilities: permit monitoring and review of ITIL's six main areas within availability management; maintain performance and availability data in the CMDB; provide effective reporting on service and component availability based on agreed-upon SLAs; enable forecasting and input into capacity management; enable determination of the effect of availability of CIs on business processes and functions; and automate the generation and tracking of trouble tickets.
Deliver and Support (DS) DS5 ensure systems security	Provide support for the various security disciplines as defined by ISO 27001 and ISO 17799 Provide a centralized management of identities and access privileges Enable bidirectional provisioning of various security target systems and virtual consolidation of multiple identity stores and information resources Facilitate single-sign-on (SSO) for both Web and non-Web environments Enable self-service password management and password synchronization procedures Provide intrusion detection from external and internal sources Integrate with help desk to provide a centralized operational and security incident control Allow the automatic and timely provisioning of security patches and settings Provide automatic corrective actions in response to security policy violations
Delivery and Support (DS) DS6 identify and allocate costs DS7 educate and train users	Capture the costs associated with delivering the service as required by the SLAs to support service level management applications and processes Ensure that planned, required, and forecasted capacity expenditures are reviewed against budgets, to support capacity management applications

COBIT	
Deliver and Support (DS) DS8 manage service desk and incidents	Enable routing and escalation of problems by urgency and severity code to the location, work group, or individual Provide a single integrated solution for the management and resolution of all requests submitted to the service desk Employ certified best practices and IT process alignment to consolidate, log, track, manage, and escalate all types of incidents and problems from users, third-party organizations, and other IT applications, such as event management and security Support both centralized and distributed service desks with a consolidated service desk function Provide multichannel (Web, phone, e-mail, desktop client) customer request interface for information, installs, moves, additions, changes, incidents, and problems Enable the IT organization to track and solve incidents in a procedural manner, as specified by the ITIL incident management guidance Provide a classification system for all incidents Provide an integrated, searchable knowledge base of common solutions and workarounds to known errors and problems Provide an escalation system that automatically prioritizes and routes incidents according to SLAs Help IT identify the business impact of incoming incidents, and identify dependent IT infrastructure related to the CI impacted by the incident Provide real-time information to alert when incident-related SLAs are about to be exceeded
Deliver and Support (DS) DS9 manage the configuration	Provide auto discovery of a broad range of CIs, including the physical and logical relationships among the CIs Populate the CMDB with all baseline and deviation configurations to provide full asset lifecycle information Log historical changes that are available for audit purposes Provide standard and easily configured reports that allow analysis of standards compliance, security audits, asset configurations, warranty management, and financial cost and recovery
Deliver and Support (DS) DS10 manage problems	Integrate with incident management and change management processes to avoid data duplication and enhance process flow Provide a classification system that creates and tracks problem records, separate from incidents Automate matching of incidents with problems and known errors Track and monitor problems through defined stages with audit records for previous work
Deliver and Support (DS) DS11 manage data DS12 manage the physical environment	Enable management of enterprise database platforms consistently across all types of databases and platforms, such as, z/OS and distributed server environments Provide automation to support a variety of database management activities, including: monitoring and alert generation, schema administration, data change management, performance tuning, space management, database security management, backup and recovery, and database archiving Integrates with general IT change management, backup and recovery, and access management
Deliver and Support (DS) DS13 manage operations	Manage critical batch processes from a business perspective Proactively detect potential delays and errors in the batch business process, to avoid interruption of financial services Enable IT to prioritize the resolution of delayed or failed batch business processes, based on their impact on critical business services Ensures the on-time completion of batch processing and availability of IT services

COBIT	
Monitor and Evaluate (ME) ME1 monitor and evaluate IT performance ME2 monitor and evaluate internal control ME3 ensure regulatory compliance ME4 provide IT governance	All IT processes must contain logs, audit trails, and reports to assist in evaluating and monitoring IT performance Provide automation of internal control Automate the continual evaluation of internal control effectiveness Provide a centralized auditable IT configuration repository (a CMDB) that includes updated information through automated discovery, to allow for ongoing risk analysis and mitigation Provide support for IT Governance best practices, such as ITIL, ISO 20000, and ISO 27001 Provide specific support for regulations, such as Sarbox and Basel II

Table B. Criteria for COBIT support

About BMC Software

BMC Software helps IT organizations drive greater business value through better management of technology. Our industry-leading Business Service Management solutions ensure that everything IT does is prioritized according to business impact, so IT can proactively address business requirements to lower costs, drive revenue and mitigate risk. BMC® solutions share BMC® Atrium™ technologies to enable IT to manage across the complexity of diverse systems and processes — from mainframe to distributed, databases to applications, service to security. Founded in 1980, BMC has offices worldwide and fiscal 2005 revenues of more than $1.46 billion. BMC Software. Activate your business with the power of IT. For more information, visit www.bmc.com.

About Peter Hill

Peter Hill is an IT Governance consultant with ten years experience. He is currently a director of the IT Governance Network, a company specializing in IT Governance consulting and training. Hill has extensive experience with COBIT, having used it as the umbrella model to implement IT governance, process improvement, compliance, and manage risk activities for a number of clients. Hill has been at the forefront of information technology governance since the early 1990s. He has extensive knowledge across many of the areas within IT Governance and started working with COBIT in 1994. Recently, Hill participated as a member of the COBIT 4.0 development team. He has contributed to a number of publications on IT governance and COBIT.

About Ken Turbitt

Ken Turbitt has broad experience in best practices management, IT, and consulting. Turbitt is the Global Best Practices Director for BMC Software. He is focused on best practices for IT services, such as ITIL, COBIT, and eTom, among others, and presents this information to clients, partners, and analysts. He has held an ISEB ITIL Manager/Masters qualification for more than ten years and has been a Gartner-qualified TCO consultant for more than seven years.

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