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Introduction to Realtime Publishers

by Don Jones, Series Editor

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Chapter 1: The Business Value of IT Operations Service Life Cycle Management

What do you think of when you think of a "service"? Think about services where you work, you…

- Flip a switch, the light goes on;
- Turn a faucet handle, the water flows; and
- Press an elevator button, the elevator stops at your floor.

You expect for these basic services to be there; to be reliable. These services weren't always reliable in the years when they were first used. What made them reliable was applying consistent, best practice continual service improvement practices.

These rather mundane basic business office services have become reliable as a result of refining and improving technologies, coupled with evolving and improving facilities service management. Now these once unreliable and flawed facilities services are as efficient and consistent as possible, and are just expected to be working within our business environment. The expectations that these services will work all the time make them business utilities because they support and perform service functions that are vital to supporting and improving business.

In many ways, information technology (IT) systems and network services and technologies are at approximately the same stage in evolution as the electricity, plumbing, and lift utility mechanics were in around the 1930s to 1950s; they work most of the time and eventually deliver the services necessary to support business, but in many organizations, IT services are not considered to be completely reliable. In fact, oftentimes, the IT services are not coordinated across the enterprise to the maximum business benefit.

Effective and dependable IT services deliver value to the enterprise customers and help business units to achieve their goals, without requiring each of the business units to address the specific management risks and costs for each of the IT services. Automating IT services can increase business value by making IT services more reliable and consistent and shortening service delivery times. IT has become a utility within most businesses today. Unfortunately, IT is often implemented and managed in such a way that it is not reliable, is uncoordinated throughout the enterprise, and often seems to do more harm than good to the business in the opinions of the enterprise network users, who are IT's customers.

IT services deliver value to the business. If IT does not bring value to the business, it is not a service but rather an expensive business liability.

Addressing IT Service Management

IT leaders responsible for IT service management must be able to answer the following questions if they expect to be effective:

- Do you know and understand your business objectives?
- Do you address each problem, incident, and so on, with a consistent approach or in an ad hoc manner?
- Do you know who your customers are?
- Do you know what your customers need?

> 🕮 As defined by "The Official Introduction to the ITIL Service Lifecycle" from the Office of Government Commerce (OCG), a customer is, "Someone who buys goods or Services. The Customer of an IT Service Provider is the person or group that defines and agrees the Service Level Targets. The term Customers is also sometimes informally used to mean Uses, for example 'this is a Customer-focused Organization."

- Are you always reacting to address IT issues? Or, do you also anticipate and prepare IT plans?
- Do you follow consistent IT service management practices?
- Do you use automation tools to make your IT services more effective and efficient?

Whether they even realize it, all successful IT leaders use the Deming Quality Cycle; Plan, Do, Check, Act (PDCA), throughout continual IT service improvement and life cycle quality controls. ITIL V3 depends heavily upon using PDCA.

> 🕮 PDCA is discussed in more detail later in this chapter.

To be effective and successful as an IT service management leader, you must:

- Know and understand what comprises an IT service
- Know and understand the IT service management life cycle
- Know and understand the business benefits of IT service management
- Know where you are within the maturity of your IT service management program
- Know where you want to get to with regard to the maturity of your program
- Know the training that you, your staff, and your customers need to make your IT service management program as mature and effective as possible
- Know and understand the true business benefits of IT service management
- Know and understand the benefits of using tools to automate IT service management functions

The goal of this book is to help you with each of these important issues.

An Overview of Using Frameworks

Essentially, a framework is a collection of controls organized to highlight what needs to be done at various levels of the organization. It's an outline, if you will, that tells what but not how, because that level of detail is something you must fill in based upon your own organization and its unique environment. Organizations are increasingly realizing the value of frameworks and more often using them to increase business efficiency and integrate supporting controls into the business processes.

As they relate to conformity and compliance, there are many frameworks that are currently being used throughout the world to make many businesses more effective and efficient with a number of compliance and risk management issues. The following list highlights some of the most popular frameworks:

- Control Objectives for Information and related Technology (COBIT)—Created in 1995 as an IT audit framework, COBIT has evolved into an IT management framework used extensively by IT and Sarbanes-Oxley (SOX) auditors. COBIT is governed by the IT Governance Institute.
- Committee of Sponsoring Organizations (COSO)—A voluntary private-sector organization formed in 1985 that provides executive management with frameworks and guidance to establish more effective, efficient, and ethical business operations on a global basis. COSO concepts can be used by IT areas to help with risk identification and mitigation activities.
- ISO/IEC 20000—Used to provide more effective managed services delivery through an integrated process approach to best meet business and customer requirements. The concepts can be adopted within IT to improve IT managed services.
- ISO/IEC 27001—The specification for an information security management system (ISMS) which, in 2005, replaced the old BS7799 standard, which was originally established in 1995. This is probably the most widely adopted and actively used set of security guidelines by IT practitioners throughout the world.
- Capability Maturity Model Integrated (CMMI)—Created by the Software Engineering Institute at Carnegie Mellon University in 1991, CMMI was initially developed to track the maturity of software development processes but then evolved into being used to measure the maturity of any type of process. This can be used nicely to determine the maturity of IT processes.
- IT Infrastructure Library (ITIL)—What is now called ITIL was developed in a project during the mid-1980s, directed by Peter Skinner and John Stewart at the UK Government's Central Computer and Telecommunications Agency (CCTA). It was originally titled "Government Information Technology Infrastructure Management Methodolog" (GITMM) and over several years eventually expanded to 31 volumes of books, each of which covered an IT management topic. It has evolved to ITIL V3, published in May 2007, and is comprised of five key volumes.

All these frameworks, and others, can be used to business' benefit and to make IT service management more consistent and more predictable. Using frameworks within IT service management makes business processes that depend upon IT more predictable.

The Possibilities of ITIL V3

All the previously listed frameworks can provide benefit to any type of business organization. However, throughout this guide, I will be focusing on ITIL V3 as it relates to IT management services. Why? Because it is becoming increasingly important for IT services to be closely aligned and integrated with the business, and ITIL V3 fits the bill nicely by helping IT leaders to establish a business management approach and discipline for IT service management. ITIL V3 does a good job of mapping out the IT activities and services and relating them to the associated and similar aspects of running a business. In a nutshell, ITIL V3 helps to transform IT services into valuable business services.

The release of ITIL V3 brought much speculation in the IT management world. Would it clarify the methodologies? Would it make things more complicated and unworkable?

ITIL was updated to V3 by an international group of expert contributors. The new version features significant modifications designed to speed and simplify a business's implementation, adaptation, and application of service management processes that, if properly followed, result in operational improvement and service excellence.

ITIL V3 is a fantastic improvement, and truly takes the issues that were covered within ITIL V2 out of their silos and integrates them into the wide spectrum of business processes. In addition, V3 more clearly demonstrates how IT must support the business.

ITIL V2 Evolution to V3

In ITIL V3, the ITIL V2 books have been boiled down into five core IT services management guidance topics for each phase of the IT services management life cycle. Each topic incorporates all the process topics that were within ITIL V2, and more clearly demonstrates how each of these processes fit into the IT services management life cycle. The following list provides a brief review of each of the IT services management and support processes within ITIL V2.

ITIL V2 Service Support focuses on IT services users. The processes involved include:

- Service Desk / Service Request Management—The goal is to provide a single point of interface for other IT service management processes to improve customer response and issue resolution.
- Incident Management—The goal is to restore normal service operation as quickly as possible and minimize the adverse effect on business operations to ensure the best possible levels of service quality and availability.
- Software Asset Management—The goal is to reduce IT expenditures, human resource overhead, and risks inherent in owning and managing software assets, and in turn improve return on investment (ROI) and business application availability.
- Problem Management—The goal is to resolve the root cause of incidents and minimize the adverse impact of incidents and problems on business that are caused by errors within the IT infrastructure, and to prevent recurrence of incidents related to these errors.
- Configuration Management—The goal is to track all the individual Configuration Items (CI) in a system, improving IT management consistency throughout the enterprise and ensuring necessary IT actions do not get lost through the cracks.

- Change Management—The goal is to ensure that standardized methods and procedures are used to most efficiently handle all changes, minimizing the impact of change-related incidents and improving day-to-day operations.
- Release Management—The goal is to consistently and most efficiently roll out software changes and new software, ensuring appropriate design, effectively communicating the changes to customers, and controlling implementations to lessen the impact upon business.
- Service Level Management—The goal is to ensure that the agreed IT services are delivered when and where they are supposed to be, coordinating availability management, capacity management, incident management, and problem management to ensure the required levels and quality of service are met throughout the entire business enterprise.
- Capacity Management—The goal is to match IT resources to business demands to support the optimum and most cost-effective provision of IT services, improving and making more efficient budget expenditures.
- IT Service Continuity Management—The goal is to ensure the availability and rapid restoration of IT services in the event of a disaster, improving the time it takes for the enterprise to get back to business as usual.
- Availability Management—The goal is to sustain IT services availability to support the business at a justifiable cost, resulting in improved availability of all IT services when and where business needs it.
- Financial/Operational Management for IT Services—The goal is to meet customer satisfaction and employee satisfaction goals, along with costs/productivity goals and organizational maturity, improving decision-making, financial compliance and control, and operational control, and ensuring proper funding for IT to best support business.

ITIL V2 Service Management processes provide practitioners with the framework to align business needs and IT provision requirements, and include the following processes:

- Security Management—The goal is to incorporate information security throughout the entire IT management organization to ensure, as much as possible based upon risk, information safeguards are in place, improving compliance and risk reduction. ITIL V2 based the security management upon ISO/IEC 17799, which has since been renamed to ISO 27002.
- Infrastructure Management—The goal is to recommend best practices for requirements analysis, planning, design, deployment, and ongoing operations management and technical support of the IT infrastructure, improving IT, which in turn improves business.
- Deployment Management—The goal is to provide a framework for the successful management of design, build, test, and rollout of IT projects to improve the time to production while improving the quality of the IT products and helping to ensure the fewest problems possible related to the deployment.
- Operations Management—The goal is to provide effective day-to-day technical supervision of the IT infrastructure to improve the delivery of IT services and ensure service level agreements (SLAs) are met, thus supporting business objectives.

- Technical Support—The goal is to provide a range of IT specialist functions, such as Research and Evaluation, Market Intelligence, Proof of Concept and Pilot engineering, specialist technical expertise, and documentation creation. Effective enterprise Technical Support improves systems and applications availability and helps business work continually and efficiently.
- The Business Perspective—This ITIL V2 process volume provides best practices to address issues often encountered in understanding and improving IT service provisioning and improves IT personnel's understanding of how their work actually impacts the business.
- Application Management—The goal is to improve the overall quality of IT software development and support through the life cycle of software development projects, with particular attention to gathering and defining requirements that meet business objectives.

ITIL V3 is easier for IT managers to follow and implement because it corresponds more closely to the life cycle of how business operates and is managed. It provides more of a roadmap for IT leaders to follow. The ITIL V3 publications update most of ITIL V2 in addition to extending the scope of ITIL in the domain of service management.

ITIL V3 basically includes all the ITIL V2 processes and the addition of significant other processes into five defined phases of IT services management:

- Service Strategy—During this phase, you establish the overall strategy for IT services and IT Management, providing guidance for how to view IT service management as not only an organizational capability but also a strategic asset.
- Service Design—This phase is used to take the Service Strategy plans and turn them into roadmaps and blueprints for actually delivering IT services to meet business objectives.
- Service Transition—In this phase, you establish the capabilities for transitioning new and changed services into production service operation.
- Service Operation—This phase embodies the day-to-day IT services management operations, including how to be effective and efficient in the delivery and support of services to ensure the most value for customers as well as service providers.
- Continual Service Improvement—This phase provides the guidance to create and maintain value for all customers by constantly improving design, transition, and operation of IT services. A feedback system based upon Deming's PDCA model (see Figure 1.1) is used to receive input for improvements from all planning perspectives. The longer organizations use PDCA, the more IT services will improve, and the more mature the program, as outlined by CMMI, will become.

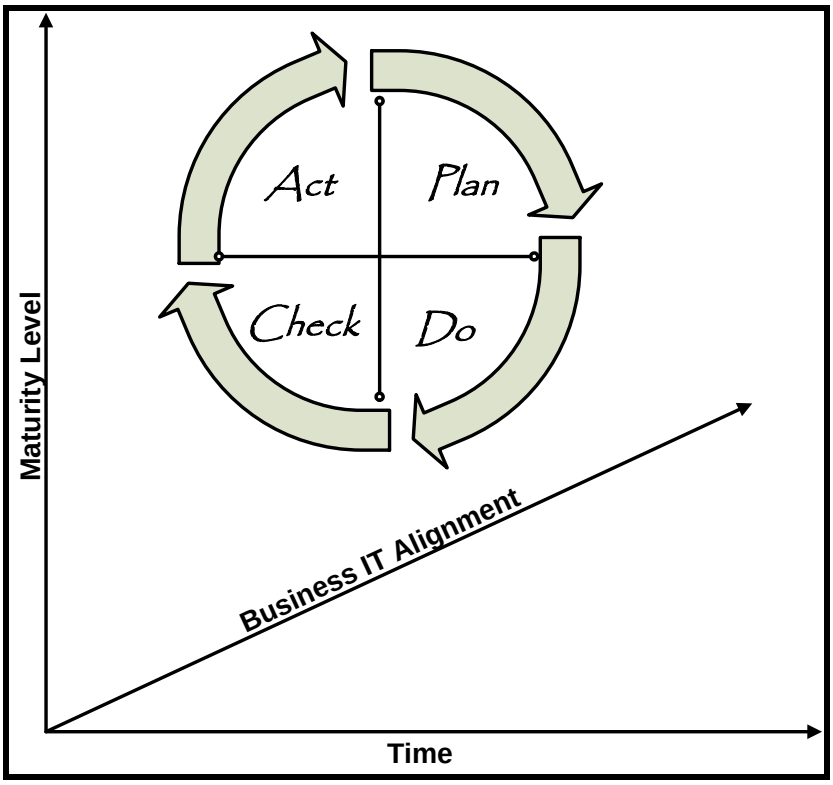

Figure 1.1: PDCA as it applies to ITIL V3.

ITIL V3 Contributes to Continual Improvement

ITIL V3 provides practical and actionable methods to evaluate and improve the quality of IT services, advancing the overall maturity of the IT service management life cycle. Continual improvement can be made and measured within three enterprise levels:

- Overall IT services management health
- Continual alignment of the IT services portfolio with current and future business needs
- Continual maturity advancement of the IT processes necessary to support business processes

By using an integrated IT service life cycle, IT leaders can review, analyze, and make improvement recommendations for each of the five life cycle phases. ITIL V3 also focuses on using classic use cases and processes to define required IT functionality and objectives as well as to design tests.

> 🕮 As defined by the Office of Government Commerce, use cases "define realistic scenarios that describe interactions between Users and an IT Service or other System."

ITIL V3 summarizes the continual improvement process in six steps:

1. Understand the high-level business objectives and align the IT services management vision with these objectives along with the IT strategies.
2. Assess the current IT services management situation to establish an objective baseline for where the organization is currently. This baseline assessment should include analysis of the current business posture, organization operations, people, processes, and all technologies used.
3. Understand and agree upon the improvement priorities to establish specific goals and realistic timelines.
4. Document a detailed continual services improvement plan to support more effective and mature high-quality IT services provisioning through the use of IT service management processes.
5. Ensure measurements and metrics have been established to track milestones as they are achieved; ensure process compliance is at an acceptable, and high, level; and ensure business objectives and priorities are successfully being met as defined by SLAs.
6. Ensure the IT services management changes are embedded throughout the enterprise and within all processes.

Consider the Service Desk

The Service Desk is progressively more often seen as a business function rather than a technical function. IT service management leaders must ensure that the Service Desk is aligned accordingly.

Service Desk operation must contribute to the enterprise business goals, demonstrating that it is not simply an overhead or cost center, but that it is a true front-line business asset that allows for the quick and efficient gathering of data from network users over time to not only solve problems on a call-by-call basis but also improve IT service management by eliminating those problems at the source and improving IT services in support of business needs. The Service Desk can dynamically provide data as a part of a process of continual IT service management change and improvement.

The Service Desk is a critical component of the IT department and is the single point of contact of IT customers on a day-to-day basis. The Service Desk typically handles all incident and service requests, and usually uses specialized software automation tools to log and manage all these events.

The Service Desk is often underappreciated, but it is important for IT leaders to understand that a good Service Desk can, and often does, compensate for deficiencies throughout other parts of the IT organization. Likewise, a poorly managed and executed Service Desk, or even the absence of a Service Desk, will reflect poorly on the rest of the IT organization, even if the IT organization is in all other ways effective.

The primary goal of the Service Desk is to restore normal service to the IT customers as quickly as possible with minimum business impact. Businesses can use ITIL V3 concepts to improve their Service Desk service and value to the organization. For example, restoring normal service may involve fixing a technical fault, fulfilling a service request, or answering a query.

By viewing their responsibilities in terms of supporting business, and as promoted by ITIL V3 concepts, a Service Desk becomes more valuable to the business by consistently logging and documenting incident and service request details, providing first-line investigation, resolving the issues that they are able to, and escalating incidents and service requests that they cannot resolve within an agreed-upon timeframe. Without consistently performing these processes using a well-defined framework such as ITIL V3, the typical workday for Service Desk members will be performed on an ad hoc basis, and they will essentially be reinventing the wheel with each call that comes in, even for oft-reported problems and incidents.

Increasing IT's Value to Business

Consider this scenario: you work at a small regional bank with three full-service customer locations and a Web site for bank transactions and for checking customer accounts. Your bank offers

- Traditional banking services
- Real estate mortgages
- Personal loans
- Business loans
- Savings packages and retirement packages

Your IT organization supports all five of these business units.

What would you do first if you were given responsibility for the entire IT organization? Put ITIL V3 to work for you to increase IT's value for your business. When doing so, you should first create a comprehensive strategy to satisfy all your many kinds of customers. Answering the following questions will help you to create a workable and valuable strategy.

What Are You Already Doing?

What are the unique differentiators between your business units? What services cannot be easily substituted? For our scenario, differentiators include:

- Personal banking in organization-owned physical locations
- Regulatory requirements, such as the Gramm Leach Bliley Act (GLBA), Fair Credit Reporting Act (FCRA), Financial and Accurate Credit Transactions Act (FACTA), Red Flags Rule (requirements for preventing identity theft under FACTA), and others
- Local product knowledge
- Legacy systems supporting mission-critical business functions
- Managed information services are outsourced for the bank's Web site, along with the associated Service Desk functions
- All other business units maintained internally with IT operations housed onsite in the largest and oldest bank facility that the organization owns, and the Service Desk for the related IT services are located and managed in-house
- Not all business services and products are created equally; you need to identify and clearly understand the services and products the business provides and depends upon in order to best provide exceptional IT service management leadership, and know the areas where IT services have the most impact to the services and products that impact the business bottom line the most.

How Profitable Are Each of the Business Units?

For our scenario, consider that the following are, in order, the most-to-least profitable business units considering those that bring the business the most revenue:

- Traditional banking services, including checking accounts
- Personal loans
- Business loans
- Savings and retirement packages
- Real estate mortgages

Again, it is important to know your business unit services and products so that you can know the importance of the IT services you provide to each. By knowing the profitability for each, you can examine how the IT services you provide may be impacting this profitability. By knowing this, you can do some analysis around how your IT services impact profitability. For example, you can determine whether you are providing appropriate levels of IT service availability or whether business profitability could be made better by improved IT service levels. Or perhaps you could increase profitability within the least-profitable business units by implementing some of the same IT services that the most profitable business units are using.

Which of Your Business Unit Customers Are Most Satisfied and Why?

After some checking and analysis, you determine that the most satisfied business units are personal loans and business loans: Why? Because of

- High availability of the IT applications and resources necessary to perform business processes. This results in more time for business processing.
- A very low number of problems and incidents. This results in less downtime for business processing.
- Easy-to-use IT systems and applications. This results in less frustration and high productivity by business customers.
- Superior positive experiences with the internal IT Service Desk, which uses a variety of automation tools. This results in a higher value of IT services by business customers.

> ☞ A couple of ways to determine customer satisfaction with IT services is to survey customers through an online or physical form, whichever works best for your own particular organization; interview key business unit leaders who are also your customers.

Knowing why your customers are satisfied will help you to know the IT services that are being managed most successfully and providing the most value to the business.

