IT Change Management
Understanding & Implementing ITIL Best Practices

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Executive Summary

Change is indispensable in IT. New developments in IT technologies such as virtualization, cloud computing and social media have increased the need to provide more services across a combination of environments and platforms. In spite of the growing complexity of the IT infrastructure and economic constraints affecting all sectors of the economy, IT organizations are expected to provide reliable, secure and continuous services in order to support business-strategic initiatives and gain a competitive edge.

The growing complexity of the IT landscape, as well as emerging challenges of coordinating distributed resources and services, higher interdependencies and growing data management needs often result in service interruptions and outages because of the lack of systematic procedures to manage changes made to the IT environment. No organization can afford the loss of productivity, revenue and customer confidence in these challenging economic times.

As IT Service Management matures, more and more organizations realize the need for implementing defined, repeatable, cost effective, highly efficient and well documented IT service procedures. Since change is constant in IT, Change Management is often the best starting point to align IT with business needs, requirements and strategic goals.

A common challenge when implementing Change Management is finding a complete and robust approach that also gives an organization enough flexibility to adapt to their specific needs and business processes. The Change Management Lifecycle proposed in this white paper, offers a tried-and-true process that balances structure and adaptability. To help you choose a suitable approach, the

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Evolving technologies and emerging social trends demand IT adaptability and reliability to capitalize on new business opportunities.

Current IT Trends
- Server & Storage
- Virtualization
- Cloud Computing
- Social Media
- Mobile Apps

Change Management Features checklist includes a list of viable and applicable best practices to implement a reliable Change Management system.

This paper also offers a high level overview of SunView Software's ChangeGear Change Management, a comprehensive solution designed to improve operational efficiency and support business innovation by increasing visibility into the IT infrastructure, minimizing downtime and ensuring compliance.

Emerging IT Trends

Now more than ever, change is the mantra in IT. In recent years, numerous changes in both backend technologies, as well as consumer expectations have contributed to an increase in the complexity of the IT infrastructure. For instance, maturation of server and storage virtualization has had a strong impact on the data center, resulting in increased demands for storage networking and connectivity. Furthermore, Cloud Computing is becoming a staple resource for a myriad of mainstream IT users.

Moreover, the evolution of smartphones and tablets, the exponential growth of mobile apps, as well as the popularity of social media have changed the IT marketplace. Indeed, the consumerization of IT continues to blur the boundaries between personal and professional devices, applications and technology use. Not surprisingly, a growing number of organizations are aware of the potential to leverage these emerging social and technological trends to create new products, services and business models. These recent changes in IT promise great potential, especially in a highly competitive business environment. As a consequence, it is imperative for businesses to harness these new technologies to get ahead.

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With growing dependence on IT the expectations for service continuity and reliability have escalated. IT organizations must support strategic business initiatives while ensuring reliable operations.

Roles of IT Orgs
- Operational
- Management
- Support
- Maintenance
- Compliance
- Strategic
- Improved business processes
- Partner in innovation

Business Expectations for IT services
- Continuity
- Reliability
- Efficiency
- Security
- Low TCO
- Compliance

The Roles of IT

Just as consumers have grown accustomed to using a greater number of technologies in their personal lives, most, if not all, organizations rely on a number of IT products and services for day-to-day operations. IT is so pervasive in the marketplace that it is hard to imagine not having access to common technologies such as email or the Internet. For a large majority of businesses, email and Internet access are critical for business operations. With growing dependence on IT in the marketplace the expectations for service continuity and reliability have escalated. It is simply unacceptable to have outages and downtime when more and more of the workforce and customers conduct business around the clock using a combination of these technological tools.

Concurrently, the challenging economic times have brought reductions throughout the enterprise in all both the public and private sectors, including cut backs in the biggest slice of the IT budget: staffing. Additionally, IT organizations face numerous requests to increase the efficiency of operations by consolidating data centers, reducing energy consumption and minimizing the real estate footprint of IT equipment. Moreover, IT must provide expanded security of data and processes over the wide range of environments in which services are accessed. In sum, the complexity of the IT landscape has multiplied dramatically in the last decade. Yet, operating a more complex infrastructure with less staff and more budget constraints challenges IT to keep up with growing demands for continuity of services, greater efficiency and lower TCO. Furthermore, beyond the operations side of IT (management and maintenance of infrastructure, regulatory compliance, etc.), IT is also expected to provide the foundation for developing and delivering strategic initiatives closely integrated with evolving business needs and business processes.

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In these challenging economic times, no organization can afford the loss of productivity, revenue and customer confidence resulting from service outages.