Which of Your Business Unit Customers Are Least Satisfied and Why?

Surprisingly, after your checking and analysis, you determine that the traditional banking services division is the least satisfied. Why? Because

- Online transactions often are slow, timeout in the middle of the transaction, or return errors to the customer. This results in customers calling in and often being transferred to the business unit to report the situation.
- Problem reports from their area often do not get any replies. This results in customers viewing the IT Service Desk as being unresponsive and having no value to business.
- Mission-critical applications are often unavailable when the business unit personnel need to use them because of maintenance, problems, or a variety of other reasons. This results in inefficient business and viewing IT as being a liability to business.
- The IT services support and management chargeback costs are often higher than what was expected. This results in business customers viewing IT services as being undependable and costly.
- Knowing why your customers are unhappy will help you to determine the IT services that are least effective and viewed as providing little to no value to the business. You note that the poor performance of the outsourced managed services vendor is creating a significant negative business view of IT services in general.

Which of Your IT Services Are Most Effective and Why?

Your research and analysis, coupled with the consideration of your customer satisfaction, reveals that your internal business continuity services, applications services, and internal Service Desk are most effective. Why? Because

- The business applications are available whenever necessary for the business customers. This results in high business processing productivity.
- The internal Service Desk has high ratings from the business customers. This results in the Service Desk having a high value to business.
- The applications are easy to use and IT rarely receives any negative feedback about functionality. This results in more productive business customers.
- Knowing which IT services are most effective will help you to know the associated characteristics and features of those IT services that may be used to make the other IT services more effective.

Which of Your IT Services Are Least Effective and Why?

Research and analysis reveals a significant problem with the organization to which you outsource your online ecommerce activities, revealing this is a major area of ineffectiveness. Why? Because

- The online applications are not dependable. This results in inefficient business processing and, often, lost business.
- The online applications are not always available when needed. This results in frustrated customers and the perception of poor IT service management.
- The Service Desk for the online applications and systems, which is part of the outsourced vendor and relies heavily upon manual tools and processes, are unreliable and often unavailable. This results in business processing delays, lost customers, and lower revenues.
- The time to resolve online Web site problems is consistently longer than what is acceptable. This also results in business processing delays, lost customers, and lower revenues.
- The Service Desk for the online applications and systems does not meet their SLA specifications. This, too, results in business processing delays, lost customers, and lower revenues.

Knowing which IT services are least effective will help you to know the associated characteristics and features of those IT services that need to be improved, changed, or replaced to make IT services more effective.

Using the information from the answers to these six questions, you can now create a strategy to address the significant issues revealed. It is likely you will scrutinize the outsourced vendor, which has been shown to be a big problem, and consider whether to find another outsourced vendor to replace it. Alternatively, considering internal IT service is so good, you may decide to train your existing IT staff, or expand your staff, and bring the Web site ecommerce IT services management functions in-house.

Create Your Own Strategy

When answering these questions, think about your IT strengths and weaknesses related to business strategies (such as new target customers, new business services, new services delivery options, and so on), what defines success, what are the threats, what are the vulnerabilities, what are the possible service differentiators, and so on. Knowing the answers to these, you can create a strategy to provide the best service and deliver the best value to your customers. It will also help you to prioritize your resource investments in IT services.

Creating an effective strategy will help you to transform IT services management into a strategic business asset, becoming truly more like business service management. Those reading and hearing your strategy will be able to see the relationship between each of the business services and the corresponding IT systems and processes that support them.

To effectively and successfully manage the IT organization, you must not only know IT well but also have solid knowledge of your business unit services and products, operations management, marketing, finance, information security, organizational development, industrial engineering, and compliance.

After creating your strategy, determine whether your strategy addresses questions similar to the following:

- What kind of IT services should you offer, and to what customers?
- How can IT services be used as differentiators from your competitors?
- How can IT services create more value for your customers?
- How do you define IT service quality?
- How do you efficiently allocate resources across the portfolio of IT services?
- How do you resolve conflicting demands for shared IT resources?

The Importance of Creating a Well-Thought-Out Strategy

To be successful with IT service management, IT leaders must think and take actions strategically. Creating a well-thought-out strategy will have many benefits to enable this strategic thinking:

- Aligning IT with business goals and objectives
- Driving the operational efficiencies to meet the expectations of the business
- Driving the operational efficiencies to lower maintenance costs, providing resources to invest in innovation

By following an effective strategy, IT leaders will turn strategic management into a strategic asset.

Those who read the newly created IT service management strategy should be able to clearly see the relationships between each of the IT services, systems, and processes and the business services, objectives, and goals that they support.

IT service management supports and improves business processing. To be most effective, IT service management leaders need to create an IT service management strategy. The following are the types of business relationships that should be clearly documented within an effective IT service management strategy to show the impact IT services have upon business:

- Optimizing outcomes, availability, and costs for more efficient IT and less IT risks results in efficient and business-aligned IT services health management.
- Business innovation results from redirecting costs from maintenance activities to growth activities through repeatable IT services processes.
- Using a standard, repeatable, and auditable process to manage IT changes effectively and efficiently results in less downtime and more time to perform business processing.
- Improving IT governance also improves the IT compliance posture and information security, reducing the risk of bad audit reports, fines, penalties, and even civil suits and jail time.
- Benefits of automation across all IT management—including process workflows, troubleshooting and problem isolation and reconciliation, release deployment, configuration management, and so on—make IT more reliable, which makes business more reliable.
- Automating IT services can result in consistent IT processes, lowering the overall maintenance costs of IT as well as reducing change risks and being able to quickly detect and resolve service disruptions. These efficiencies allow IT more time to focus on more strategic business projects.
- Using technology efficiently can help enable business growth and be a strategic differentiator for expanded business opportunities.

Automating IT Operations

In recent history, IT leaders have been fortunate to have new technology solutions to allow IT personnel to immediately be notified of incident, problem, configuration, change, and release processes automatically, and through the use of centralized automation management. This has led to a reduction in operational costs, improved service delivery, and ensured compliance and ITIL best practices through repeatable automation methods.

Many organizations are reluctant to invest in automation tools for IT operations, though, because they believe IT services are being delivered good enough without them, that automation is an expensive waste of money that has no significant positive improvement upon business, or some other reason. However, as the previous scenario pointed out, a failure to automate key IT services, such as the Service Desk, may be a significant reason business customers are dissatisfied with IT services and view IT operations as being inhibitors, instead of facilitators, of business.

Just a few examples of how IT services can be automated include the following:

- Incident management process automation—Automation allows for earlier detection so that incidents can be handled as soon as possible, which improves response time, ensures SLAs are met, and reduces support costs. Automation improves business by providing for earlier detection of service loss or degradation. Automation also allows for better incident prioritization and escalation workflow.
- Problem management process automation—Automation of maintenance and remediation routines reduces operational costs and ensures service availability. Automation improves business in many ways, such as by automating work assignments, transferring known errors to the knowledge base, providing more effective coordination across IT functions, and so on.
- Change management process automation—Automation tools integrate systems, automates change requests and approval processes, and subsequently improves service delivery. Automation improves business in many ways, allowing for automatic detection of new and changed configuration items (CIs), identifying unplanned changes, identifying change compliance violations, and so on.
- Configuration management process automation—Automation can integrate data center tools and be used to automatically update system information, resulting in a reduction of service interruption. Automation improves business in many ways, for example, by allowing for automatic detection of new and changed CIs, detecting service dependencies and relationships of CIs to business services, identifying unplanned changes and change compliance violations, and so on.
- Release management process automation—Automation of rollout procedures and verification processes improves availability and speeds delivery. Automation improves business by automating the deployment of new systems, servers, storage devices, network devices; by automating record changes to meet compliance requirements; and so on.

There are many benefits to automating IT services. In general, IT service management automation results in IT becoming more predictable, reliable, and accountable. Automation improves and supports IT governance and mitigates risk. IT services automation also supports a wide range of compliance requirements, improves IT processes, and makes them more efficient. Automation makes feedback easier and more valuable.

Let’s take a closer look at how automating active monitoring of CIs can help to determine current status and availability at any point in time. Table 1.1 shows how monitoring some specific CIs related to backup processes can provide valuable information to IT services personnel, in addition to clearly showing the relationship of the CIs with the business’s security, privacy, and compliance requirements and impacts.

CI	(A)ctive/ (P)assive	Security	Privacy	Compliance
Backup system	A	Yes	No	Yes
Backup application	A	Yes	No	Yes
Backup encryption	A	Yes	Yes	Yes
Backup UPS	P	Yes	No	Yes
Backup inventory	P	Yes	Yes	Yes
Backup data	P	Yes	Yes	Yes
Backup access control	A	Yes	Yes	Yes
Backup version control	A	Yes	No	Yes
Backup server	P	Yes	No	Yes
Backup transport	P	Yes	Yes	Yes
Backup intrusion detection	A	Yes	Yes	Yes
Backup activity	A	Yes	No	Yes

Table 1.1: How backup CI monitoring supports privacy, security, and compliance.

Automated active monitoring, also sometimes called pro-active monitoring, detects events that indicate when a system, service, or process is having problems, may be about to fail, and so on. Automation, done correctly, can simulate the knowledge of experienced IT professionals and allows for pro-active problem management processes.

Automated reactive monitoring, also sometimes called passive monitoring, triggers an action after an event or failure. For example, if server performance falls below a specified threshold value, it can be automatically rebooted.

Automation Supports Accountability and Compliance

Automating IT processes makes IT more accountable. By automating audit trails and activity logs, accountability for actions taken within the IT services environment are not left to chance by human action. This automated control over IT systems and device configurations results in improved compliance and security postures. You can easily validate the settings and history of actions at any point in time. Internal and external auditors alike both like seeing this type of documentation.

Automation Can Support and Enhance All IT Service Management Activities

Automation tools can support a very wide range of IT service management functions. Let's consider just a few examples of how automation can do so, all of which make IT operations more efficient as well as more valuable to business:

- Provide consolidated event and performance management across an extensive range of IT elements to support operations management and network management
- Integrate problem and incident processes by using consolidated IT event and performance management tools
- Provide verification and analysis of how IT operations' time is spent determining whether reported problems are real and if they still exist
- Discover inter-relationships across applications and infrastructures and reveal related insights to the Service Desk
- Improve release and deployment management and technologies

Classic Tools Commonly Used in IT Operations

Most organizations use what are often considered classic tools that the IT service delivery team can leverage to help support the IT services management strategy and improve IT operations. These include, but are not limited to, the following:

- Awareness communications and activities to positively modify work habits and increase understanding and knowledge, improving IT operations as well as business.
- Targeted training for specific groups throughout the enterprise to ensure IT operations are performed according to policy and following established procedures.
- Service patch processing is often delivered through automated service contracts with outside vendors, and can be used to help ensure greater IT services availability, ultimately improving business.
- Trouble/problem ticketing systems and tools provide the documentation of all relevant details necessary to cross-reference incidents and most quickly and efficiently resolve them if they reoccur.
- Service Desk systems and tools can be used to restore and maintain IT services to business at the most optimal levels.

- Monitoring systems and tools provide the basis for creating strategy, designing and testing IT services, and providing continual IT services and operations improvement.
- Configuration tools can improve visibility and control over IT service assets, such as network storage and servers, and help to restore services more quickly when failures or outages occur
- Change management tools help to ensure all changes are correctly made and documented, reducing business risk by reducing incidents, disruption, and rework
- Release and deployment systems and tools provide faster changes with less costs and minimized risk, provide consistent implementations throughout the enterprise, and support audit and compliance requirements through the documentation created
- Integrated change management database (CMDB) systems and tools standardizes the ways in which changes are made throughout the enterprise and creates documentation to make ongoing changes more efficient, reducing overall business risk

It is important to realize that an effective IT service management solution is more than just a set of tools. Organizations have many different tools right now. IT leaders must know and understand how to make them work together to realize the greatest IT operations efficiencies and improved business value.

Improving the Service Desk with Classic Tools

We've been examining the Service Desk throughout this chapter as an example of how IT operations impacts the business view and business value of IT services; let's revisit it again to see how the Service Desk can be improved with these classic tools. Typically, the Service Desk is the single point of contact for IT issues. Contact with the Service Desk is typically via phone, email, Web interface, or events such as alarms, pages, and even instant messaging.

The major goal of the Service Desk is to restore normal service to users as quickly as possible. The responsibilities of a Service Desk often include:

- Logging calls and problems
- Coordinating communications
- Performing first-line diagnosis
- Resolving what can be resolved
- Escalating incidents, problems, requests, and other issues they cannot resolve within an established timeframe

Organizations can automate the classic tools that exist to support all these responsibilities. To be most effective and efficient, IT leaders can use unified IT service management tools to accomplish all the benefits of these classic tools in a centrally managed and coordinated manner, making IT service management processes even more effective and efficient than before.

Complementary Services

There are a large, and growing, number of tools and practices that can be used to improve upon IT service management that are also used to improve the management of all types of business services throughout the enterprise. These complementary tools and practices can not only co-exist within the enterprise they can also be leveraged and used in partnership with other areas within the company in ways to lower the associated costs and make use of existing resources. The following are some of the most common complementary services that IT leaders should consider using to make IT management more efficient and effective, in addition to having synergy with ITIL.

Assessments

There is already a wide range of assessments performed throughout business organizations. IT service management can be enhanced through the use of similar assessments. ITIL makes extensive use of assessments within the framework.

Assessments use review, inspection, and analysis to determine whether a policy, standard, or set of guidelines are being followed. Assessments can enhance IT services management, and business in general, by ensuring records and data are accurate, that effectiveness and efficiency goals are being met, and so on. An audit is just one type of assessment, performed by an independent and objective entity. However, other types of self-assessments can be performed to improve IT services management.

Education

Education, including periodic training and ongoing awareness communications and activities, is absolutely necessary to achieve effective and efficient business goals and success. Each person with job responsibilities must know how to perform those responsibilities according to policies, procedures, and the company expectations. IT service management functions cannot be performed with the most value to the organization if the personnel involved have not been effectively educated for how to do the involved activities.

Consulting, Such as Process Designs and Deployments

Deploying IT services, and any business process, is not a trivial task. Proper design of the systems, applications, and other associated components is essential to successful deployment. Using consultants, either internal to your organization or subject matter experts (SMEs) from outside your organization, can provide the fresh eyes, knowledge, and viewpoints necessary to avoid design, implementation, and management pitfalls. Also, building on the knowledge and experience of others can leverage that knowledge to ensure that key elements of deployment and management are addressed and key risks are mitigated.

Outsourcing

Most organizations now outsource many business functions. The reasons for outsourcing are many. Some include an effort to save money by not having to hire more staff to perform the outsourced functions, or perhaps the existing staff does not have the expertise to perform the activities. Outsourcing IT service management activities requires IT leaders to consider their outsourcing strategy, the role of the outsourced organization, and how to make decisions based upon those activities and functions that are outsourced.

SaaS Approaches

Software as a Service (SaaS) is generally the term used for when applications are delivered as a service using the Internet as the delivery mechanism. One of the quickly growing trends is using SaaS solutions, most commonly it seems for creating backups, doing log management, and for providing protections against all types of malware. These SaaS services typically are delivered and accessed via the Internet. Service patch processing, mentioned earlier, is an example of how SaaS can be used to make IT services more efficient and valuable to business. IT service management leaders must consider the impacts of using SaaS solutions, and how to make business decisions when the active control of these services is in the hands of outside vendors.

For information security practitioners “SaaS” more commonly stands for Security as a Service, and generally refers to the growing trend of delivering information security applications as Internet-based services, on-demand, to consumers and businesses. Probably the most common are antivirus, anti-spam, and anti-spyware services.

Looking Forward

The next chapters will explore in more detail the functions typically found in IT service transition and operations. The chapters will explore and highlight use cases for end-to-end change management; integrated event, incident, and problem management, and the automation of configuration, release, and deployment.

Chapter 2: Service Transition, Change, and the Service Desk

As I was preparing to write this chapter, I spoke with several IT practitioners who indicated that they were using ITIL. Most of them indicated they were using ITIL V2. I was somewhat surprised that when I asked them when they were moving to ITIL V3, most answered something to the effect of, "We went through enough pain with ITIL V2. What's the point of moving to V3 if we already have built our service processes around V2? What's the big difference?"

ITIL V3 Perspective of Service Transition

So, what is the big difference between ITIL V2 and ITIL V3? I discussed the differences Chapter 1; however, it is worth taking a closer look at the differences as they reflect the changes in business focus. Table 2.1 compares and contrasts the high-level business issues for ITIL V2 and ITIL V3.

ITIL V2	ITIL V3
Emphasizes IT alignment with business	Emphasizes the integration of IT with business
Emphasizes the use of linear service catalogs	Emphasizes the use of dynamic service portfolios
Emphasizes value chain management	Emphasizes the value of network integration
Emphasizes a collection of processes that need to be integrated	Emphasizes a holistic service management life cycle that correlates closely with business life cycles

Table 2.1: High-level ITIL V2 and ITIL V3 differences.

Service Transition seeks to ensure that all the planned changes will be implemented in ways that actually meet the defined objectives. The processes within Service Transition activities include focus upon:

- Change Management
- Service Asset and Configuration Management
- Release and Deployment Management
- Knowledge Management
- Stakeholder Management
- Transition Planning
- Support and Service Evaluation

All these activities are supported by a Configuration Management Database (CMDB) and Configuration Management System (CMS).

Why Is Service Transition Necessary?

Throughout our lives, we have probably heard a million times the phrase "be prepared." So it should make sense that IT leaders must ensure the enterprise infrastructure, supporting components, personnel, and resources are prepared for changes. However, historically the preparation portion of IT changes have been shortchanged, and as a result of inadequate preparation, changes often resulted in problems and incidents that caused downtime and business stoppage. Service Transition is necessary to ensure that the changes you want to make will have the highest likelihood of meeting your objectives in addition to having little or no negative business impact.

By using the seven IT processes previously listed, IT leaders can be confident that changes will be efficiently and effectively managed across the enterprise to the benefit, not impediment, of the business. For example, suppose your organization just acquired another company. Service Transition can be used to ensure you align the services of the acquired company with your business requirements and operations prior to actually connecting the acquired network to your infrastructure. By doing careful planning for this significant change, you can help ensure that the individuals who need to use the existing and new services can do so with minimal business downtime and incidents, ultimately adding value to the associated business operations.

The value of Service Transition is fairly obvious for mergers and acquisitions. But there are many additional business values Service Transition activities provide:

- What if your marketing area wants to implement a new campaign to maintain a competitive edge and must act quickly? Following Service Transition processes will help ensure a quick change that meets the business objectives with minimal business disruption.
- What if your success rates for changes and releases have been poor to the point that business leaders complain that IT seems to be a liability to business and they start looking into outsourcing all IT activities? Implementing effective Service Transition processes can dramatically improve change and release success and demonstrate the value of the in-house IT function.
- What if your business leaders are worried that implementing a new application or system will have unacceptable negative business impact? Effective Service Transition processes will help to document, demonstrate, and allow business leaders to understand the levels of risk prior to and immediately following the changes.

New Perspectives of Service Transition

The good old days of business computing are generally considered to be back before the mid-1990s when most business processing was done on mainframes. The IT folks were basically curtained off from the business and only worried about keeping the computer systems chugging along and up as close to 100% as possible. The programmers had to have a basic understanding of business to do their coding, but relied heavily upon their business unit contacts to test and verify that their programs worked appropriately for business. The programmer managers' biggest gripes were the ongoing onslaught of spaghetti code that made debugging a nightmare.

These are still issues, but now they are joined by highly decentralized systems and applications, and not only spaghetti code in programs but also a huge spaghetti bowl of network components that must be efficiently managed to keep mission-critical applications available and business going for as close to 100% of the time as possible. In addition to this increased complexity, it is now incumbent upon not only IT management but also all IT staff to soundly understand the business that they are supporting so that they can most appropriately establish their priorities, determine risks, and identify interrelationships that changes, problems, and incidents can impact.

Being as supportive as possible to business unit customers is more important than ever before to IT. Customer-focused delivery and orientation is one of the most important strategic considerations for IT management in today's enterprises.

I have asked many IT practitioners how their job responsibilities and activities impact their business. I have heard far too many practitioners reply something to the effect of, "I really don't know much about the business. I just focus on knowing about the network and how it works." This prevalent perspective leads to the business being far less successful than it could be. Organizations must deliver IT services in the context of the business. To do so successfully, IT personnel must have an understating of the business so that they can communicate effectively with their business customers.

Good understanding of business allows for realistic service level expectations and opportunities to provide IT services and support that allow for business to not only chug along but also actually result in business improvements.

Perceptive IT leaders understand that IT activities must align with business activities and goals. They know that the business is depending upon IT to make business-critical services highly available and to ensure the quality and accuracy of those services. In publications, at professional meetings, and anywhere IT leaders gather, they commonly state that better aligning IT with business is one of their top priorities. However, is any progress being made?

To successfully align IT with business, IT leaders must have three primary goals:

- Ensure business-critical services are available whenever needed and with the highest possible quality
- Deliver IT services at optimal cost while appropriately managing risk
- Understand the business and how IT can drive value, not just utility, for the organization

Achieving these goals requires a slightly different bent on the view of IT within business. More emphasis must be placed upon business availability, business quality, business cost optimization, business compliance and business risk reduction than ever before. It is absolutely imperative for IT leaders to start thinking, and planning, like business leaders. The ITIL V3 framework facilitates this, and Service Transition in particular provides the processes necessary to engage business thinking throughout all layers of IT activities.

Meet Complexity Challenges

Never before in the history of business computing have technology and networks been more complex. And guess what? It is only going to become more complex as the pace of technology development explodes on a continuous basis. The IT area now provides a dizzying array of services, including the good old mainframe and server management, and is branching out into unified communications with voice services, online media broadcasting, Internet access, social networking support, and an unlimited number of others.

Added to this complexity is another dimension, including such things as server virtualization, the use of Software as a Service (SaaS) solutions, and a growing dependency upon automated tools. These certainly can bring great benefits to business, but their additional layers of operations processes and software exponentially increase the number of IT components for the IT area to manage.

This complexity spawned specialization silos, which are basically separate business systems and applications incapable of reciprocal operation with other silos, which worked for a while. Even ITIL V2 implied the use of silos. However, ITIL V3 wisely retooled their framework to allow for all IT infrastructure elements to work together seamlessly in an effort to deliver highly available, high-quality, and highly efficient operations. This does not mean that specialization is dead; it just means that the specialists must all work together better than they ever have before.

The Speed of Change

Not only are IT services and components more complex, they must also be changed more quickly and frequently. Newly discovered flaws and vulnerabilities that could be exploited and damage business continue to be announced on an almost-daily basis. Add to this a forever changing economic market and volatile economic conditions, and even more changes are a must for successful business. Continual change results in continual redeployment of existing IT assets paired with deployment of new systems, applications, and technologies to improve IT agility and its ability to respond to yet more change.

More Entities Communicate with IT

Way back in the olden' days, the IT folks sat in their offices, hidden away from contact with not only external customers but also internal business customers. However, with increased complexity and the need for more speedy changes, the IT players are no longer relegated to the back office. They are increasingly called upon to speak directly to business customers, business partners, vendors, and even, sometimes, external customers. IT personnel can no longer be complacent about not understanding the business of their organization. IT personnel must clearly understand how their activities impact the business. When business suffers as a result of IT failures, it puts IT personnel's necks on the line.

The Business Perspective Has Benefits

By operating IT with the best interest of the business in mind, as opposed to the best interest of IT, you will find many benefits:

- Improved customer satisfaction—Your business customers will recognize, and appreciate, that IT is taking a more professional approach to service delivery. You will, in effect, be speaking the same language; more than has typically happened with IT-to-business communications.
- Improved productivity—Generally, by using the ITIL V3 framework, in particular the Service Transition processes, you will be putting into effect proven IT best practices that have been shown to reduce costs, create consistent IT delivery, and improve IT productivity throughout the enterprise.
- Improved use of skills and experience—No longer will large numbers of IT personnel be off trying to address IT service changes, problems, and incidents in an ad hoc, unorganized manner. Following repeatable processes builds skills that are strengthened and made more valuable through repeated use.
- Reduced costs—By creating processes that are shared throughout the enterprise and using automated tools to enhance those processes, duplication of effort is eliminated, along with the mistakes and problems that occur when IT services are managed through separate and unconnected silos.

Stretch IT Management Thinking for Service Transition

These new perspectives of IT Service Transition require IT leaders to stretch their thinking and planning, and operate by looking forward instead of always looking back or at the current moment. Table 2.2 provides a look at how IT leaders must start stretching their thinking into the future when making IT decisions.

Today IT Leaders Are...	IT Leaders Need to Be…
Focused on technology	Focusing on customer goals and outcomes
In firefighting mode	Becoming demand driven to prevent fires
Arranged within organizational silos	Integrating enterprise services and processes
Costing businesses unknown amounts of resources and money	Providing financial transparency for the IT services provided
Driven by technical metrics	Being driven by metrics that clearly reveal business value

Table 2.2: Ways in which IT leaders must stretch their thinking.

This change in perspective is supported well by ITIL V3 framework processes. Service Transition supports these changes by emphasizing many important points:

- Highlighting the criticality of implementing an end-to-end integrated life cycle process
- Providing a common frame of reference across silos to successfully integrate IT into business
- Ensuring IT is actually delivering the services businesses expect and need
- Providing change management processes that are consistent, reliable, and repeatable
- Understanding the need for Service Desks and associated Service Desk functions

ITIL V3 supports these new, and necessary to business success, perspectives. IT leaders must measure IT success in terms of business value.

Change Management

What does "change management" mean to IT management? Too often in the past, and still too often in many organizations, it meant business disruption at the mercy of the IT area. By implementing efficient and consistent Change Management processes, IT not only can provide more up time for the business but also improve business. IT management must create and implement Change Management processes that will be of most benefit for their particular organization.

Change Management Automation Lassos Network Cowboys

Back around the mid-1990s, there was a large multinational organization that had many service and product offerings and many business units who were responsible for each of them. Around that time, each business unit was implementing its own Novell file servers and hiring personnel to run those Novell servers. The organization had not yet moved away from its mainframe-centric IT focus, and had not seen all the Novell servers infiltrating the organization; they had no procedures or tools in place to reveal this development.

The Novell servers were all connected to the network and were in direct access to the mainframe but physically scattered throughout the enterprise facilities with varying levels of physical security. The mainframe, in contrast, was physically located in a secured room with backup power and cooling. The IT department was focused on just the network architecture, maintenance, and the mainframe, but not Novell server administration and support.

The organization had very strict but justified risk-based policies regarding the connection of the corporate network to any other outside enterprise network. They had procedures the business units were supposed to follow if they felt one of their business partners needed to have access to the corporate network, and they had several feasible options for allowing authorized connections.

One of the Novell administrators, in one of the business units that had many business partners, did not like to be slowed by rules and was always agitated when following the procedures. “I could easily set the connections up myself,” he said on more than one occasion.

The IT and Information Security departments referred to the particular Novell administrator as “Cowboy.” Upon one occasion, Cowboy submitted a request that information security had to turn down. He wanted to connect one of his business unit’s business partners, which also happened to be a competitor of another of the organization’s business units, directly to his Novell server, use no firewall, and give the partner 24 × 7 access; all using one ID that would be shared by approximately 24 of the business partner staff. Certainly this was a bad idea from many risk perspectives.

The Information Security department documented reasonable alternatives to connect the business partner and sent it to Cowboy, along with copies to Cowboy’s business unit VP, the corporate CIO, and the senior VP to whom Information Security reported. It also outlined the risks involved with Cowboy’s requested connection.

Cowboy didn’t like it. He complained to his VP. His VP talked with the CIO and the senior VP, and ultimately agreed to one of the proposed alternatives that Information Security had provided. Cowboy fumed. He didn’t like it. He said it was unreasonable to make such a valued business partner jump through such hoops.

Fast forward a couple of months. The IT team was seeing unusual activity in one subnet on a recurring basis and bandwidth surges were impacting response times for everyone on the network during these timeframes. Around the same time, Facilities Management was puzzled about damage to some ceiling tiles.

It turns out Cowboy knew that network cables ran in the ceilings above the dropped ceiling panels. Apparently, sometime when no one was around, he had removed the panels above his cubicle and examined the wiring long enough to identify where to patch in a cable, from a modem that was on his desk, to his Novell server. The cable ran up the wall, and was hidden by a tall voluminous fern. Investigation revealed that he’d leave the modem on whenever the business partner needed to send files or access files from his business unit’s Novell server. However, no one knew where the business partners actually went on the network when they were connected.

This organization decided that it would be prudent to install automated tools to identify when any changes, physical or logical, were being made, and immediately alert the appropriate IT team. They chose a change management tool that fit their requirements. Soon following implementation of the change management tool, they discovered other, not quite as blatant, attempts at making changes to the networks that would have introduced significant risk to the business. It took them a while to justify purchasing the change management tool, but after it was implemented and being used, they found it to be invaluable and wondered why they had waited so long to get a tool like this.

A Use Case Example

Change Management is about managing risks related to making changes; not actually implementing the changes (that is the responsibility of Release and Deployment Management). Today, it is not uncommon for giant corporations to merge with other giant organizations. Think about the changes that accompany those mergers! Unless you want a big mess of a network, and devastating IT impacts that could make the business leaders wish they never heard the word "merger" or "IT," you need to carefully plan for such a change and address the accompanying challenges.

When two large organizations merge, the IT complexity and problems of each organization will be integrated. A common goal of mergers is to achieve economies of scale, reduce IT costs, and reduce IT complexity for business, ultimately improving the overall experience the business customers then have with IT.

Merging large organizations commonly involves merging resources, facilities, and personnel as well as successfully addressing the challenges created by different IT personnel and operations centers scattered throughout a wide number of geographic areas. How should you tackle this? Start with effective planning.

Service Portfolio Management

Oftentimes, IT planning does not result in successful or efficient IT implementation. Many, and perhaps most, organizations experience deadlines that are missed and keep getting pushed back, significant cost overruns, ongoing miscommunications, one after another priority changes, and, ultimately, unsatisfied stakeholders throughout the enterprise. Establishing effective Service Portfolio Management (SPM) can eradicate many of these problems. Start deciding how to merge the enterprise networks by reviewing the SPM practices within each of the organizations.

Use SPM to assign investments to develop new services, modify existing services, and retire services that will no longer be needed.

So what does each of the organizations have planned for its SPM? To help determine this, take the following high-level steps:

1. Define the Goals for the Service Portfolio (SP)—Work with management teams to identify potential business process projects resulting from the merger. Identify issues for negotiating inventory services; ensure you have considered business cases and validate portfolio information.
2. Get the input for and analyze the SP—Review project lists submitted by business leaders and create a draft of a charter for each project that defines the purpose, deliverable, and approach. Look at the project lists and consolidate to maximize portfolio value, align and set priorities, and balance supply and demand.
3. Approve the SP—Have meetings with the project lead, coordinators, and architects to review the final analysis. Finalize the proposed portfolio, then authorize the services and resources that will be used.
4. Create the SP charter—Create a full charter to communicate decisions, allocate resources, and charter services. Save the full charter; it is a good practice to put it in the tactical planning database if you have one.

Change and Release

Next, work on defining which groups and staff will be required for each of the identified projects within the SP, and reach a consensus on staff dependencies. At a very high level, this will involve:

- Perform a Project Coordinators' Review—Review and evaluate the approach and feasibility, the staff dependencies, and the completeness of the charter.
- Architects' Technical Review—Have the technical subject matter experts (SMEs) look for correspondence with roadmap for the proposed roadmap, make resulting technical decisions, determine the appropriate sequencing, and detail the project dependencies.
- Inspect the CMDB—Search for the groups, applications, and systems upon which the identified projects depend. Identify any potential conflicts or gaps with the involved configuration items (CIs). Update the request for change (RFC), SPM, and CI accordingly.
- Review—Provide direct feedback to the involved managers if their projects are focused on the divisional priorities and how they can improve their charter submissions.
- Create output for the release and deployment—Revise the charters, include consideration for comments and recommendations from management and architects. Create the current baseline of how your networks exist, and define the target baseline of how the business, service, application, technology, and product architectures should look after the release.

Providing the full details of this very important part of the process is beyond the scope of this document. However, as you can probably infer from these steps, you will need to perform Configuration Management activities, utilizing your CMS, updating the CMDB, and creating dependency mapping.

A poorly constructed release and deployment plan will result in a significant amount of extra time that your IT folks will need to spend troubleshooting problems, fighting fires, and understanding the issues related to the complexities of joining two networks. By investing an appropriate amount of time into creating a comprehensive, well-planned release and deployment plan, you will ultimately deploy your changes and more quickly enable effective business use of the involved services.

Don't Forget Your CAB!

The Change Advisory Board (CAB) is another critical component to efficient, successful changes. This group, comprised of representative experts from throughout the enterprise, must be able to ensure that all the changes made throughout the enterprise are made with the best interests and viewpoints of both the business and technology.

Members of the CAB should include, as advised by and paraphrased from the Office of Government Commerce (OGC) ITIL V3 documents:

- Business customers
- Business managers
- User group representatives
- Applications developers and maintenance specialists
- IT specialists and technical consultants
- Representatives from the IT services and operations staff including, but not limited to, the Service Desk, test and quality assurance management, IT Service Continuity Management (ITSCM), information security, privacy, records retention, capacity management, and so on as applicable
- Facilities and office services personnel, such as when physical moves or changes are involved
- Contractors and third-party representatives, as applicable and as involved through outsourcing commitments

The Role of the CAB

The purpose of the CAB is to support changes and their corresponding authorizations in addition to helping Change, Release, and Deployment Management personnel to assess, prioritize, and assign changes. When the CAB needs to meet, it is important that they have access to the information they need to make a good and unbiased decision.

An important piece of information used by the CAB is a change impact analysis. A change impact analysis will provide a "what-if" look at the repercussions of the proposed changes. A change impact analysis will be very valuable in helping to determine, with consideration of a wide range of scenarios, the cumulative impact of multiple changes that occur during a single scoped period of time.

Role of the Service Desk

Historically, the Service Desk responsibilities, commonly called in the dinosaur computer days the "help desk," were given to entry-level IT staff who basically wrote on notepads the problems, questions, requests, and complaints that came into the IT area. They then ran around trying to find someone to address whatever the issue was that prompted the call.

The help desk has since evolved dramatically and is typically made up of experienced staff dedicated to only Service Desk functions to most expediently and centrally address all IT-related calls from throughout the enterprise. Gone are the days of needing to know Joe's and Sue's separate phone numbers if they happen to be stuck with help desk duty for the week or month; now organizations call, email, text, or otherwise contact just one Service Desk area.

Automated tools have been created to capture customer information, and standardized policies and processes were developed to improve the efficiency of the "help desk," a formerly reactive responsibility, into a "service desk," a team of knowledgeable, trained, and coordinated personnel whose job is not only to react and solve IT issues after problems happen but to keep their eyes on the network and business applications to keep problems from happening. ITIL V3 can not only make the Service Desk functions more effective for IT but also provide tremendous value to business.

The most important goal of the Service Desk is to provide maximum and sustained business productivity, which results in optimizing the organization's Service Desk return on investment (ROI).

To reach the goal of providing maximum and sustained business productivity, the Service Desk must be proactive and perform the actions necessary to prevent incidents and problems from occurring in the first place. This goal cannot be reached in most organizations without the use of automation tools.

Values of ITIL V3 Service Desk Processes to Business

There are numerous types of value that a Service Desk running under ITIL V3 processes can bring to a business. Some will be unique to an organization and others will be common throughout many organizations. The following list highlights just a few of the values an ITIL V3 Service Desk can bring to all businesses:

- While handling an incident, the Service Desk can identify additional service or training requirements not only for the IT areas involved in the incident but also within the impacted businesses areas.
- A well-trained and experienced Service Desk will know how to communicate effectively to business areas in many ways, as appropriate to the area with which they are speaking. They will know how to use terms that are easily understood by the business customers without confusing their customers with technical mumbo-jumbo.
- The Service Desk, effectively using ITIL V3 concepts, will ensure everything possible is being done to get normal IT services back to the business, in addition to keeping the services as continuously available as possible.

- Throughout its day-to-day activities, the Service Desk is in the unique position to see where many areas of improvement can be made throughout the enterprise. It truly is in a unique position to see how disparate and otherwise separate applications, network components, and business processes are linked. The Service Desk can take this type of omnipotent view and make quality and improvement linkages—for not only technology but also business processes—that no other area is in a position to make.
- The Service Desk can be a key driver within any organization's Continual Service Improvement Program. The Service Desk is often the area where problems are first noticed and inefficiencies identified. Through the Service Desk's observations, monitoring, and communications, subsequent reviews, analysis, and recommendations can result throughout the entire service life cycle.

As defined by the OGC, "Continual Service Improvement is responsible for managing improvements to IT Service Management Processes and IT Services. The Performance of the IT Service Provider is continually measured and improvements are made to Processes, IT Services and IT Infrastructure in order to increase Efficiency, Effectiveness and Cost Effectiveness."

Management of all the IT assets within the enterprise is the key to ITIL. The central point for coordinating contact between IT and the business units is the Service Desk—an area that often does not get the respect it deserves. However, the Service Desk can be very valuable to the enterprise. Consider just two of the areas where the Service Desk has a major impact: within Change Management and by making constructive use of the change impact analysis.

The Service Desk performs key Change Management functions; they support crucial Service Transition processes, such as receiving and logging requests for changes; and they serve as the focal point for the CAB. In addition, the Service Desk uses the change impact analysis to determine several important considerations:

- Cross-organizational capabilities—The Service Desk can educate contacts from throughout the enterprise about the expected impacts of recent or upcoming changes. They can make sure the appropriate business areas know about service impacts and be prepared for reacting most effectively to them.
- Service dependencies—Possibly the most valuable benefit of Change Management is discovering how changes to shared components will impact the various IT services throughout the enterprise. Interdependencies between IT services are often overlooked in change requests, and the business impact of changes is difficult to determine. As a result, there is poor alignment between the business and IT areas and difficulty controlling costs, quality, and service availability. As the pivotal point within the organization, the Service Desk can use automated tools to map changes and reveal complex dependencies.

- Prioritization—The Service Desk can assess the impact and urgency of each incident and recommend a priority level, along with an appropriate and realistic resolution time and date, and an escalation time and date. Having someone at the Service Desk arbitrarily setting priority, which often happens, is not best practice, and can have negative impact on the business. Instead, the services impacted by an incident or outage, and the associated, predefined Service Level Agreement (SLA) should drive prioritization. This task is made easier, more effective, and more efficient through the use of automated tools.

The Service Desk also supports business-critical processes such as incident and problem management, and is the automation point for associated IT processes.

CMS, CMDB, and Dependency Mapping Tools

A CMDB is critical in today's complex enterprise networks. According to Gartner (Source: "CMDB or Configuration Database; Know the Difference," by Ronni Colville), an effective CMDB must have four critical capabilities: federation, reconciliation, mapping and visualization, and synchronization.

Federation

Very generally, "federation" means taking data from multiple configuration and management sources and repositories and effectively putting them into one logical, virtual CMS in such a way that the most up-to-date values are used, all the information is integrated so that there are no repeats or gaps, and the information is comprehensive. Federation directly brings in multiple data sources by linking to different sources.

However, it is important to note that this federated data does not usually reside in a single repository. Federation combines assorted and diverse CMDBs and related data repositories, providing an accurate, single view, but not necessarily single location, of data for all IT processes from which to work.

There is a long-standing and often-criticized aspect of a CMDB: many skeptics proclaim that creating a monolithic CMDB is too large of an undertaking. Indeed, the CMDB of ITIL v2 was often interpreted as a single, massive repository, while the ITIL V3 CMS relies more on federating data from multiple sources.

Ideally, federation should provide a context for the user and application. Yes, establishing federation can be a large undertaking, and the larger and more complex the enterprise, the larger and more complex the task of effectively creating a CMS. For this reason, automation tools should be used to tackle and resolve this challenge as well as facilitate the federation process.

Reconciliation

Reconciliation will ensure data is coalesced to avoid having duplicates as well as to enable matching CIs from different sources. The CMDB is the repository that provides a single source of CI data for enterprise IT services and processes to use. It is a very good idea to use automated discovery tools to keep the CMDB updated. However, when using the automated tools, you cannot simply run them to update the CMDB and assume that everything will be correct. You must ensure an appropriate level of logic is applied, and know how the tools capture the CI data and store it within the CMDB. It is also very important that you understand how conflicts between the CMDB and incoming data are accurately resolved.