IT Challenges
- Support mobility across diverse platforms
- Coordinate distributed activities
- Manage growing data
- Clarify complex interdependencies
- Minimize security risks
- Project capacity accurately
- Guarantee efficiency

IT Challenges

IT consumerization trends indicate that consumers, within and beyond the enterprise, have become sophisticated users of technologies demanding a wide range of services and products at their disposal. This requires for IT professionals to fully understand end-user expectations in order to integrate appropriate capabilities into the existing IT portfolio without creating security risks to processes and data. While at the same time, they should be maintaining efficiency objectives aligned with their capacity planning projections. For instance, moving from physical servers to a virtual server environment can increase the amount of time and difficulty in managing storage capacity and performance, mapping application to storage, performing data back-up and restore tasks, as well as upgrading and troubleshooting storage systems.

Furthermore, lack of transparency in Software as a Service applications (SaaS) and cloud computing combine with reliance on a combination of internal and external networks to support employee mobility, is making it difficult for IT to provide dependable services at efficient costs while streamlining operations. IT is constantly confronted with new tests. According to a Gartner study, currently the two major emerging challenges for IT organizations consist of coordinating distributed activities and managing the continually growing (59% annually) amount of data produced, consumed and stored by the enterprise. Indeed, fast implementation of emerging technologies combined with ongoing demands for maintenance and service continuity represent a considerable trial for maintaining configuration and resource documentation up-to-date.

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Forrester Research indicates that an estimated 60% of IT organizations perform at the Reactive level. IT provides true value when it becomes a strategic business partner.

IT Maturity

As far back as 2005, Gartner advanced the IT Management Process Maturity Model in response to growing demands for increased service quality and reduced costs of IT services. The maturity model offers insight into the balance or imbalance between IT demands and capabilities.

IT Management Process Maturity Model				
Level 0 Chaotic	**Level 1 Reactive**	**Level 2 Proactive**	**Level 3 Service**	**Level 4 Value**
Ad hoc Unpredictable Heavy reliance on tribal knowledge Informal communication	Fighting fires Service desk Some form of problem tracking Root cause analysis	Analyze trends Problem prediction Service level agreements Some form of Change, Asset and Configuration Management Automation	Service level management Event correlation Integration of processes Capacity Management	Strategic business partner IT and business metrics Real-time infrastructure

At the time, a Gartner study noted that IT organizations were largely unprepared to manage changes aligned with business needs, with an estimated 40% of IT organizations operating at the Reactive level. Given recent business, economic and technological trends, it is not surprising that five years later a survey conducted by Forrester Research indicates that an estimated 60% of IT organizations perform at the Reactive level. Although numerous procedures for managing IT have been automated, a substantial portion of IT is still controlled using a series of spreadsheets and local databases. Moreover, there is still much reliance on tribal knowledge within IT organizations. In addition, besides routine requests there are growing maintenance and implementation tasks competing for the limited time of IT professionals. Beyond typical support and maintenance tasks, IT departments are responsible also for ensuring compliance with legislative mandates such as the

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ITIL best practices:
- Clearly Defined
- Repeatable
- Cost effective
- Highly efficient
- Documented

Sarbanes-Oxley Act that requires IT organizations to produce
and maintain auditable, verifiable records relating to all financial
controls, processes, applications and infrastructure.

Because of the complexity and interdependencies in the new
IT landscape, even large and successful organizations with
robust IT infrastructure and highly specialized knowledge, like
Google, experience problems resulting from changes to the IT
infrastructure. A change in the configuration of a cloud service
caused unintended outages for large numbers of Google
users. Even with fast detection, quick reaction and a rollback
plan in place, restoring services for all users required time,
resources and a highly coordinated effort. Another network
configuration change recently caused a considerable outage
for Amazon's cloud services. The detailed report of the outage
unveiled for outsiders the intricate complexity of the Amazon
cloud infrastructure as well as the level of expertise required
to ensure the dependability of their system. Clearly, all IT
organizations can learn from these outages in order to avoid
similar disruptions to operations for their customers and staff
as well as to prevent loss in productivity, revenue and costumer
confidence.

Managing Constant Change with ITIL

In the 1980s, the UK Government recognized the need for
standards in IT management practices. Over the last 30
years, the Information Technology Infrastructure Library
(ITIL) has evolved into a set of guidelines, procedures, tasks
and checklists to optimize Information Technology Service
Management (ITSM). In its most recent iteration, ITIL 2011 offers
a comprehensive framework encompassing all aspects of the IT
service management lifecycle. The ITIL framework is a flexible
repository of best practices that guide the implementation of an
IT service management system appropriate for and responsive
to the specific needs of individual organizations through

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ITIL Service Management provides value to customers in the form of consistent, reliable, secure and continuous business services.