A few years ago, I worked with a very large multi-national organization that had more than 20 service and product business units throughout their enterprise. They had established a separate external customer marketing opt-out database within each of the business units. Throughout the day, as each business unit would receive an opt-out request from their external services and products customer, they would update their business opt-out database. As communicated to the customers, these opt-out requests were supposed to apply to all the organization's products and services. Each night, an automated process ran to take each of the databases, in the same order every night, and update the central master customer opt-out database. Sounds like a good idea, right? Wrong.

A significant portion of the organization's external customers purchased services and products from multiple business units. When customers from Business Unit A called to request an opt-out from further marketing, the opt-out request was entered into the Business Unit A opt-out database. When the nightly process ran, it started running the opt-out requests in order, starting from Business Unit A. Thus, those customer opt-out requests were updated to the master opt-out database. But guess what? The customers for Business Unit A, who were also customers of Business Units B through Z, still had their marketing choice flagged as opt-in. So when the central opt-out database was updated with the opt-out databases from those units, the customers' opt-out requests made to Business Unit A were basically wiped out. There was no logic in place to see when customers made their opt-out requests or to determine within which of the other business units they were also customers. Oops.

As a result, a significantly large number of customers, frustrated that they kept getting postal and email marketing materials even though they had made multiple opt-out requests following the procedures the organization provided, complained. And they complained loudly. Right up to the CEO. The situation made the news, and the organization lost many customers and was very embarrassed to appear to be so incompetent when they were promoted as being a leading-edge technology company. If they had established a reconciliation process to make sure that data updates were not overwritten by old data, they could have avoided this significant business problem of customer loss and bad publicity.

Reconciliation helps to ensure that the CMDB values are updated appropriately; also helping to ensure the data within the CMDB is good and accurate data. Reconciliation is not a separate function from managing a CMDB; it is simply a key requirement for making the CMDB implementation and enterprise use successful, ultimately bringing value to the business. Figure 2.1 shows how these reconciliation decisions are made following typical business logic.

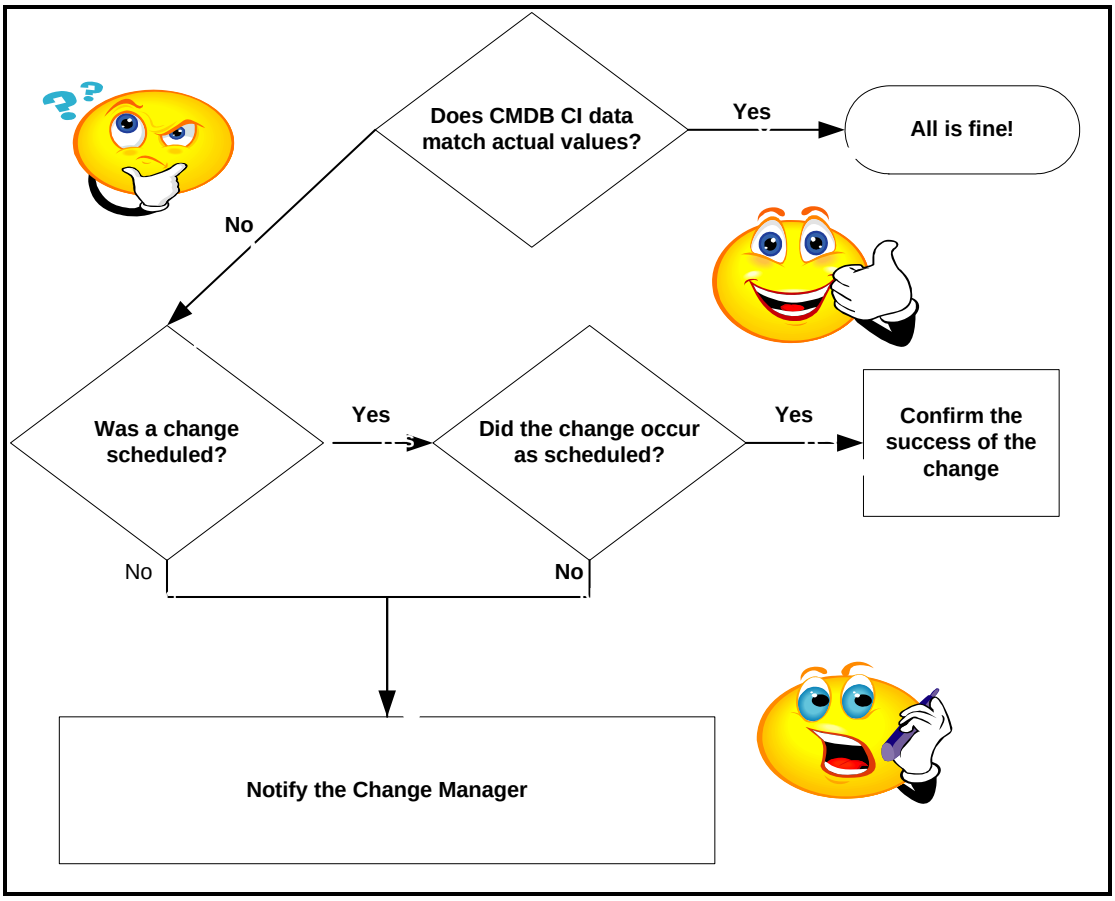

Figure 2.1: Using business logic to make reconciliation decisions.

Mapping and Visualization

Significant numbers of IT leaders do not believe they really need a CMDB, based upon their enterprise characteristics, which are typically based on the size of their enterprise. Common situations that involve such beliefs include:

- The IT leaders have a comprehensive list of the applications used within the infrastructure
- There are comparatively few, such as less than six or seven, configuration data sources within the enterprise
- They have documented all the business impacts of changes to each of the components of their enterprise infrastructure and applications
- They have comprehensively tracked how many of the infrastructure and applications changes were unplanned
- They have documented all their business services well enough so that, in the event of an outage, they can identify the likely causes
- There is a low rate of change within the enterprise, and the related information can be realistically and easily managed manually

If all these characteristics apply to your organization, perhaps you are managing your infrastructure resources successfully on your own and you do not need a CMDB! Or perhaps you already are maintaining a CMDB, of sorts, using a Word, Excel, or other type of document. However, most IT enterprise networks of all sizes can benefit from a mapping and visualization tool to see how all the types of data found within a CMDB relate. Even in the otherwise-seemingly simple enterprise networks, there is inherent complexity that, if not visually represented, makes it very difficult for IT leaders to keep track of all the business-critical network components and applications.

For example, with mapping and visualization, you can determine whether the best network path is being used and where there are network bottlenecks. When network maps and visualization is not used, network administrators typically determine the data flow path by doing a number of repetitive activities:

- Pinging each node within the anticipated path
- Re-verifying the traceroute each time the path is traversed
- Doing telnets to intermediate nodes
- Going back to pinging and starting the process over again

This process can be very time consuming, and the number of times these steps are repeated could go on for what seems to be infinity to the IT personnel, as Figure 2.2 illustrates!

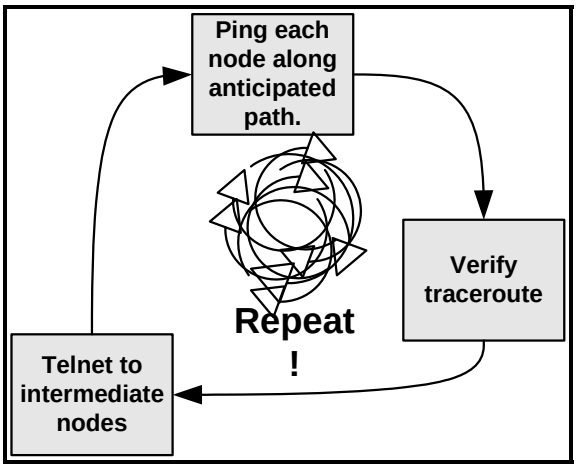

Figure 2.2: Classic way of determining data paths.

An effective mapping and visualization tool will show you, all on one screen, the data path along with significant diagnostics along the way, such as the latency between each hop. Figure 2.3 shows how such a map may look.

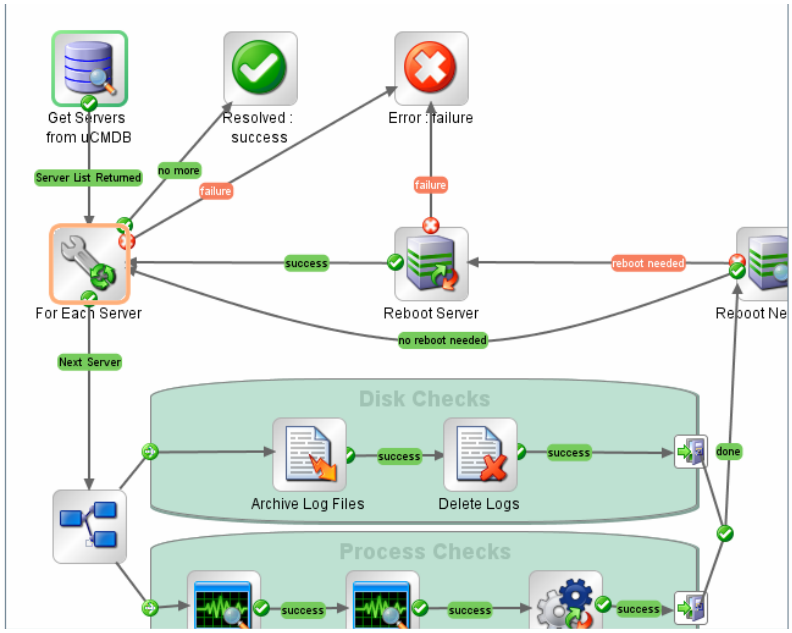

Figure 2.3: Data path created with an automated tool (Source: HP).

So what used to take the administrators a day or more to do their pinging and tracing can now take perhaps less than an hour to get the same information. This time savings relates to business value by making business processing quicker and more dependable with less downtime.

In a 2002 survey of 450 Fortune 1000 companies, Find/SVP found that the average hourly downtime cost is $82,500. Here is the breakdown by industry of the amount of money lost for each hour of business processing downtime:

- Manufacturing—Approaching $400,000 of loss per hour
- Telecommunications and Internet—A little more than $300,000 of loss per hour
- Banking—Close to $250,000 per hour
- Transportation—Just over $150,000 per hour
- Retail—Approaching $150,000 per hour
- Insurance—Losing right at $125,000 per hour

It is very likely that these costs are notably higher now, 6 years later. And besides, which of your business customers want to sit and twiddle their thumbs while waiting for their business application to finish processing?

Synchronization

Synchronization, through the use of reconciliation, will ensure accuracy across integrated systems. Within ITIL V3, the CMDB documents the way the CIs are supposed to be configured, not necessarily the way they are actually configured, which automated enterprise discovery tools can reveal to you. The automated detection of actual state compared with desired state is one of the value propositions for good discovery. Being able to associate unplanned infrastructure changes with the services the infrastructure support is critical for driving stable and resilient services. Change controls must be in place to synchronize or to ensure any changes to the monitored CIs are approved and updated within the CMDB.

Synchronization typically is associated with the replication of data from one source to another, as within a monolithic CMDB. This is not an ideal practice for many reasons including duplication of data, storage, and network bandwidth implications. Rather than using replication for synchronization, companies are moving to federated solutions that do not require physically copying the data. Using these new synchronization methods, that are actually reconciling information, supports effective change impact analysis, which will prevent unexpected downtime. Root cause analysis can be used to enable rapid incident and problem resolution.

Using the ITIL V3 synchronization through reconciliation provides a consistent way in which the actual environment can be compared with the target environment, allows IT personnel to more easily determine unplanned changes, and very importantly, creates audit trails that can be used for compliance activities. Synchronization also helps to support IT initiatives that meet the organization's strategic business goals.

CMDBs Help Reveal the Big Picture for Enterprise Components

Gartner research has also revealed that the most frequent driver for organizations to use CMDBs is to have a better, more comprehensive understanding of how the enterprise infrastructure components relate to each other, and use this information to make better decisions during change impact assessment problem isolation to ultimately improve the business (Source: "Conference Poll on CMDBs Shows Some Progress"). A valuable CMDB will be one that is business services-centric. It will maintain a comprehensive and current record of all CIs and relationships from multiple sources, in addition to providing services to make the CMDB information as valuable as possible to the business. This value is increased through using automated CMBD tools.

To put it another way, a CMDB is a view of all the IT services and the associated enterprise infrastructure interdependencies. This includes configuration information within the network devices as well as the systems and applications. It also includes information for the logical associations for IT services and infrastructure components, including such things as customers, operational owners, suppliers, outsourced services, and so on. In a nutshell, a CMDB is like a view of a system of sources along with the policing and associated technologies by which they are governed that result in a comprehensive view of the enterprise IT services. Remember, ITIL V3 is all about IT adding value to the business, so the CMDB must be business services-centric to be most effective.

A business services-centric CMBD will have the following capabilities; use this list as a checklist when you are comparing vendors:

- Host Discovery—The CMDB should provide accurate and current information that can be enhanced with automated discoveries
- Base Federation and Reconciliation—The CMDB should provide support across Service Transition activities and improve data quality throughout the enterprise as well as allow for enterprise federation with third parties
- Mapping and Visualization—The CMDB should contain information that can be used to provide accurate service views and maps to help break down silos and better integrate IT with business
- Configuration Change Tracking—The CMDB should provide the data to improve the mean time to repair (MTTR) and enforce standards
- Access Control—The CMDB should provide the right information to the right people, and keep unauthorized individuals from accessing data for which they have no business need
- Application Mapping—The CMDB should have the data necessary to allow for automated, comprehensive application and service discovery
- Impact Analysis—The CMDB data will allow for automated tools to proactively analyze impact of changes on business services
- Reporting—The CMDB data can provide the data that will allow for analysis resulting in actionable, valuable business information
- Management Capabilities—The CMDB data will help to improve operational flexibility and reduce costs

The CMDB Federation (CMDBf) working group drafted an industry-wide specification for sharing information between CMDBs and other management data repositories (MDRs), such as asset management systems and Service Desks. Learn more about it at http://www.cmdbf.org/.

The Need for a CMS

As organizations become more complex, the CMDB will become exponentially complex, often to the point of becoming unwieldy. To help address this possibility, make IT personnel happier, and achieve good results for the business, organizations should consider using a CMS.

> 🕮 The OGC's official ITIL V3 books define a CMS as, "A set of tools and databases that are used to manage an IT Service Provider's Configuration data. The CMS also include information about incidents, Problems, Known Errors, Changes and Releases; and may contain data about employees, Suppliers, Locations, Business Units, Customers and Users. The CMS includes tools for collecting, storing, managing, updating, and presenting data about all Configuration Items and their Relationships. The CMS is maintained by Configuration Management and is used by all IT Service Management Processes."

To gain effective results and avoid a lot of pain and frustration, it will be very important for you to create a thoughtful, thorough plan through coordination with all your key players.

The Need for Dependency Mapping Tools

Implementing configuration management processes is a big step forward in helping your established enterprise systems and applications communicate with each other, subsequently improving the value of IT in the eyes of business customers by increasing uptime and productivity. To be truly effective, the CMS and CMDB need to be integrated with Change Management and Release Management processes. Effectively using the CMS, CMDB, and dependency mapping tools will improve the understanding of service and application dependencies when doing change impact analysis.

Values of ITIL V3 Release and Deployment Tools to Business

There are numerous types of value that Release and Deployment tools running under ITIL V3 processes can bring to a business. Some will be unique to your organization and others will be common throughout many organizations.

The following list highlights just a few of the values ITIL V3 release and deployment tools can bring to all businesses:

- Efficiency—IT Services changes can be made more quickly and more efficiently with the least cost and reduced risks by using release and deployment tools. The automation of key activities based upon automated triggers makes change management much more efficient and timely than depending upon individuals to notice when events need to be performed, and possibly overlooking significant issues. Plus, significant cost savings to the business is always good!
- Consistency—Using automated tools can provide consistent IT Service implementations throughout the enterprise, which improves business. When release and deployment is poorly executed, or performed ad hoc, IT folks will spend a lot more time troubleshooting problems and trying to manage the accompanying complexity involved with performing an implementation without a proven, automated plan.

- Predictability—The release and deployment of IT Services changes can be made more predictable through the use of release and deployment tools. What if you ran a restaurant and used no recipes for the changing items on your menu? The results would be unpredictable, and your customers would likely want to avoid coming to your restaurant because they would never know what they would be getting from one visit to the next. ITIL V3 provides, in effect, the recipe for successfully and consistently making changes in a way that is repeatable from one change to the next. Business areas will then view the IT area as having predictable outcomes to changes each time they occur, instead of worrying how any announced change will impact their ability to actually perform their business processes.
- Reliability—The release and deployment of IT Services changes will be more reliable using ITIL V3 processes along with release and deployment tools: more reliable reactions to release and deployment events and more reliable outcomes from change releases and deployments. Release and deployment will be more reliable as a result of having these activities performed without interruption, and will deliver the outputs required by the business.
- Accountability—The individuals involved with the release and deployment of IT Services changes will be held accountable through the use of automated tools that log who has done specific activities related to the changes. There will be no easy way to point the finger at others for actions that did, or did not, occur as revealed by the logs generated through the release and deployment tools.
- Successful workflow hand-offs—The hand-offs that occur throughout what are increasingly complex series of activities will be more likely to successfully take place through automated release and deployment tools. Such tools will automatically trigger hand-offs and human error will be lessened.
- Better coordination and scheduling—Considering the increasing complexity of networks and applications, it is no wonder that necessary release and deployment activities slip through the cracks when you depend upon individuals to maintain a hand-writing to-do list to accomplish the change tasks. Automated tools can ensure that all activities are appropriately coordinated and scheduled, and can automatically identify any scheduling or coordination conflicts.
- Compliance and governance—Your business leaders and compliance areas will be happy to know that there are significant compliance and governance values for automated release and deployment tools. Automation tools provide the ability to do such things as automatically verify and report on the changes that have taken place, along with who made the changes, when the changes occurred, and why the changes were made. This automation provides a consistent, reliable process to generate audit trails and logs that are crucial for a wide range of compliance requirements, in addition to limiting business risk.

Effective, proven ITIL V3 release and deployment tools can provide comprehensive automation to enable automated management of not only change release and deployment processes but also all technology processes across the entire business service life cycle. These tools enable you to connect different systems, tools, and groups that support a business service around key use cases in the Service Desk, for not only Change Management but also Incident Management, Problem Management, and all the other Service Desk responsibilities.

Complemented By, and Complementary, Professional Services

External IT service providers as well as internal IT departments no longer provide strictly technological services. Instead, most of them act increasingly as professional service providers for IT users and business customers. These IT users and customers demand functionality along with a minimum level of quality that supports their activities within business processes and improves their productivity.

Service Transition processes can be complemented by professional services in ways that help business customers to realize their expectations for IT Services. In addition, Service Transition can be used to complement and improve these professional services.

Consider SaaS, which is a variation of outsourcing. SaaS is often viewed within large organizations as a disruptive delivery model that challenges traditional enterprise IT management and associated services. There are certainly some challenges. Some SaaS solutions remove some of the control of mission-critical IT processes from the internal IT group. There are also concerns about the reliability and availability of SaaS solutions that are mission critical to the business. Information security is another concern. How can SaaS vendors be trusted to appropriately safeguard the information with which your organization has entrusted them? And how is the SaaS vendor protecting the privacy of any personally identifiable information (PII) to which they now have access? And then there is the integration issue. How can you ensure the SaaS systems will seamlessly integrate with your systems?

ITIL V3 Can Complement SaaS Professional Services

Large, geographically distributed organizations have different requirements for Service Desk management solutions than smaller enterprises. Different types of Service Desk management SaaS services will be needed by each. Likewise, a large, highly technology-diverse organization with many mission-critical business services will have different needs for Service Desk tools and corresponding SaaS services than will smaller organizations with one or a few business services.

IT leaders can use the change impact analysis processes within ITIL V3 to map and visualize potential SaaS solutions for the Service Desk and their business impacts. The change impact analysis, properly done, should reveal the ways in which SaaS services can handle problem, change, and configuration management within large organizations and determine whether smaller organizations will be able to obtain the one-stop asset, service, and systems management SaaS solution that they often need.

SaaS Professional Services Can Complement ITIL V3 Processes

Organizations that do not have well-integrated Service Desk and Change Management processes can benefit from SaaS services that provide mature, full-featured capabilities for Incident, Problem, Change, and Configuration Management. By using SaaS solutions, organizations can reap the benefits of being able to perform complex application mapping and service-level management without stressing their own systems and networks. SaaS services can also provide relief related to the complexity of the required workflows with Service Desk and Change Management processes specifically, and within all other ITIL v3 processes in general.

Managing enterprise changes to the information processing infrastructure is compounded by size, complexity, business impact, and new regulatory requirements. SaaS services can be used to model workflows and offer the tools to provide the appropriate approval and change controls. SaaS solutions can allow organizations with limited resources access to industrial-strength processes and workflow management tools that allow secure, auditable, and controlled processes.

Lower Costs

Using ITIL V3 Service Desk and Change Management processes and utilizing professional services such as SaaS solutions, an organization can both prevent errors and problems and fix them much earlier in the business systems life cycle.

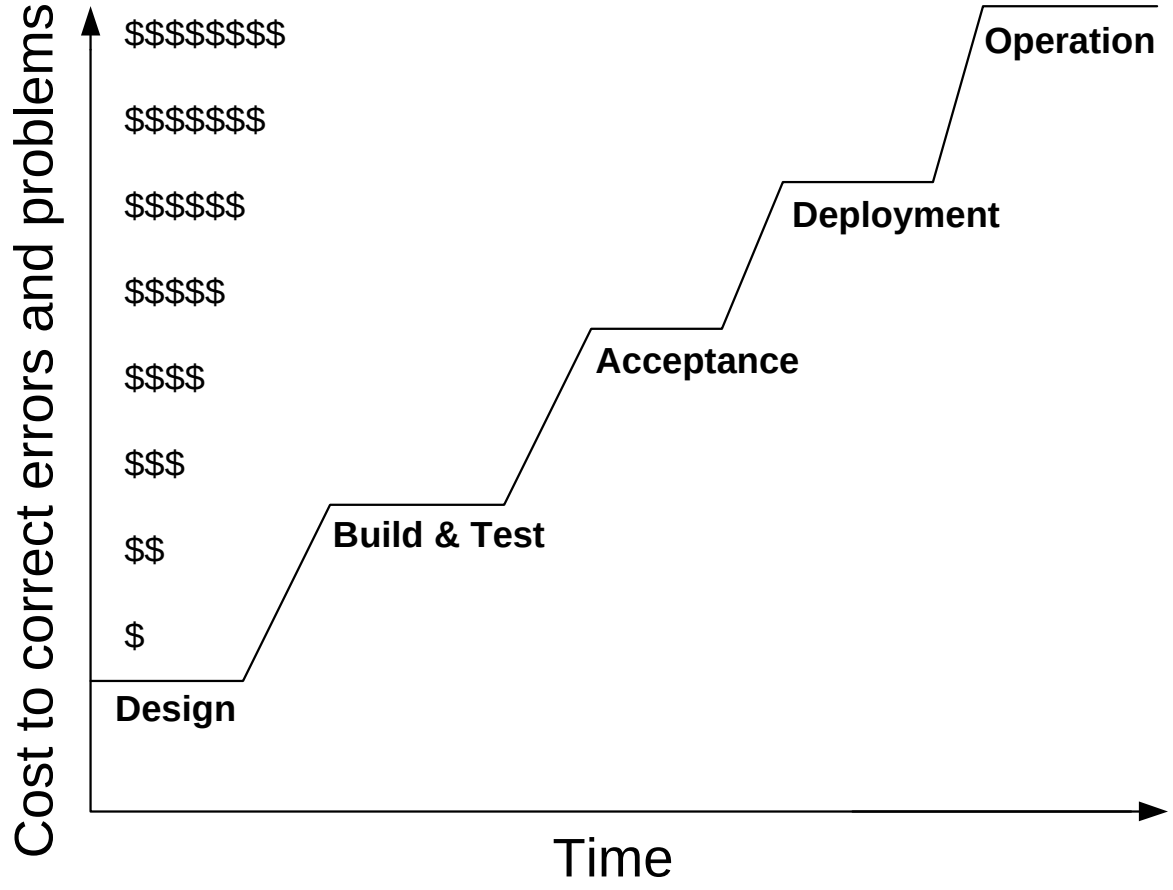

Figure 2.4: How it costs more to fix errors and problems.

As illustrated within Figure 2.4, the longer an organization waits to correct errors and problems, the more it will cost as the errors and problems move from stage to stage within the IT Services life cycle. Most organizations will realize that the resources invested in ITIL V3 processes and solutions will be much less expensive than discovering and fixing problems and errors after systems and applications have gone into production operation.

Looking Ahead

Service Transition offers a new approach to Change Management and Service Desk operation; Service Transition recognizes Change Management and Service Desk functions are much more complex than they ever have been. What may have always worked in the past will likely not acceptably work for business in the present. Services need to be tested and deployed in a controlled manner to mitigate risk, assure quality, and make the IT department more agile and responsive, resulting in more business benefits and happier business customers.

With effective Service Transition, Change Management, and the Service Desk processes in place, you will be able to integrate IT into the enterprise business fabric, resulting in better and more productive, efficient, and successful business. Too good to be true? In the next chapter, I will point out some of the specific ways in which business is improved and made more valuable through implementing ITIL V3 Service Operations and Business Service Management processes.

Chapter 3: Service Operations and Business Service Management

Before launching into a discussion of Service Operations, let's first step back and think about what the term means to level-set our discussion. Your Service Operations are basically what you are doing on a day-to-day basis to take care of business, which include providing effective and efficient delivery and support of services to ensure the business meets its goals and objectives.

With regard to IT, Service Operations is doing what you can each day to ensure value for your internal business customers, your organization's external customers, and your service providers. Service Operations is where you demonstrate to your customer the quality and value of IT to the business. It is where you deliver on your IT service level promises.

As an IT leader, you want your Service Operations to be stable, scalable, allow for design changes as necessary to support the business as it changes and grows, and to stay within the predefined service level agreements (SLAs). How do you do so effectively and efficiently? This chapter explores detailed process guidelines, tools, and methods for handling Service Operations from not only a reactive perspective but also from the oft-overlooked proactive viewpoint.

The ITIL V3 Perspective of Service Operations

Do your business customers view your IT Service Operations as valuable and necessary to business success? If not, you need to determine why, and work to improve your Service Operations. ITIL V3 can be immensely helpful.

ITIL V3 is useful for IT leaders for effectively managing Service Operations in that it provides detailed proactive and reactive process guidelines, methodologies, and tools. These ITIL V3 concepts will provide IT leaders with the knowledge they need to make better decisions for managing service availability, controlling services demands, optimizing capacity, fixing problems, and efficiently and effectively scheduling operations. ITIL V3 provides guidance for five Service Operations processes as they are used within five functions (see Figure 3.1).

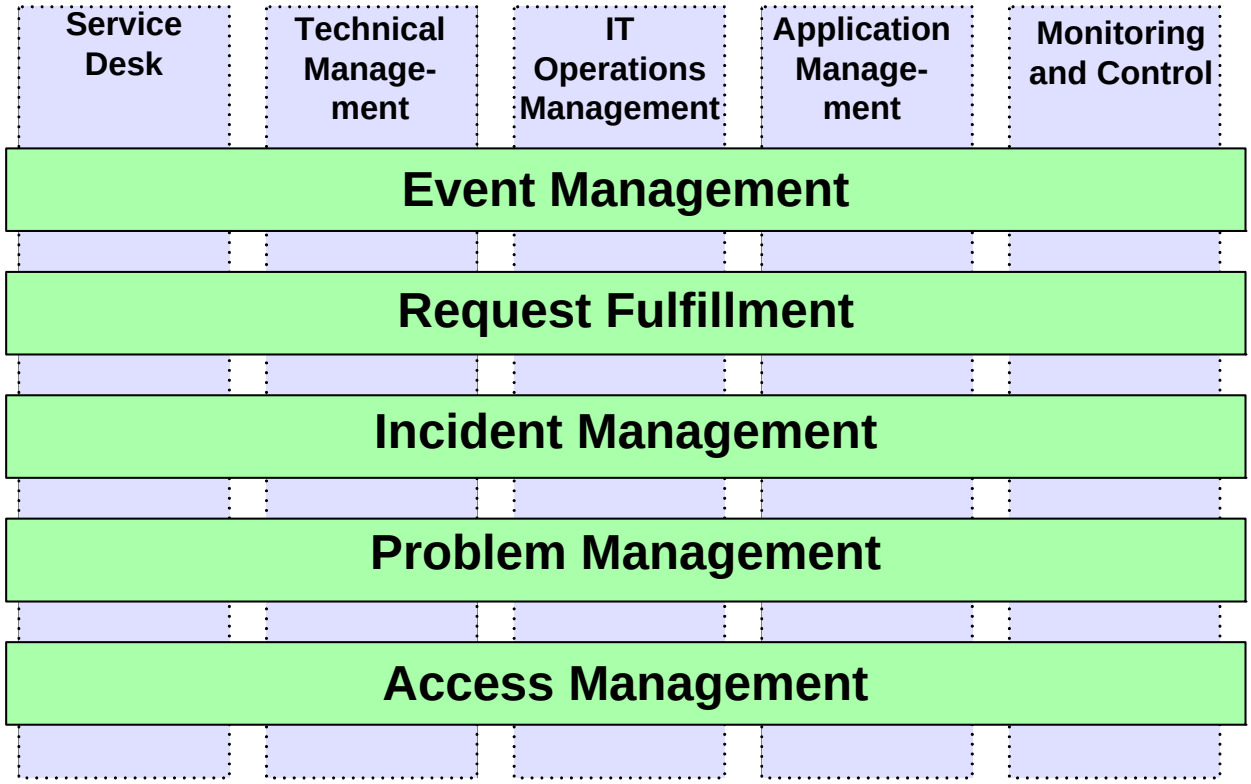

Figure 3.1: Service Operations processes and functions.

Event Management

The focus of Event management is to effectively and efficiently manage IT service events throughout the entire event life cycle. *Events* are basically any detectable occurrences that could result in a deviation to the service. There are normal events and exception events. Normal events include such events as scheduled operation starts and completes, when a user logs into an application, and so on. Exception events, which are triggers that need some type of response, include application failures, licensing violations, server performance below SLAs, physical events such as smoke and fire that shut down processing, and so on.

Incident Management

The focus of incident management is to effectively manage the complete life cycle of all incident types and return the service to normal business processing. An incident is basically any unplanned interruption to an IT service (such as complete loss of power) or reduction in the quality of the service (for example, a longer-than-acceptable response time from a business application).

Problem Management

The focus of problem management is to effectively manage of the entire lifecycle for an incident, including the determination of cause and elimination of the root problem. The main goal of problem management is to prevent incidents from occurring in addition to minimizing the negative business impact of incidents that could not have been prevented.

Access Management

The focus of access management is to give your business customers the necessary access to information resources so that they can appropriately use IT services, data, or other information to fulfill their job responsibilities and most effectively support business. Access management is closely aligned with, and significantly overlaps, information security in that its goals include protecting the confidentiality, integrity, and availability of information assets by ensuring only those individuals who are appropriately authorized may access, modify, delete, or otherwise handle information assets. You will often hear access management referenced when speaking about rights management and identity management; terms used often by information security practitioners when discussing the individuals and entities authorized to access specific network resources.

Request Fulfillment

The focus of Request Fulfillment is the management of the entire life cycle of service requests. Typically, the Service Desk makes requests to the area of IT responsible for the service involved with the request. Common requests include giving access to a user or a group, installing software, and moving a computer. Unlike incidents and problems, requests are planned and implemented when most appropriate to the business, based upon business impact analysis (BIA).

The Business Value of Service Operations

Successful IT leaders and personnel need to consider IT's contribution to the business whenever they make a decision, and with every project they decide to undertake. After all, if the decision or project is not going to support or improve business, what is the reason for doing it? The heart of ITIL V3 practices is to support this business-centric approach to managing the IT infrastructure and Service Operations. A goal of IT leaders should be to demonstrate business value, and ITIL V3 can assist with meeting this goal.

Not long ago, IT leaders approached IT management and Service Operations from a purely technological point of view. IT management reports typically consisted of statistics documenting the average number of million instructions per second (MIPS) that were processed during each hour of the work day as well as the number of "abends" (abnormal ends) for the previous night's batch application processing runs. If business unit leaders read these reports, their eyes would either glaze over or they would complain, "Why can't these IT folks use normal language!"

ITIL V3 provides IT leaders with the help they need to effectively communicate IT issues to business customers by taking a business approach instead of a technology-centric perspective. By doing so, IT leaders can establish suitable and understandable objectives for IT Service Operations for business customers to understand and better appreciate.

For example, by dynamically mapping IT assets to the appropriately named business services, IT leaders can shift their view from a topological technology map to one that shows the IT-services-to-business-assets linkages. This mapping allows IT leaders to link IT events to business outcomes and provide reports and other information in business-centric language. By managing Service Operations from a business perspective, IT leaders will better optimize the performance and availability of business services and processes as well as better support business applications and the foundational infrastructure.

Defining "Service"

Let's do another level-set to make sure we are all talking about the same thing when we talk about a "service." The Office of Government Commerce defines "service" within the ITIL V3 documents as "Delivering something of value to a Customer that is not goods (physical things with material value). Examples of services include banking, legal support or email. Service is also used as a synonym for IT service."

Within a typical business, there are many services. To most business customers, the business value of services such as mail, phone, payment processing, and marketing is fairly apparent. But the business value of IT services is often quite nebulous to those outside of the IT area, creating a chasm of communication between the IT and business areas. IT business leaders can bridge this communications chasm by helping business to understand the IT services that are available to, and used by, the business, and then to demonstrate, through exceptional Service Operations delivery, the value IT brings to business.

Chapter 1 discusses the definition of IT services in depth. However, to help best define the business value of Service Operations, let's quickly review the definition of IT service and explore how it changed slightly from ITIL V2 to ITIL V3.

Consider the different perspectives of an IT service. IT leaders typically consider a service as being an interconnected group of applications, systems, and network components (see Figure 3.2).

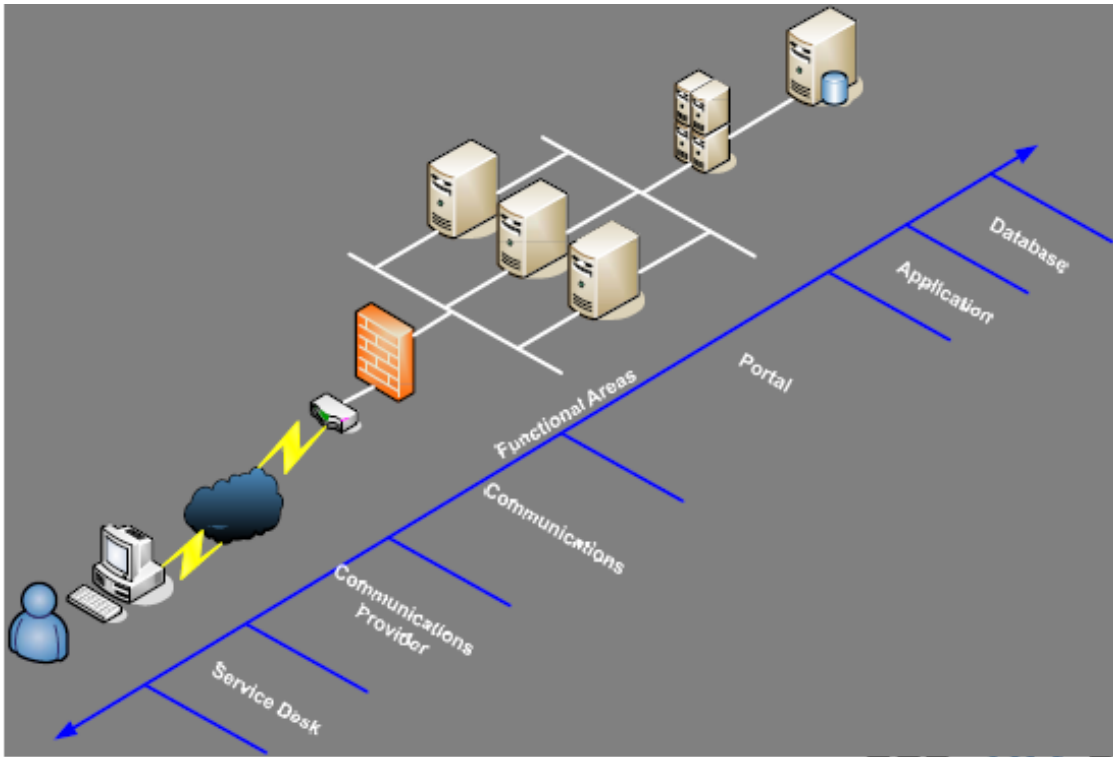

Figure 3.2: The IT view of a "service" (Source: HP).

However, typical business users view an IT service as something they use on their computers to help them accomplish their work responsibilities (see Figure 3.3).

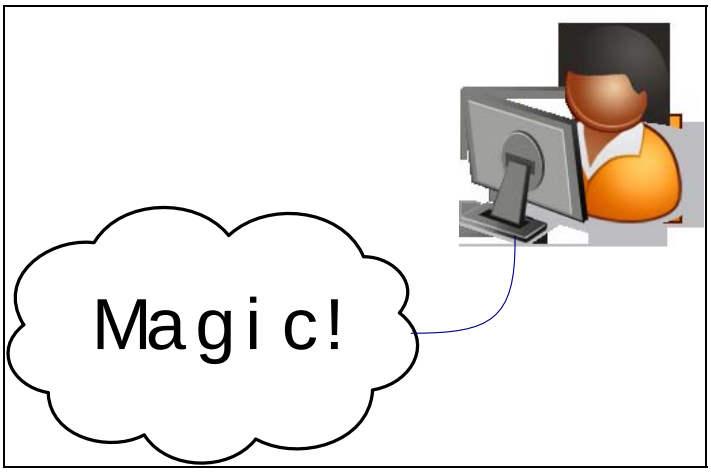

Figure 3.3: The business customer view of a "service."

The customer view is much more limited than the IT view. This idea is one that IT leaders should always remember.

Under ITIL V2, an IT service was viewed as a set of related functions and processes provided by the systems and network components that support one or more business areas. The service was composed of hardware, software, and communications components but was viewed by the business customers as a distinct, self-contained unit. The services were managed as processes that were aligned to the related activities and output, but they were not strategic. Each of the IT services was basically just a group of processes, people, and tools that were supported with no knowledge necessary, or considered, for what the business customer wanted to achieve by using the service.

ITIL V3 puts business into IT services! It emphasizes the importance of an IT service to deliver to business customers by helping them to reach their targeted business outcomes without needing to own the specific IT costs and risks. ITIL V3 preaches that IT leaders must build services to meet expected business outcomes.

Consider a very simple example of incident response. Very generally, ITIL v2 is all about IT process and the goal is improving IT efficiency and effectiveness, so this service would have been viewed as a matter of how quickly the incident response took to resolve the problem, how many IT and IT personnel resources were used, in what ways can the service can be improved, and so on. ITIL v3 looks at incident response from the viewpoint of the business: did the incident response time negatively impact business? In what ways? What needs to be changed about incident response to prevent this negative business impact?

Performance

IT Service Operations considers how well the full range of services, processes, applications, and other activities and supporting tools are performing. If performance is great, business benefits; if performance is poor, business suffers. Key performance indicators (KPI) can be used quite effectively to determine the efficacy and efficiency of IT Service Operations.

> 🕮 The Office of Government Commerce defines "Key Performance Indicator" within the ITIL V3 documents as "A Metric that is used to help manage a Process, IT Service or Activity. Many Metrics may be measured, but only the most important of these are defined as KPIs and used to actively manage and report on the Process, IT Service or Activity. KPIs should be selected to ensure that Efficiency, Effectiveness and Cost Effectiveness are all managed."

To be most effective, KPIs should be created from the business perspective of the corresponding services. Entire books are dedicated to the types of KPIs that IT leaders should consider using. The KPIs should cover, but not be limited to, such business-targeted metrics as:

- Business services metrics within predefined categories related to the urgency, prioritization, and impact of the services
- Time to make software changes
- Provisioning and configuration time for server or application deployment/implementation
- Automated compliance checks and changes
- Automated IT services health check results
- SLA performance
- Incident reports including problem relationships, status, and resolution
- Percentage of application availability problems discovered by end users
- Application transaction response time
- Compliance with applicable regulatory requirements

The value of the KPIs is increased with a focus not only on projects but also, perhaps more importantly, on ongoing day-to-day IT Service Operations that involve the hardware, software, applications, data, and networks needed to run the business. This makes sense because IT literally powers and enables the business.