Human error in the configuration of network devices is the most common cause of outages.

Change Management is the best starting point to align IT with business needs, requirements and strategic goals.

defined, repeatable, cost effective, highly efficient and well documented procedures.

According to ITIL, changes in business requirements trigger the lifecycle of a service. Consensus on the requirements and their alignment with business outcomes help to define a Service Strategy. Based on the Service Strategy, a solution that includes provisions for the complete lifecycle of the service is drafted into a Service Design. In preparation for implementation and deployment, the service is evaluated, tested, validated and documented during the Service Transition stage. Subsequently, the service is deployed into a live environment initiating Service Operation. Throughout the existence of the service, Continual Service Improvement monitors the service, its effectiveness, shortcomings and failures and possible opportunities for improvements.

One of the advantages that has contributed to the broad international adoption of the ITIL framework is that its general recommendations are abstract enough to be applicable in a wide variety of businesses thus providing leeway in adopting and adapting to specific organizations. However, the same level of abstraction and flexibility in the framework makes it challenging to find ready-to-use detailed instructions for direct application into specific environments. With so many options, very often the question is: where do we start?

A Starting Point

According to ITIL, Service Management is a set of specialized organizational capabilities for providing value to customers in the form of services. Since business needs and requirements drive all service solutions and activities, a good starting point is to ensure consistency, reliability and continued improvement of business services. Regardless of

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the service offered, it is imperative for that service to be available, effective and secure. Outages and downtime clearly undermine business objectives, operations, costs, revenue and customer confidence. Recent conspicuous outages in Google and Amazon services confirm that these disruptions in service are frequently the unintended result of changes in configuration. Root causes for other recent outages affecting SkyDrive and Hotmail services included site configuration issues and failed upgrades as well. In a recent study, 66% of information security professionals cite human error in the configuration of network devices as the most common cause of outages. With evolving IT infrastructure and services, configurations change constantly resulting in lack of transparency and rarely updated documentation. At a time where there are more mission-critical applications running, it makes sense to start implementing more consistent Service Management practices through Change Management.

In the ITIL framework, Change Management deals with any addition, modification or removal of a service or component ensuring that "changes are recorded, evaluated, authorized, prioritized, planned, tested, implemented, documented and reviewed in a controlled manner." Given the high complexity of current IT services and components, the use of ad hoc disjointed local systems to track changes obscures greater transparency of the IT infrastructure, while at the same time, limiting vital communications between key stakeholders. Given the interdependency between IT and business, effective Change Management must integrate all the levels of service management: changes in operations, business processes, and strategy.

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Integrated IT Service
Management facilitates a
complete view of highly
complex IT infrastructure.

Recommended IT
Service Management
Components
- Change Management
- Configuration Management /
  CMDB
- Knowledge Management
- Incident Management
- Problem Management
- Integrated Communication
  Tools

Change Management Lifecycle

Based on the ITIL framework, below is a complete and robust approach to implementing Change Management. To ensure that all levels of service as well as all stakeholders participate at appropriate stages of the process, communication is the keystone of the process. Obviously, it is essential to identify and ensure buy-in from interested parties to facilitate their timely participation.
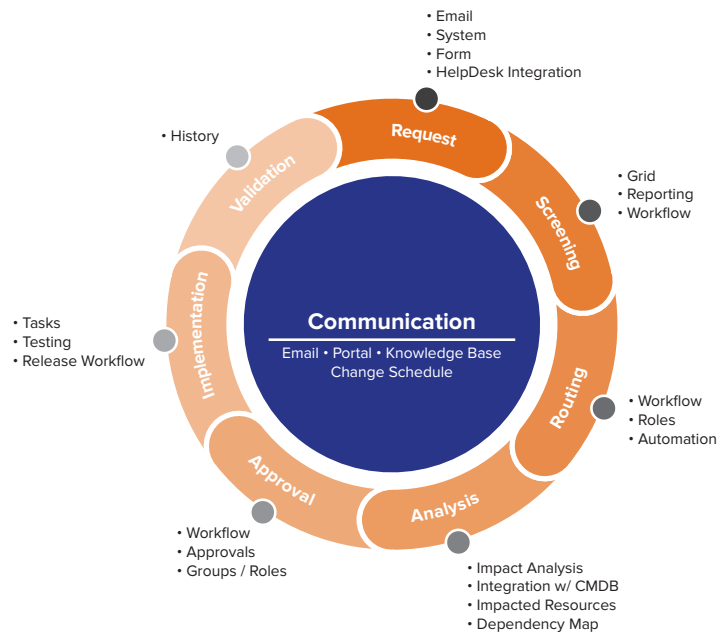
Change Management Lifecycle
The process is initiated by a request to change an existing service or component. This change can include the addition, modification (such as repair, improve, update, upgrade, etc.) or removal of the service.