Consider the KPIs the IT areas used to, and still widely, depend upon to determine how well they are doing. They looked much like the data in Table 3.1, with many numbers related to technical components.

Item No.	Metric	IT Goal
1	Application uptime	The application is available 99% of the time
2	Number of high severity incidents	<1/day
3	Total number of problems in the pipeline	<5/day
4	Network performance	Packet rates > 144/seconds Input error rates < 1/hour Output error rates < 1/hour
5	Number of emergency changes	<3/week
6	Web site availability	Web site response time < 600 milliseconds Web site uptime > 99.999% Web site errors < 1/day

Table 3.1: IT-centric KPIs.

Notice anything missing in these metrics? The relationship of these numbers to the business. Table 3.1 can be improved upon to provide value to business areas if modified (see Table 3.2).

Item No.	Metric	Business Goal
1	Application availability during normal work hours	100%
2	How many incidents occurred that caused business processing to be shut down? For how much time each?	0 per day < 1 minute each
3	What percentage of problems have we eliminated?	100%
4	Response time for business customers Dropped connections Bounced messages	< 500 milliseconds <1/day <1/day
5	How many unplanned IT changes occurred that took away application availability? How long did each change take to accomplish (application unavailability time)?	<1/month <10 minutes/week
6	External customer transactions submitted versus external customer transactions completed	100%

Table 3.2: Business-centric KPIs.

These types of business KPIs can provide clear evidence of how beneficial IT is to the business and/or in what ways it is impeding business.

How Performance Is Related to Problem and Incident Management

Business leaders are used to reviewing a wide range of regularly created reports. Taking a cue from the ITIL V3 philosophy, IT leaders should also regularly review reports written from a business point of view to help them determine the health of their Service Operations. For example, IT leaders can look at reports that show how many sales were likely lost during a period when the e-commerce site was down by comparing numbers with the correlating average sales for the same time period when the e-commerce site is normally available. By keeping a close eye on the performance of IT services, IT leaders can spot problems and incidents that may not otherwise be identified by IT personnel or other types of tools. Reviewing performance and KPI reports can optimize performance and availability of business services and processes as well as support applications and the foundational infrastructure.

> 🕮 According to a 2008 Aternity survey of Global 1000 enterprises, more than 35% of survey participants said their top priority during 2008 is preventing IT problems before they affect end users and business productivity.

Business Values of Automation

Finding problems before users report them is extremely valuable to the business. Predictive operations and automation allows for this early problem identification. Automation enables the IT service areas to quickly correlate events, effectively isolate problems, and improve the average time to repair.

Meeting business customer expectations is the biggest pressure for IT leaders. As Figure 3.4 reveals, customer expectations eclipse all other concerns currently facing IT leaders. This concern is prompting the transformation of the IT organization from one historically focused on technical knowledge to one focused on providing technology to the rest of the business, thereby bringing IT closer to the end user. Automation plays a major role in addressing the need to meet customer expectations; it can no longer be left to chance, manual processes, or ad hoc activities.

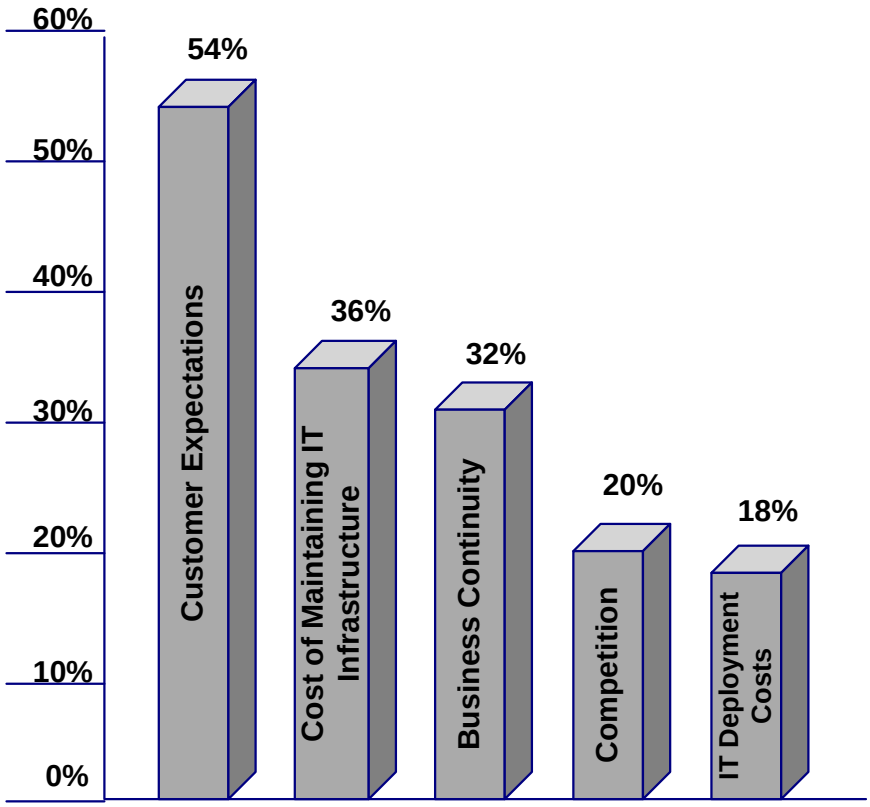

Figure 3.4: What's important for IT leaders.

Use Case Examples

Incident management, event management, and problem management can seem deceptively straightforward from the process view, at least from the business perspective. When a critical application goes offline, business customers often think it should be brought right back up with the flip of the switch. After all, it is all on a computer; how hard can it be, right?

However, as IT leaders know, these activities are actually usually quite complex, often spanning multiple systems, involving many people in many different areas, and covering multiple processes. If not approached in a consistent and repeatable manner, incident management, event management, and problem management can result in inconsistent actions and troubleshooting and will likely take an unacceptably long period of time to repair and process. Let's look at a couple of examples.

Incident Management

IT leaders are under fire frequently from the business areas because of the length of time IT takes to respond to and resolve incidents. Incident management can be improved dramatically and noticeably through automating common, repeated processes, such as incident alert diagnosis and resolution by performing activities such as writing scripts or using third-party software tools. Incident management, properly tuned, can

- Eliminate alert floods
- Empower frontline operations
- Reduce escalations

Problem Management

The Service Desk has a dilemma: How does it most effectively identify the IT service, diagnose the problems in the various components that make up the service, troubleshoot and remediate the issues, update the ticketing system, and update the CMDB? These interdependencies require active and coordinated management spanning IT and the business. Problem management, properly tuned, can

- Automatically handle known errors or route problems to the appropriate support personnel
- Determine the root cause using standard diagnostic tests and triage routines
- Detect and initiate problem remediation procedures immediately

Using automated problem management tools helps to ensure best practices are consistent and the time to resolution is greatly improved over manual processes. You can build such processes and tools in-house if you have the resources and talent, or you can purchase one of the many products available.

What Is Business Service Management?

Organizations can manage business services' infrastructure and the health of applications and services from a business customer perspective using Business Service Management (BSM); an approach or solution that includes processes that can be enhanced through a variety of tools. BSM is now a formally defined process within ITIL V3.

Business Service Defined

To examine BSM, we must first consider Business Service. Visibility to the business customer is key to what is considered a Business Service. As a little exercise, let's consider a few IT services and determine whether they are considered Business Services.

> 🕮 The Office of Government Commerce defines a "Business Service" within the ITIL V3 documents as "An IT Service that directly supports a Business Process, as opposed to an Infrastructure Service, which is used internally by the IT Service Provider and is not usually visible to the Business. The term Business Service is also used to mean a Service that is delivered to Business Customers by Business Units. For example, delivery of financial services to Customers of a bank, or goods to the Customers of a retail store. Successful delivery of Business Services often depends on one or more IT Services."

The Services: Time Management and Employee Payment Processing

Time management is the service all personnel use to submit their weekly attendance, vacation time used, number of hours worked that were devoted to specific projects, and so on. Each week, each employee logs into the time management system, fills out the proper fields using the appropriate time codes, and submits the time card for review by the appropriate manager. Each manager then reviews each time card and gives approval or sends it back to the employee to be corrected. When approved, the timecard is automatically sent to multiple business units, including Human Resources. The back-office applications take the data from the time management system, and the applicable data from the timecards are automatically fed into the employee payment processing system so that, on each pay day, the employee checks are automatically generated and printed.

Is the time management system an IT Business Service? Yes. Each employee interacts directly with the time management system, interacting with the associated applications so that the necessary data is entered into the system. Is the employee payment processing system an IT Business Service? The answer is debatable. However, if you are looking strictly at whether the business customer is directly supporting a business process, which payroll processing certainly would be, then the answer is yes.

The Service: New Employee Orientation

New employee orientation is the service used when hiring a new employee and performing all the activities necessary to allow the employee to begin working productively. The IT orientation service includes online forms for the new employee to fill out, network user contracts for the new employee to read and electronically sign, the assignment of user IDs to the new employee, the creation of logs that record the date and time the new employee performed the orientation activities, and so on. A regimented, seamless orientation IT process can reduce confusion, duplication, and delays surrounding the necessary steps to bring a new employee into the organization. The full orientation service would be comprised of several technical and operational processes with management involvement of IT and other business domains.

Is the new employee orientation service a Business Service? Yes. The business customers clearly see and use the orientation service, and directly interact with IT components to accomplish a necessary business tasks. Without a properly working IT orientation service, the new employee would not be able to get to work and start providing value to the business.

The Service: Data Backup

The data backup service is used to automatically make copies of critical business data throughout the enterprise. This service is configured to make these regular backup copies of data based upon the data characteristics. Business customers do not perform any actions to make the backups; this process is completely controlled and managed by the IT area. In fact, most business customers are likely not aware that data backups are even made or how often they are made.

Is the data backup system an IT Business Service? No. Business customers do not directly interact with the data backup system; do not perform any actions to support, change, or manage the data backup system; and likely are not even aware that such a system exists. Business customers will experience the business benefits of having the backups in the event backup data must be used to restore business processing, but they do not depend directly upon the data backup service to perform their day-to-day business responsibilities.

BSM

BSM is an approach that leverages processes and technology to make the goals of IT and the goals of the business generally one and the same. BSM uses a combination of business-driven top-down and technically focused bottom-up perspectives to manage the infrastructure, applications, services, and processes.

> 🕮 The Office of Government Commerce defines "Business Service Management" within the ITIL V3 documents as "An approach to the management of IT Services that considers the Business Processes supported and the Business value provided. The term also means the management of Business Services delivered to Business Customers."

Bottom-Up Perspective

Think about how your network and computer system applications are engineered; in most organizations, there are several layers of technology. Most IT shops manage their IT components in a bottom-up way, evaluating the performance of services based upon monitoring metrics from these many technology layers. Bottom-up service management focuses on collecting data from these technology layers, then analyzing them, both in real-time and from a historical trending perspective, to determine where changes, corrections, upgrades, and other modifications are necessary.

The data is usually captured using a variety of proprietary methods—such as in-house written tools or through purchased vendor packages—as well as non-proprietary methods—such as database queries, log files, SNMP, and so on. It is very important for IT leaders to have this detailed technical performance and monitoring information. Such data provides important details to help the IT areas perform at maximum capacity and with minimum downtime. Additionally, this data can be used to make intelligent SLA decisions and for making reasonable capacity planning decisions.

This bottom-up IT services management approach of using operations management tools to consolidate and correlate event and performance management from all the IT sources (systems, servers, networks, storage, applications, …) from throughout the enterprise allows IT leaders to prioritize their efforts and proactively manage the infrastructure to help prevent problems. This information can then be mapped to business services for evaluation. Configuration Items (CIs) can be identified using this type of bottom-up approach to reveal concern before a critical business service is impacted.

However, although these bottom-up service-oriented IT management activities are absolutely necessary for a healthy IT organization, these reports and data do not provide clear meaning to business leaders. Of course, all this data impacts the business, but the reports, data, and other communications that make perfect sense to the IT folks will be completely lost on most business leaders. This is where the top-down approach for IT Service Operations management brings meaning to the business leaders using those services.

Top-Down Perspective

The top-down perspective is basically starting at the highest strategic business level to determine what is important to meet the strategic business goals and revenue targets. This view is new to most IT shops. To have this top-down perspective, IT leaders must know and understand the needs of the business customer for meeting their goals. IT leaders must no longer be content to know technology; they must also truly know and understand the business value of the services they are providing. To do so, IT leaders must work closely with their business unit customers to define the IT services that are necessary for business success and determine whether these services already exist, must be improved upon, or must be built from scratch. The IT leaders will take this top-down business perspective to create a view of the supporting infrastructure needed to deliver the most important business services with the most appropriate SLAs.

A top-down perspective brings business insight into the IT services. It raises understanding about the business within the IT areas working on those services. In addition, it allows the IT areas to create reports and dashboards for the business areas using terminology and images the business areas will understand. A top-down perspective allows IT areas to drill-down from the high-level business perspectives of the corresponding IT services deep into the complex IT infrastructure details that IT leaders must have to successfully meet SLAs.

Using BSM tools allows IT leaders to communicate real-time data with corresponding SLA values and the corresponding status for each service as well as clearly illustrate how IT supports business. Effective top-down BSM tools demonstrate to business leaders the impact of IT upon the business.

The top-down views of Business Services need not be limited to the IT components. In fact, by including all the services involved with a particular business process, you can help build a complete picture of the entire process to more easily identify business priorities, potential problems, improvement areas, and other related issues throughout the enterprise. A goal of the top-down perspective is to start looking at a business process from a high level and drill down, layer by layer through the process, to get the most technical of the issues within the process to reveal and isolate problems and minimize business impact.

Perspective Commonalities

The difference between the two approaches is simply the starting point. In the bottom-up perspective, you look at what you have to offer and build services that can be supported by that infrastructure; in the top-down perspective, you define the services that are needed by the business and then ensure that adequate technology infrastructure is in place or obtained to meet those needs.

Consider medical book anatomy charts where there are multiple clear plastic images that you can turn, one page at a time, to start from an illustration of the human body as it looks to the naked eye (the top-down perspective) and with each page turn you reveal another layer lower into the human anatomy until you get to the muscles, then bones. When you start from this point (the bottom-up perspective) and flip each page back, you then build back up to the original picture.

There are many common drivers within the top-down and bottom-up perspectives, including three major drivers:

- Data center consolidation
- Management tool consolidation
- Unified management of new applications/environments
    - Virtualization roll outs
    - Major application roll-outs, including those that built as service oriented architectures (SOA)

An effective BSM solution will allow your organization to map the relationships between all three areas. Why is this important? It allows you to

- Understand the performance and availability relationships and impacts
- Prioritize problems based upon business impacts
- Report services levels of operations from the lowest technology levels up through the business views

In addition, mapping these relationships is a key enabler for a federated CMDB. And an effective BSM solution will allow for discovery and dependency mapping.

BSM helps IT leaders to clearly determine not only the technical performance of each service but also employee productivity and how well the IT area is meeting customer SLAs. Automation can also greatly assist IT leaders in knowing the business impacts of the systems for which they are responsible, which will help them better prioritize and plan for upgrades, repairs, and other changes. Another benefit of a comprehensive BSM approach is that it can help IT leaders to identify potential problems *before* they impact the business.

According to an IDC study, 41% of IT professionals are not aware of network problems until after they have been reported by end users.

This type of consolidated event and performance management not only makes IT Service Operations more efficient but also makes business more productive through supporting real-time and quick response business process monitoring and management. Features to look for in a BSM solution include:

- Event collection, filtering, and correlation across the entire enterprise infrastructure, including such components as servers, clients, network devices, storage, basic applications, element management systems, and so on
- Root cause analysis and problem isolation
- Various levels of remediation

Integrating BSM Solutions with the Service Desk

Many organizations still use Service Desk tools that are completely separate from the rest of the IT tools used within the enterprise, such as call logging and application use questions. IT shops can benefit greatly from integrating service management processes, such as the Service Desk, with the rest of the IT views to best illustrate IT from the perspective of the business.

The Service Desk represents a major resource commitment in most organizations. By placing emphasis on risk mitigation within a Service Desk area that uses tools that are integrated with the rest of the enterprise, organizations can improve problem and incident resolution by catching such issues as quickly as possible.

ITIL V3 provides guidance about how to manage the Service Desk in a way that minimizes customer disruption and maximizes a quick, efficient resolution to the problem. Highly effective Service Desks will reduce costs and downtime risks as well as lessen, or even eliminate, customer dissatisfaction through a comprehensive set of processes that are designed to track incidents throughout their life cycle, keeping customers informed of the latest remediation efforts and following SLA procedures for monitoring events and escalation, as necessary.

A comprehensive BSM solution can provide a single point of view and contact for users of IT services. An integrated tool will support IT leaders in their quest to bring value to business by

- Illustrating the relationships between business services, business customers, and SLAs
- Providing a hierarchical service structure view that shows multi-tiered SLA values
- Offering information in a format that business customers will be able to easily understand
- Providing the ability to customize forms, views, and fields in real time without bringing any applications to a halt
- Present reporting capacities and database views that allow for efficient integration with existing external reporting tools

Automation Improves Incident and Problem Management

By integrating BSM with the Service Desk, it is also possible to automate significant portions of the incident management and problem management processes:

- A key aspect of linking BSM and system monitoring with problem management is sharing information between the two domains to more effectively perform problem management. Tools can be used to automatically direct problem tasks to the appropriate support people with the information necessary to most efficiently address and resolve problems. Linking in the CMDB improves upon this.
- Automating problem and incident management triage routines eliminates many of the usual ad hoc phone calls, manual analysis, and data re-entry, especially for common tasks. This is also, perhaps more typically, associated with run book automation (RBA), discussed in the next section.
- Automating diagnostics routines so that corrective actions and data transfer to Service Desk systems can occur without human intervention; virtually allowing the data center to heal itself for many types of common problems and incidents. This is also, perhaps more typically, associated with RBA, discussed in the next section.
- Coordinating and consolidating events between Service Desk and monitoring applications
- Automating escalation processes to share and synchronize data with other third-party system monitors, freeing personnel to work on more strategic projects

BSM Is Extended by Run Book Automation

According to Gartner, the increasing use of IT process automation, which is frequently referenced to as RBA has also increased the need for IT operations leaders to deliver and provide higher IT operations efficiencies "including reducing mean time to repair (MTTR), increasing mean time between failures (MTBF), and automating IT resources provisioning."

> 🕮 According to Webopedia, "Run Book Automation (RBA) refers to technologies used to achieve operational IT efficiency by streamlining run book procedures through automating many of the daily manual tasks. RBA helps organizations by reducing manual tasks which are time consuming and also prone to human-error issues, provides a more efficient workflow through automation, and reduces operational costs while still meeting IT service levels and compliance."

RBA can link people, processes, and technologies used within BSM to make IT Service Operations even more valuable to IT leaders specifically and to the business as a whole. RBA helps to extend and enhance BSM by building bridges throughout enterprise technologies to make a more fully integrated system through which both comprehensive automation and the most appropriate management controls can be achieved. RBA moves your organization from fragmented and manual processing and closer to fully synchronized operations automation.

Levels of Automation

RBA supports incident management and problem management through many levels of automation, including but not limited to:

- Empowering the frontline and reducing the MTTR
- Automating server and service restarts, log analysis, and other critical incident management activities
- Orchestrating change management through the integration of existing tools that are determined to be necessary by the incident management activities
- Facilitating end-to-end automation of all the monitoring and ticketing tools used throughout the incident management life cycle
- Creating detailed audit logs that support not only effective incident and problem management but also a wide range of compliance requirements

Looking Ahead

Service Operations and BSM approaches can improve business in very specific and measurable ways, as demonstrated throughout this chapter. Using automation will help to reveal these metrics and improve the value IT brings to the business.

The next chapter will discuss the entire service life cycle, including service transition. In addition, the chapter will point out specific ways in which business is improved and made more valuable through the implementation of ITIL V3 processes and will explore key benefits of automating the service life cycle.

Chapter 4: Automating the Service Lifecycle

A significant benefit of ITIL V3 is how it aligns IT throughout the entire business enterprise by looking at the IT Service Lifecycle and promoting Continual Service Improvement (CSI).