Screening
The request is screened to ensure that it meets an agreed upon set of business criteria (benefits, costs, feasibility, effects, etc.). The request should also include enough information and merit consideration.

Routing

Approved requests are routed to the most efficient processing channel based on the risk (major, significant, minor, routine), level of urgency (emergency, critical, high, normal, low), and complexity.

Analysis

A closer examination of the request helps to further assess risk, impact and cost. This stage is critical to discover and anticipate potential problems and to establish testing, rollback and training plans. In addition, the analysis clarifies the impact of the change request on resources, services and users. Other significant aspects of the analysis include assessing the interdependencies between the service or component and other services, components and processes in the organization as well as ensuring regulatory and legislative compliance. A detailed analysis can also include a projection of labor, resource and time costs. Time spent on thorough analysis can avoid system failure, service downtime, and noncompliance thus providing a solid foundation for implementation.

Approval

Taking into account the results of the analysis phase a Change Advisory Board, Change Manager and/or invited representatives from areas of potential impact make the decision to implement or reject the change requested.

Implementation

During this phase, the tasks needed to satisfy the requirements of the change request are assigned, planned and executed according to an implementation plan. A sound implementation plan will always include a rollback plan. Also during this phase, the deployment or release of the request is announced to affected users. Concurrent plans for education and training help to prepare staff and customers for changes in service as appropriate.

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Automating change procedures, communications and notifications streamlines the Change Management process.

Validation
The final stage of the process is to measure the value of the change against its stated benefits, actual costs and impact. Once the change request is validated, the change request is complete. Of course, as a result of implementing the request there may be a need to modify other assets, services or procedures, which would generate a new change request cycle.

Creating a Complete Perspective
It is recommended that the complete Change Management Lifecycle process is documented because this historical documentation will be helpful in sustaining Knowledge Management. It also provides useful information for managers and auditors on productivity and compliance. The Change Management system can be greatly complemented by a Configuration Management System or Configuration Management Database (CMDB) to increase the transparency of the change processes and the visibility of the IT infrastructure. Establishing connections between the Change Management system and Incident Management and Problem Management systems, such as an existing service desk, will provide an even more comprehensive view of the IT infrastructure and will increase the quality of services and support for staff and customers. Throughout the whole Change Management Lifecycle the importance of effective and efficient communications cannot be emphasized enough. Providing a variety of integrated communication tools and platforms for the enterprise contributes to streamlined change processes and timely communication to appropriate constituents within, across, and beyond the enterprise.

A Word On Automation

One of the lessons learned from emerging IT trends is that higher complexity makes it much harder to discern existing interdependencies where one or more services rely on specific assets or components. Thus coordinating activities is essential to increased control of the IT infrastructure and services. Since change is ongoing, automating change processes, notifications and communications will help streamline the change process and motivate buy-in.

Change Management Features Checklist

Change Management is an excellent starting point to centralize control over IT infrastructure and change processes in order to improve the quality of IT services and to align IT with the strategic objectives of the enterprise. Adoption of ITIL best practices saves time yet it is likely to require adapting ITIL to suit the specific needs of each particular organization. These are viable and applicable best practices to implement a reliable Change Management system:

- ITIL-based, customizable workflow for Change Management Lifecycle
- Establish, enforce and facilitate repeatable processes
- Automated Routing of requests
- Automated Notifications
- Automated Approval processes
- Support for in-depth analysis
- Assign tasks
- Track task time
- Measure change success rate
- Cost calculation
- Support for Impact Analysis to identify users and services dependent on assets and services

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IT change is often responsible for costly disruptions in services that result in loss of productivity, revenue and customer confidence.

- Support for Release and Deployment processes
- Multiple levels of Validation
- Resource Management
- Historical detailed audit trail of change actions
- Change Management metrics and KPIs
- Customizable Reports
- Robust and customizable communication tools including Email, Web Portal, Calendar
- Automated communication
- Historical tracking of change lifecycle
- Knowledgebase
- Ease of use
- Web & Mobile interface
- Simplicity of deployment
- Reasonable cost
- Integration with Configuration Management/ CMDB
- Integration with Service Desk/Problem Management/ Incident Management

SunView Software's ChangeGear

ChangeGear® Change Management from SunView Software is an easy to use, cost effective solution providing IT organizations with central control over IT infrastructure and change. Designed with ITIL V3 best practices as its foundation, ChangeGear simplifies and improves Change Management efforts for complex and demanding IT environments.