> 🕮 The Office of Government Commerce (OGC) defines CSI as, "A stage in the Lifecycle of an IT service and the title of one of the Core ITIL publications. Continual Service Improvement is responsible for managing improvements to IT Service Management processes and IT Services. The Performance of the IT Service Provider is continually measured and improvements are made to Processes, IT Services and IT Infrastructure in order to increase Efficiency, Effectiveness and Cost Effectiveness."

As a quick recap of some of the concepts covered in the previous chapters, the primary change from ITIL V2 to ITIL V3 is that the processes defined within ITIL V2 were taken and structured around a Service Lifecycle within ITIL V3 to better align with how business works and to put more focus on service as opposed to separate processes.

Of course, the processes and functions are important, and necessary, but they are secondary to delivering and supporting the services. Under ITIL V3, processes exist to plan for, deliver, and support IT services, making the Service Catalog a key component of IT Service Management (ITSM).

The Service Lifecycle spans Service Strategy, Service Design, Service Transition, Service Operation and CSI and consists of the components shown in Figure 4.1.

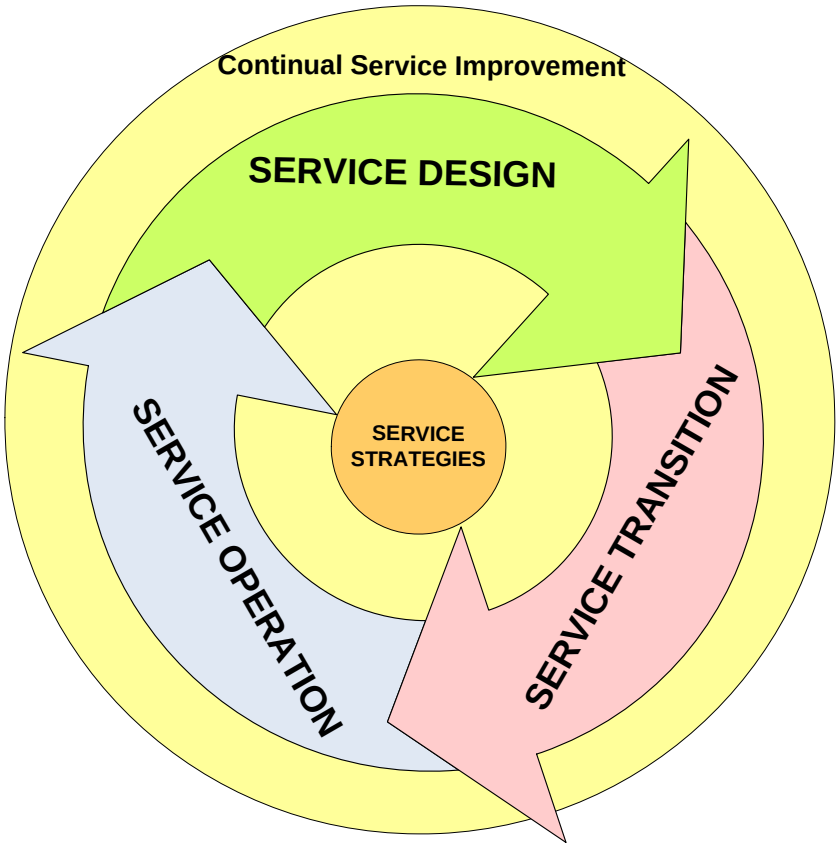

Figure 4.1: ITIL V3 Service Lifecycle based upon the OGC model.

Not only does ITIL V3 align IT more closely with how the business is run, it brings with it the great opportunity to use the processes for risk mitigation. Such risks include downtime resulting from problems, regulatory noncompliance, and business processing errors.

> 🕮 Risk mitigation will be discussed in more detail later in this chapter.

Service Lifecycle Management (SLM) drives the organization of IT and how the associated processes interact and integrate with the business. I will highlight some of the ways SLM integrates with the business and improves IT throughout this chapter.

CSI drives the transition from reporting to measuring and optimizing performance and quality. CSI includes establishing and maintaining up-to-date statistics to continually measure key components to improve IT, which in turn improves business by providing such things as improved productivity of end users through more reliable services, innovation of new services that drive revenue or optimize processes, and so on.

These measurements demonstrate clearly to business customers the value of IT. Measurements allow IT leaders to

- Make the business case for investing in IT
- Demonstrate the actual value of IT instead of just talking about it
- Provide verifiable values that represent the overall health of ITSM

IT leaders can implement tools to automate as many Service Lifecycle processes as possible to achieve many SLM benefits, such as aligning the IT portfolio with business needs.

A wide range of not only IT positions, but also business customers, can use SLM tools to measure, interpret and communicate IT business services results. These include such positions as

- IT managers
- Consultants
- IT practitioners
- Outsourcers
- Vendors

SLM aims to continually align IT services to changing business needs by identifying and implementing improvements and continually looking for ways to improve process efficiency and effectiveness. SLM also aligns IT services to accomplish better cost effectiveness. Using appropriate tools to automate the processes throughout the Service Lifecycle allows SLM to be more effective.

To demonstrate the wide range of processes performed throughout the Service Lifecycle, and how they can also include risk mitigation activities, consider once more the new employee process within an organization, and the multiple tasks that must be performed for a new employee to become a fully functioning member of the organization.

Service Strategy

Before you can define what represents acceptable quality IT service, you must first completely understand the business process of establishing a new employee within the organization. Interview the key stakeholders for this process, and thoroughly document all the involved activities. When you have a good understanding of the process, ask the applicable business leaders what they want and need from IT services to make the new employee process as useful and efficient as possible. These needs will vary by geographic location, department, job role, and so on. There are also growing numbers of compliance issues to consider related to job responsibilities and applicable laws.

It is also important to understand what the organization itself needs to accomplish when bringing in a new employee. For example, is it important to have all the new employee tasks accomplished within a week? 72 hours? 24 hours? Does it depend upon the position and role that the new employee is taking? Does the service you are creating need to accomplish the involved tasks more quickly than the service you are replacing?

Now identify the IT services that need to be involved with bringing in a new employee. This process will typically include financial services, facilities management, benefits administration, and network services using IT service portfolio management. ITIL V3 enables IT leaders to accomplish disciplined IT budgeting, value analysis, services documentation, and demand management that will be necessary for new employees.

Using ITIL V3 processes for establishing new employees within the enterprise can also reduce many risks related to budget errors and the related cost overruns. For example, these processes can reveal if the new employee salary and benefits package, and necessary IT resources, are going to fit within the available budget. Using tools to automate the creation of this information using the ITIL V3 Service Strategy concepts that link the Service Portfolio will align IT with the business need. Managing IT services demands will allow for an appropriate supply and demand balance to be established within the existing infrastructure capacity and allow for future new employee requirements. As an example, if the business wants to increase the workforce by 25%, you need to ensure that the IT infrastructure and accompanying IT portfolio can support that amount of user growth. You can make use of tools created to support ITIL V3 to automatically see the results of different scenarios.

Service Design

Now that you have thoroughly documented the necessary new employee services within the IT services portfolio, you need to create the designs and blueprints for the related processes and workflow to support the new services. During this phase, you will need to address issues such as infrastructure capacity management, availability management, service capacity management, continuity management, information security management, supplier management, service catalog management, and compliance management.

Most IT leaders are already quite familiar with all these processes. However, historically, these processes have been completely separate from each other and handled by different teams. By using ITIL V3, these processes will be performed in an integrated way with not only each other, but also within the business units.

This coordination, automated where possible, can eliminate the risks related to isolating the services and result in lowered costs and fewer delays and business disruptions. The real risk is in the isolated IT functions. The service lifecycle approach ensures that all personnel filling all IT functions clearly understand their roles in the delivery and support of IT services. Automation ensures processes, that are often overlooked when done manually, are followed and that risks are correlated with events. Automating routine tasks also improves reliability and delivery time.

Using the ITIL V3 Service Design processes, organizations should experience a clearer, documented understanding of business requirements by the IT area, Service Level Agreements (SLAs) will be better enforced, and asset management will be more disciplined and consistent. For example, you will be better able to ensure high availability, reaching the "four nines" goal that IT organizations typically strive for. As another example, as a result of better design, down the road when you are performing network capacity management, you will be able to better identify the amount and type of non-business network traffic, such as music files, streaming video, and other multimedia files that employees often want to download and then better control it.

The service catalog plays a major role in service design. A service catalog identifies the IT services that can be provided during service design. Each entry in the catalog describes an IT service that is a collection of related business processes. Thus, when you are establishing a new employee service, necessary business processes could include accounting and payroll, benefits administration, and network access authorization. Effective Service Catalog Management is critical for ensuring all business areas can have an accurate and consistent view of all IT services, along with their corresponding details and status.

When IT leaders improve ITSM, it will reduce the risks of having downtime, which of course takes time away from business processing and damages the view business customers have of the IT area.

> 🕮 Availability is often expressed numerically as the percentage of time that a service is available for use. "Four nines" generally means that a service or system is available 99.99% of the time.

Service Transition

Once the new employee services have been well-designed and documented, you need to prepare and plan to integrate the new services within the IT enterprise environment. ITIL V3 describes processes that IT leaders can use to effectively perform the change and configuration management activities necessary to ensure the readiness of the technical, operational, and strategic infrastructure to receive the new services. There may also be services that need to be updated or even removed. For example, if part of the new employee service involves establishing electronic time cards, there will likely need to be changes made in the existing employee time management service, or perhaps it will be replaced completely.

During this phase, IT leaders will need to determine and document such decisions as the positions responsible for the changes, the risks involved with making the changes, the return on investment (ROI) of the change, and the security risks created as a result of the changes. By documenting these important decisions, as recommended by ITIL V3, IT leaders will ultimately clarify all the implications related to the changes.

This third phase of the Service Lifecycle identifies and addresses some of the biggest risks associated with moving an IT environment from a steady state and injecting new, technical, operational, and strategic processes. This phase creates a well-documented, well-disciplined, and comprehensive change, configuration, and release management process that delivers transparency, reducing unauthorized changes that could disrupt business systems. In reality, there will still be unauthorized changes, especially in large, complex networks. However, the percentage of unauthorized changes decreases significantly with automation. Automation also supports the quick detection and reconciliation of unauthorized changes.

Service Transition also allows the IT team members to have a thorough understanding of the resource demands for the involved systems and process changes. For example, you will be able to determine whether new assets or human resources are needed to support the new employee service processes. By doing this, you will also support the business value the change was intended to provide.

A complete understanding of the changes that are planned is necessary to accomplish effective change, configuration, and release management. Using tools to automate the modeling, planning, and impact analysis for those changes can allow change management to be much more effective, reducing downtime risks and lessening the costs involved with remediation activities.

After you've effectively planned the changes, they are then put into operation throughout the enterprise. This Service Operation phase will use those newly created employee services as part of normal business processing. Using ITIL V3, the Service Desk will be the single point of contact for customers who need technical help. Why? To effectively, centrally, and consistently address issues and eliminate the confusion, chaos, and inefficiency of trying to have multiple areas and persons trying to resolve the same issue at the same time.

Service Operation

The new employee systems are now in operation. If any issue or event occurs with any aspect of the new employee service processes it will be reported to the Service Desk. The Service Desk will create a log and report the incident into the appropriate systems, which will notify the appropriate personnel to resolve the incident. Incidents and potential problems will be tracked and, when closed, there can be follow-up to determine customer satisfaction regarding how the processes were handled.

The goal of using the ITIL V3 processes that put the Service Desk at the center of problem resolution is to reduce the risks of interruptions to productivity by managing problem resolution centrally within a complex IT environment. This phase also includes processes such as request fulfillment, incident management, problem management, and access management. As an example consider once more the new employee service; the system will notify the Service Desk to create a new user account through the request management process (which includes access management), along with establishing the access capabilities appropriate for the position the new employee will fill. The Service Desk will then notify the appropriate business manager when these tasks have been completed. Using automation to perform this notification will help to ensure it actually takes place and does not get lost in the long list of other to-do's that the Service Desk is working on fulfilling.

CSI

The CSI phase will allow organizations following the ITIL V3 practices to continually evaluate and improve the quality of IT services, and consistently advance the maturity level of the Service Lifecycle.

With regard to the new employee services, there may be a point in time that the business leaders determine that, while the new employee services provide business value, there are areas where the value can be improved. For example, the new employee service may have reduced the amount of time to incorporate a new employee into the business infrastructure from 8 to 4 days, but business leaders may determine that it really needs to have all the new employee service tasks completed within 2 business days.

IT leaders will need to determine, first of all, if this goal is possible to achieve. Then, if it is possible, they will need to identify the process and workflow changes that must occur to achieve this new service goal. The CSI phase considers all the issues related to service innovation and delivery.

This final stage of the ITIL V3 Service Lifecycle aids IT leaders in sustaining and improving the efforts in the other four phases. It includes examining and providing direction for service level management, along with ensuring the most appropriate design and creation of SLAs, and using realistic measurements to assess service delivery quality while achieving consistent service improvement.

Another valuable use of CSI is in prioritizing the service portfolio. IT has to operate within budget constraints, and CSI provides the opportunity to assess the costs of new and existing services and to negotiate future service offerings. This is important in that CSI provides IT with the tools, including financial analysis and business use, to work with the business and ensure the right services are provided at the right costs.

Possibly the most obvious reason to implement ITIL V3 is to noticeably and measurably improve service delivery and reduce the risks that lead to not meeting SLA requirements. SLA performance naturally tends to deteriorate over the time of total service delivery, so the CSI phase is very important to maintain business customer confidence in IT capabilities and to help prevent the hostility and suspicion that often develops between IT and the entire customer base over time if IT leaders do not pay attention to quality and SLA performance. Successfully integrated into the enterprise, ITIL V3 will help reduce a number of business and IT risks.

Automating IT

Of course, there will always be a need for humans to oversee and manage IT to ensure it is effective and successful. However, growing numbers of tools are emerging that can assist IT managers with providing smooth operations throughout the enterprise.

Automating as many of the IT processes and operations as possible has many benefits. It eliminates manual labor-intensive tasks that have historically taken significant amounts of time and resources to accomplish. It also helps to eliminate ad hoc, error-prone manual activities, replacing them with consistently followed and vetted procedures that are performed in a fraction of manual time. This consistency and time savings results in IT shops drastically lowering the daily cost of IT operations. This cost savings can then allow you to shift resources to more strategic IT initiatives to support business growth and innovation.

ITIL typically operates on the process level. A Service Desk can help automate the processes around incident, problem, change, and configuration management. Task automation can also be beneficial to the Service Desk. For example, pushing new software onto a server is part of the release and deployment process, but what is more important in this case is the actual task automation associated with software distribution.

If an organization can do it, it is most effective and efficient to use an integrated solution to automate the IT processes throughout the enterprise. Being able to drive change across applications, servers, networks, storage, and clients from an integrated approach not only is more efficient but also allows for a federated Configuration Management System (CMS) to be employed. A CMS enables reporting, reducing the costs and risks that accompany changes, while providing a way to efficiently administer comprehensive audit and compliance capabilities.

The configuration management database (CMDB) provides a way to understand component relationships. By providing a repository for the configuration records throughout their entire lifecycle, the CMBD supports all other activities within the service lifecycle.

Organizations typically automate in the areas where there is the greatest pain, such as in servers, networks, clients, and storage. Management of these disparate areas can be brought together by orchestrating whole service automation. To be successful, it is best to use an incremental approach for implementation.

> 🕮 According to a 2007 survey by industry analyst firm Gartner, the top two priorities that businesses expect IT to support are improving business processes and controlling enterprise-wide operating costs (Source: Gartner EXP, February 2007).

The reality is that most IT leaders are challenged with performing processes and executing tasks most cost-efficiently, more quickly, and with less resources throughout the enterprise using their old, outdated tools and clinging to ad hoc inconsistent procedures that are becoming more outdated each day as IT environments become increasingly complex. The complexity has snowballed and emerged often as a result of decentralized proliferation of disparate IT systems and applications, compounded by multiple types of servers, software, network components and devices, and a hodgepodge of storage devices. Even with more centralization, complexity will continue to increase as a result of the rise in composite applications, service-oriented architectures, and the addition of a new abstraction layer that has a more dynamic relationship with virtualization.

Automating IT processes and tasks allows IT organizations to more directly align their objectives with business objectives, such as cost reduction and innovation as well as increased importance, compliance, security, and privacy. Using the right tools for their organizations, IT has the potential to:

- Automate most, perhaps all, IT operations across the complete enterprise infrastructure—including clients, applications, all types of servers, networks, storage, and software. This will allow IT staff resources more time to focus on strategic and innovative initiatives to help drive growth for the business.
- Coordinate changes across systems and teams using tools that allow IT to automate complex changes that cross multiple infrastructure tiers and automate audit trail creation. Creating audit trails is critical for supporting compliance and security, and particularly important for processes that impact financial reporting, security, and privacy.
- Record and manage configuration updates throughout the infrastructure and applications. Automating these updates supports compliance by ensuring the configurations—such as for appropriate access controls, login parameters, and so on—are kept at the appropriate settings.

Historically, IT leaders managed the enterprise infrastructure around legacy systems. Certainly legacy systems that are still viable and being used must be an important part of the IT management equation. However, managing in a legacy manner is no longer effective. The IT management practices of 5, 10, and more years ago, where systems and applications were managed in independent silos, no longer work for today's complex enterprises. Old ways are too static, take too long to execute, and create unacceptably long systems development lifecycles. IT leaders must establish processes and procedures that are integrated throughout the enterprise to provide more dynamic, agile, business-focused results.

Automating the Service Desk

Consider one of the most labor-intensive areas within the enterprise: the Service Desk. Effectively automating Service Desk processes allows IT to continually monitor, measure, and improve their value to business while increasing the efficiency of IT service delivery.

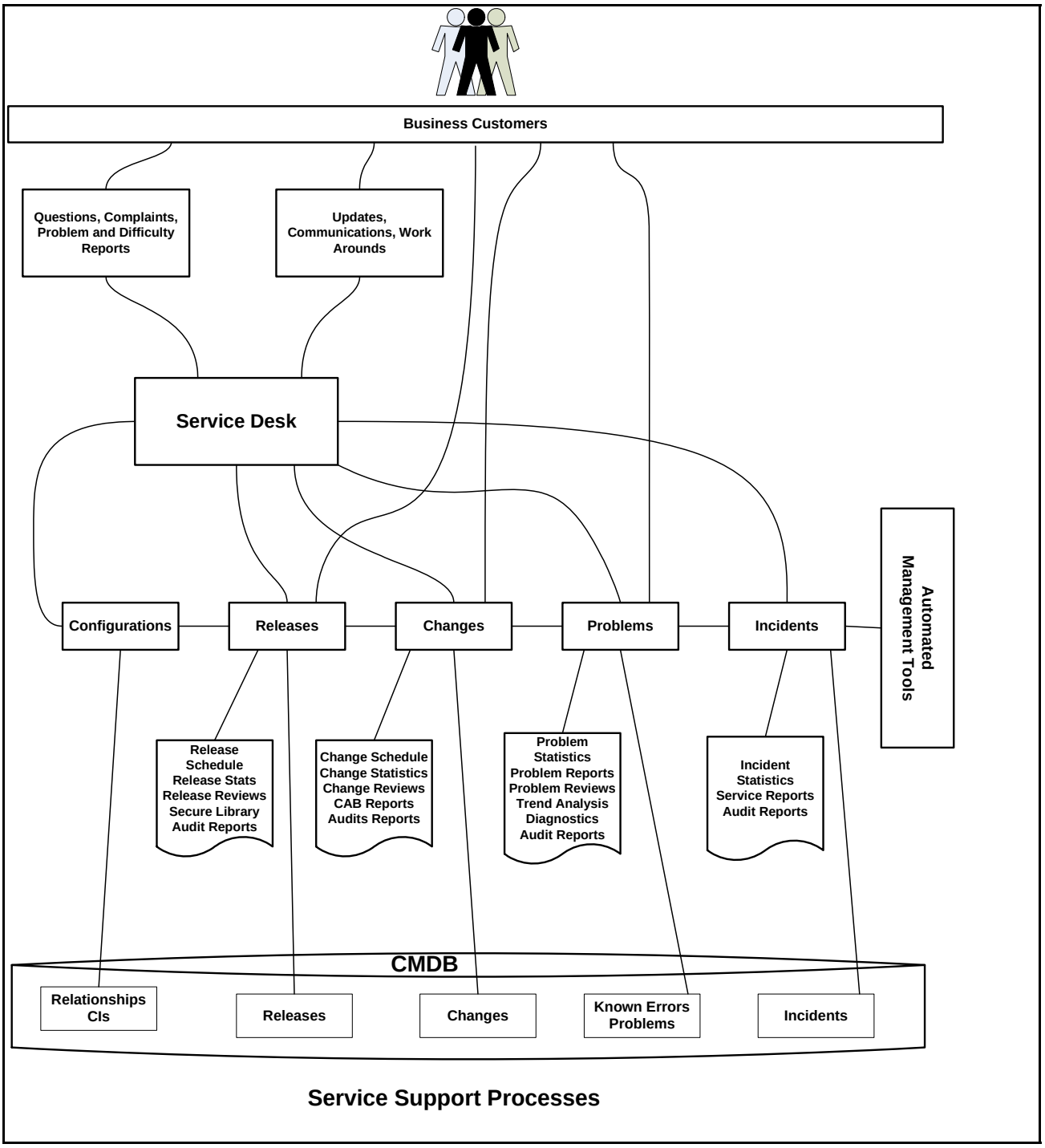

Figure 4.2: Service support processes.