The ITIL based extensible workflow structures IT change as a regulated, verifiable and repeatable process. Many aspects of the lifecycle, from notifications to communications can be automated easily to ensure a streamlined change lifecycle. Increasing transparency through risk and impact analysis as well as through historical documentation, ChangeGear prevents unauthorized change and potential outages and downtime.

The comprehensive communication core of ChangeGear promotes timely communication policies that can be customized and automated to increase quality and reliability of service. ChangeGear is an essential tool for integrating the operational and strategic goals of IT to support business innovation and competitiveness.

ChangeGear Change Management Features

This is a simplified list of some of the many features available in ChangeGear Change Management module out-of-the-box.

Change Management
Built-in change management process allows you to easily track, manage, and control all IT changes made to your IT environment using the ITIL best practices framework.

Web 2.0 .NET Architecture
The intuitive Microsoft .NET web interface makes it easy to use and simple to deploy. Even nontechnical staff can use ChangeGear with little to no training involved.

Business Policy Automation
Business rules engine will monitor ChangeGear according to specific rules and conditionally respond with the actions you specify. With the BPA, you can easily create new business rules and set up IT process automation and notifications.

Customizable Workflows
The standard workflow is based on ITIL best practices, but the built-in workflow editor allows you to customize the workflow to meet the needs of your organization.

Notification & Alerts
Automated alerts about impending changes and email templates can be tailored for individual change notifications – ensuring the necessary personnel are notified at each stage in the change lifecycle.

Multilevel Approvals
Requests for approval are automatically sent to the approvers based on predefined conditions and progress within the workflow.

Task Management
Tasks associated with change can be facilitated within the Change ticket. This allows you to assign tasks, track time, measure change success rate, and calculate the dollar cost of change.

Resource Management
Impact analysis tools help organizations identify potential disruptions by highlighting the number of users and groups dependent on resources and services. ChangeGear enables comprehensive tracking and management of all IT resources.

Personalized Dashboard
Performance dashboard displays real-time graphs, metrics, and KPIs – providing up-to-date information about the change activities within your environment.

Historical Audit Tracking
Change activity is tracked and documented for troubleshooting and meeting compliance audit requirements. The historical audit trail will tell you what actions were taken, when the action was completed, who completed the action, and record any comments provided.

Real-time reporting
Reporting is simple with ChangeGear. You can report on all aspects of IT change activities using our predefined reports or the built-in ad-hoc reporting tool. ChangeGear also integrates with Crystal Reports.

Announcement Calendar
Web-based calendar that enables you to create, schedule,

automate, and track messages. This tool allows you to proactively inform your users about important IT matters and improve overall communication from the IT department.

Mobile Access
Perform various actions such as submit service requests, approve change tickets, receive notifications, and escalate tickets on a mobile device. Use this tool to quickly enter requests while performing onsite troubleshooting or to respond to approval notifications.

Web Services SDK
Seamless integration allows you to change-enable your organization. ChangeGear can easily integrate with an existing system monitoring, network management, or help desk application.

Dynamic Request Automation
Intelligent handling of requests that leverage the power of customized forms, advanced workflows, notifications, and approvals.

Forms Authoring
Form authoring tools give you complete control of the layout, labels, what fields are displayed on the ticket, actions, and workflows.

Conclusion

Emerging trends in IT combined with challenging economic conditions place higher demands on the IT infrastructure. Beyond providing operation and maintenance for the myriad of processes that use IT, the IT organization needs to perform as a reliable strategic partner to strategic business initiatives.

The latest version of the ITIL framework offers useful guidance to ensure that the IT service management system is appropriate for and responsive to the specific needs of individual organizations through defined, repeatable, cost effective, highly efficient and well documented procedures. Since IT change is often responsible for costly disruptions in services that result in loss of productivity, revenue and costumer confidence, Change Management is an excellent starting point for the implementation of best practices for improved services and lower costs. Change Management tools must offer a sound foundation that balances structure and adaptability so that the change process can be customized, extended and automated to meet specific business requirements, needs and strategic goals.

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About Sunview Software
SunView Software is a leading provider of IT service management software that enables companies to better track, manage, and control IT services across the enterprise. Based on the ITIL best practices framework, ChangeGear allows companies to gain greater visibility into their IT infrastructure, increase security, eliminate system downtime, reduce operational costs, and ensure regulatory compliance. SunView Software is a privately held company based in Tampa, Florida.

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