Historically, the Service Desk did almost all activities manually. Having multiple members of the Service Desk often meant there was multiple differing types of information provided to business customers calling in to report problems, incidents, request changes, and to ask for information.

ITIL enables standardized Service Desk activities with processes that can be consistently followed by all Service Desk personnel. By using tools to automate as many of the Service Desk activities as possible, not only can the Service Desk's staff time be utilized more efficiently, automation allows for many of the traditional Service Desk activities to be completely automated so that the Service Desk personnel aren't directly involved with each call. As Figure 4.2 shows, automated Service Desk tools can allow business customers to directly interact with the tools to do such things as request changes and report problems and incidents.

Key elements of Service Desk automation include automatically identifying the correlation of events with services, isolating the cause, and identifying the priority of incidents when they are created. Automating incident management ensures the right people are assigned to the tasks and that the priority of their work is based on business impact. Automating incidents can also mean that outages or performance degradations are resolved upon detection, without the intervention of a human, and that all related information is captured for reporting.

Automating the problem management process includes predictive analysis to identify problem areas, and potential problem areas, and eliminating the underpinning root cause. Root-cause analysis helps IT managers to determine the availability status of any particular service based upon data that has been entered and collected by any one of the components shown in Figure 4.2.

ITIL V3 clearly establishes the relationships between Problem Management and Incident Management as they occur within the Service Lifecycle. The Service Desk is responsible for documenting, tracking, and closing incidents. Automation not only supports these responsibilities but they make them more efficient and timely. Using automated root analysis tools, the Service Desk can also close an incident following proper classification of an event based on its root cause. The Service Desk must concurrently juggle all the issues of availability, problem and incident resolution, and tool implementation—the automation of these activities makes the Service Desk more agile and successful in performing this juggling act.

Automating Event Management

Consider Event Management as a variation of Network and Systems Management. NSM also includes monitoring the performance of the devices and systems. If a performance threshold is crossed, an event can be generated. In ITILv3, this is performed by the IT Operations Management function, which performs the day-to-day activities necessary to manage IT services and support the IT infrastructure.

Automating Event Management provides just as many important benefits as the previously discussed Service Desk automation, and in fact is used to support Service Desk functions. Correlation, root cause analysis, problem isolation, and service impact analysis are all examples of the types of activities that can be automated within Event Management to realize great business benefits.

Event Management is important for meeting SLA requirements throughout all the business units (BUs). Different BUs could have different service levels for the same business service. For example, the Financial Services BU will have a more critical need to access the accounting applications and related IT services than will the Marketing BU or the Legal Services BU. This is a classic use case for a CMDB combined with Discovery and Dependency Mapping (DDM). Event Management tools can automatically prioritize where these accounting applications and systems must be made available, and ensure, when bandwidth is limited, power outages occur, or network gridlocks arise, that the Financial Services BU is given first priority for obtaining access to them.

Effective Event Management activities and best practices should be based upon an understanding of the full spectrum of the business processes for all the Service Lifecycle phases at both the IT and business levels.

> The primary focus for Event Management should be to provide quality Business Process Monitoring (BPM) for all the mission-critical business processes.

Coordination of business processes throughout the enterprise, and across relevant event lines, is a key component to effective Event Management. The events are typically triggered by another critical event and usually are not performed according to a strict timeline.

This is quite different form traditional IT processing, which usually follows a long-established dataflow-based model for managing business processes. Following ITIL V3, and using automation, a real-time event reaction and notification-based type of management can occur.

That said, it does not mean organizations no longer need to use dataflows. Of course dataflows are still important to the business, and they must be documented wherever data is collected, accessed, processed, and stored. This documentation is vital for performing many BU-specific processes in addition to supporting information security, privacy, and compliance requirements.

In fact, Event Management tools are often used for risk management and internal controls. These Event Management processes can provide the information security and compliance areas with customized workflow notifications and document how regulated information is shared in a secure environment with clear audit trails.

Documentation is a very important, but often overlooked, component of regulatory compliance. Automating these Event Management processes in such a way that they integrate with the Information Security Management (ISM) key activities—such as misuse of IT assets, remote access to critical files, and so on—will provide the documentation that your regulatory auditors will like to review.

These tools can also support audit controls, allowing documentation for when a process has been certified by each process owner as possessing adequate internal controls. This documentation should include such compliance data as the dates and results of the previous audit, increasing the accountability of each process owner.

> Event Management automation tools provide compliance support for the Sarbanes-Oxley Act (SOX) sections 404 and 409.

Automating Discovery and Dependency Mapping

CMS and CMDB discovery and dependency mapping automation can provide great value and support for IT business services. A large number of organizations have hundreds, or even thousands, of changes made daily in many situations. Despite this, organizations still heavily rely upon manually created processing maps to understand the relationship between business services, supporting applications, and the underlying infrastructures. This often leads to errors in addition to being highly time consuming.

There are tools on the market to automate discovery and dependency mapping to provide a real-time view of the dynamic relationships between applications and the underlying infrastructure. Tools can help IT leaders to maintain truly current topology maps to enable quick assessment of the business impact of IT processes. By automating discovery and dependency mapping, IT leaders can not only reduce the costs and mitigate the risks of managing new and updated business services, they can also determine when unauthorized changes have been made. They can then use release automation to revert those changes back to the desired state.

Automating Release and Deployment Management

There are now a large number of Release and Deployment Management tools and solutions that can be used to automate these processes, associated tasks, and manage them more efficiently. These tools can automate the tasks that need to occur across servers, within the clients, in storage locations, and throughout the network devices.

> 🕮 The combined set of Release and Deployment Management tools are commonly called Data Center Automation tools and, depending upon the specific targets, Server Provisioning or Software Distribution tools.

Tools can be used to automatically:

- Maintain system and device configurations and files at a known good state
- Work in combination with the Service Desk during change management processes
- Minimize the changes and problems created by various daily business activities by performing common release control capabilities
- Work in combination with Event Management Systems and the Service Desk during incident and problem management processes to perform basic remediation
- Identify and correct security vulnerabilities and policy violations.

Use Case Examples

When learning a new framework, such as ITIL V3, it often helps to see how it fits in with real business by looking at some practical use cases. The following examples highlight possible use cases.

Change Management

An important requirement within regulations is having appropriate access control and change management processes in place. This can be seen within the Sarbanes-Oxley Act (SOX) requirements. The Control Objectives for Information and related Technology (COBIT) is widely used by internal and external IT auditors as an evaluation framework for ensuring SOX IT process controls.

> 🕮 For a nice discussion of how COBIT can be used for SOX compliance, see the ISACA publication, "IT Control Objectives for Sarbanes-Oxley 2nd Edition" located at http://www.isaca.org/Template.cfm?Section=Home&template=/ContentManagement/ContentDisplay.cfm&ContentID=25122.

ITIL V3 provides a well-constructed change management process that aligns nicely with COBIT. COBIT provides 34 controls and 318 different control objectives, all of which no IT shop will need to implement. Possibly the most important are those that apply to Change and Configuration Management.

> 🕮 Download a free version of COBIT 4.1 from http://www.isaca.org/.

By combining ITIL V3 and COBIT, IT will see many compliance benefits with regard to Change Management:

- Optimal use of limited IT resources to ensure consistent Change Management activities
- Documented processes that can be validated and audited
- Logs generated that provide the change and access activity audit trails required by not only SOX, GLBA, and Fair and Accurate Credit Transactions Act (FACTA), but also many other laws and regulations

Cross-Organization Release

Businesses are rightly and increasingly concerned about improving their agility to perform. The disruption historically caused by new application and systems releases through the enterprise and across multiple organizations can negatively impact this agility and cost valuable time within a wide range of business activities.

Consider releasing an updated version of your organization's email system. Assume that all personnel are heavily dependent upon using email throughout the day to perform their job responsibilities, not only for communicating with team members and internal business customers but also for communicating with external customers. This is a radical reorganization of the email system that will take a long time to deploy but must be done without interfering, as much as possible, with the business customers during the release time. What would the impact be if email capabilities were not available throughout the day?

ITIL V3 Release Management concepts and associated processes to automate the activities can help to

- Deliver the email changes faster than it did before a structured and integrated approach was implemented
- Release the updates, with minimal staff resources, by using automated tools during times that cause the least amount of business disruption
- Integrate with Incident, Problem, and Change Management processes to quickly and automatically roll back the release if issues are encountered

Incident Management

Managing incidents has often been the bane of the existence for IT managers. The incident response activities were often ad hoc, carried out in confusion, largely uncoordinated, and caused huge swaths of unavailability for critical applications and systems throughout the enterprise.

Because of this high visibility and business impact within the enterprise, Incident Management is often one of the first processes that are rolled out within an organization. Primary benefits of automation can include:

- Automatic generation of incidents reports by the Event Management systems can lessen resolution times.
- Automation of the incident management process workflow by the Service Desk make incident management more efficient and comprehensive.
- Depending on incident resolution, the incident can automatically be closed and the response sent back to the event process, or the incident can automatically be escalated to Problem Management.

Important secondary benefits of Incident Management automation, which your Information Security area will view as very valuable, include:

- The logs automatically generated by Incident Management tools can provide valuable help in resolving security-related incidents more quickly and effectively.
- Using Incident Management tools automatically creates valuable documentation that can be used for forensic investigation when necessary for incidents.
- Automatically generated Incident Management activity data supports compliance with a wide range of laws and regulations.
- Integration of the Service Desk and ISM is a key factor for successful Incident Management for security-related events. Neither can be efficient without the other.

Large-Scale Changes

If you need to make changes across literally thousands of devices, you can use ITIL V3 Release Management concepts and associated processes to automate a wide variety of activities:

- Make mass configuration changes
- Make multiple software updates
- Enable bare-metal provisioning
- Launch ACL deployments

Maintaining Compliance

Automated configuration, or the combination of automating configuration and release management, can support compliance remediation and enforcement and provide valuable audit trails and compliance reports. Making the decisions for the right automation tools can allow for:

- Creation of preconfigured reports for the Health Insurance Portability and Accountability Act (HIPAA), the Gramm-Leach-Bliley Act (GLBA), Payment Card Industry (PCI) Data Security Standard (DSS), and other types of reports
- Enforcement of best practices and standards, such as ISO/IEC 27001 and COBIT

Fast and Automatic Remediation of Many Types of Compliance Settings

Speaking of compliance, automating as much of the processes as is practical throughout the Service Lifecycle phases can help to ensure the organization is in compliance with a wide number of regulatory, contractual, and policy-based requirements—not only to meet compliance but also to quickly identify when non-compliance results from changes, problems, or other events, and then automatically re-establish the appropriate and compliant settings.

For example, many laws and regulations require IT administrative activities involving changes to password settings and access controls to be monitored and logged so that appropriate oversight groups can review the changes and inappropriate activities can be identified. Automated tools can be used to ensure IT administrative account logging settings are not only set appropriately but also can be used to immediately return the settings to the compliant value in case they are turned off during changes, new releases, problem resolution, or some other ITSM process.

Key Benefits of ITIL V3

Throughout this guide, I've pointed out many benefits of using ITIL V3, not only to IT but also to the business as a whole. The primary benefit is that IT leaders can use ITIL V3 to break down functional IT silos and deliver positive business outcomes.

ITIL V3 offers a set of holistic, well-documented best practices for managing enterprise processes and tasks in a business service-oriented manner. IT leaders can use these best practices to map IT to the business. Although earlier ITIL versions described distinct and separate IT silos, ITIL V3 directly helps IT leaders to navigate throughout all IT services in a way that aligns closely with how business is actually run. ITIL V3 helps IT leaders to run IT like the business they are supporting. There are business and IT values for using ITIL V3.

To wrap up this guide, it is worth reviewing and summarizing just a few of the wide array of ITIL V3 benefits and ways in which organizations can use tools to automate the associated processes.

Business Agility

ITIL V3 processes, properly implemented, provide the ability to roll out changes more quickly and efficiently, reducing IT support costs and complexity. This improved efficiency improves business agility and customer service. ITIL V3 provides BPM concepts that enable organizations to meet automation, efficiency, and regulatory requirements rapidly and efficiently resulting in improved business agility.

> 🕮 Within "On the Measurement of Enterprise Agility" (Journal of Intelligent and Robotic Systems 33: 329–342. 2002), Nikos C. Tsourveloudi and Kimon P. Valavanis define "business agility" as "the ability of a business to adapt rapidly and cost efficiently in response to changes in the business environment. Business agility can be maintained by maintaining and adapting goods and services to meet customer demands, adjusting to the changes in a business environment and taking advantage of human resources."

IT to Business Alignment and Integration

One of the ways ITIL V3 helps organizations to achieve seamless integration is by promoting a lifecycle approach to IT service management, from an overall perspective of service strategy to service design, service transition, service operations, and CSI. This integration has the effect of making the IT information business-aware. When IT has business-aware information, they are more aligned with business, and they will be able to most quickly and efficiently take the appropriate actions to address IT problems that most significantly impact mission-critical business functions. Automating as many of these actions as possible will allow these actions to be performed automatically as a response to events according to pre-established rules.

As an added bonus, this automatic response will reduce the time to full recovery of the IT services and workloads, which enables proactive management of the business network and raises the maturity levels of the Problem Management, Incident Management, and Event Management processes. IT is then not only better aligned to business, it truly becomes integrated with business.

Business Applications Support

ITIL V3 can help you map how your IT processes support business applications, identify key intersections where data passes from one process to another, and allow you to find choke points as well as generate flow data for key metrics. ITIL V3, coupled with supporting automation tools, can be used to assess business applications components to determine whether processing is consistent, identify weak spots in the processing flows, and improve applications performance. The shared operational perspective across different stakeholders and enterprise services is indeed a great benefit for BPM architects.

Improved Deployments and Upgrades

ITIL V3 concepts and associated automation tools can be used to automate the deployment and ongoing management of software such as operating systems (OSs), applications, patches, content, and configuration settings from one point of control. This centralized control results in more efficiency, agility, and compliance. Less staff resources and reduced deployment time results in reduced management costs, faster deployment services, fewer business disruptions, and stronger security and compliance across the enterprise by having continual policy enforcement.

Improved IT Efficiency

The knowledge and information obtained from the wide range of data sources that are used within ITIL V3 can be used to create a valuable IT infrastructure information library. Automating this information collection frees up staff to do other important business activities, along with reducing the time it would have taken to manually perform this information collection and management. Business customers can then access the service catalog or information about knowledge management processes and obtain the best and most current answers to their relevant questions. Keeping information about the IT infrastructure up-to-date results in providing consistent information for the business, along with more efficient use of IT staff time.

ITIL V3 also results in more comprehensive and accurate information and knowledge of the state of IT business services. This up-to-date knowledge helps maintain smoothly running business services and can result in reduced costs and increased efficiency and productivity. Good information and consistent knowledge level-sets numerous IT groups and allows them to operate in a unified manner, better addressing the needs of the business.

Supports Compliance

ITIL V3 supports compliance efforts with a very wide range of laws, regulations, and industry standards, in addition to providing an effective way to enforce compliance with contractual requirements and enterprise policies. Using tools to automate the ITIL V3 processes throughout the entire Service Lifecycle can generate data that provides valuable documentation to support and validate compliance activities. Additionally, systems settings required for compliance can be monitored, corrected, and enforced.

IT Automation

The processes within the ITIL V3 Service Lifecycle, properly applied, provide valuable data and information to enhance IT business service management. By using tools to automate appropriate portions of these processes, knowledge management capabilities are enhanced and made more timely, comprehensive, auditable, and valuable. The information generated through automation can do such things as capture the business requirements and validate they are being followed, maintain an up-to-date IT information library, and find the causes for problems among thousands of network and application data variables. IT automation can be critical for helping disparate IT groups operate on a level playing field and take actions in a unified manner to best meet the needs of the business.

IT Consolidation and Centralization

ITIL V3 provides for consolidated IT services to help organizations rationalize all IT processes and meet the requirements of SLAs throughout all the business enterprise. Using tools to automate processes can centralize IT asset information, allowing IT leaders to track all relevant activities and costs throughout the entire service lifecycle, from request and procurement to retirement and disposal.

Tools to automate ITIL V3 processes can allow IT to manage the physical, financial, compliance, and contractual aspects of all IT assets, across the geographically dispersed enterprise, individually, and as part of the business services they support. This centralization and automation also enables cost optimization, IT services chargeback, enhanced security, tracked compliance, risk mitigation, and more effective IT asset management.

Key Performance Indicators

Using ITIL V3 concepts, and implementing tools to automate the associated processes, can allow for a wider range of more accurate metrics to serve as key performance indicators (KPIs). Choosing applicable KPIs will allow the business customers to validate that IT understands the business use of the services in addition to measuring how well IT actually supports business.

SLAs that establish KPIs help to ensure IT and the business customers have shared expectations for the IT services that are delivered. The SLAs provide an avenue for ensuring measurements and regular reporting for IT service activities and status is established. The chosen KPIs will help to ensure measurements that support business value are created. Using tools to automate as many of the KPIs as possible will allow them to be generated consistently and accurately.

A few examples of the possible types of KPIs include

- Availability, measured in minutes or hours per day, of mission-critical services, systems, applications and so on. Automated tools can improve monitoring effectiveness and result in more useful and comprehensive reports regarding service availability.
- Numbers of errors and failed changes discovered during the incident management lifecycle.
- Numbers of service level violations by services, systems, and applications.
- Numbers of mission-critical business services monitored 24 × 7.
- Errors removed from the infrastructure.
- Numbers of failed changes.
- Reduction of the average time to repair problems, sorted by priority order.
- Improved escalation times.
- Reduced numbers of urgent and emergency changes per business unit.
- Reduced numbers of major incidents.

Overall Improvements

In addition to the previously mentioned benefits, ITIL v3 enables:

- Process Standardization—ITIL V3 can be used to standardize the IT processes throughout the enterprise. Automating these processes can increase IT efficiency, especially as the network processing environment scales larger and becomes more complex. Focusing on automating and completing the change process not only enforces configuration management policies but also enables compliance, improves security, and establishes clear accountability for IT personnel involved with the processes.
- Virtualized Blade Infrastructure Management—ITIL V3 is a key enabler for managing virtualized bladed infrastructures. IT leaders can use ITIL V3 tools to automate release and deployment across the entire data center that uses virtualization.
- Faster Restoration of Service—ITIL V3 processes and tools can be used to automate remediation and closure of the incident and problem management processes. RBA enables these restoration capabilities.
- Improved Compliance and Security—Comprehensive ITIL V3 Service Lifecycle solutions and automation tools support business in many ways throughout the enterprise:
    - Providing verifiable documentation and compliance logs for audits
    - Establishing and maintaining a comprehensive and up-to-date data inventory
    - Establishing and enforcing access control
    - Monitoring, in real-time, systems security activities
- Communications—Tools to automate ITIL V3 processes enable improved and consistent communications between the diverse teams involved with the entire lifecycle across the enterprise.
- Provides Bottom-Line Benefits—Using tools to automate appropriate ITIL V3 processes provides bottom-line business benefits for business service transactions and business service operations.

Effectively implementing ITIL V3, and complementing the associated phases and processes with appropriate automation tools, will result in improved predictability, reliability, accountability, risk reduction, and compliance throughout the IT infrastructure and bring measurable value to the business.