An Introduction to Information Technology Infrastructure Library (ITIL) and the Information Technology Service Management (ITSM) concept
Klaus N. Schmidt Ph.D.
Illinois State University

What is ITIL

A set of best practice guidelines for IT Service Management in planning, implementing, delivering and supporting quality IT services
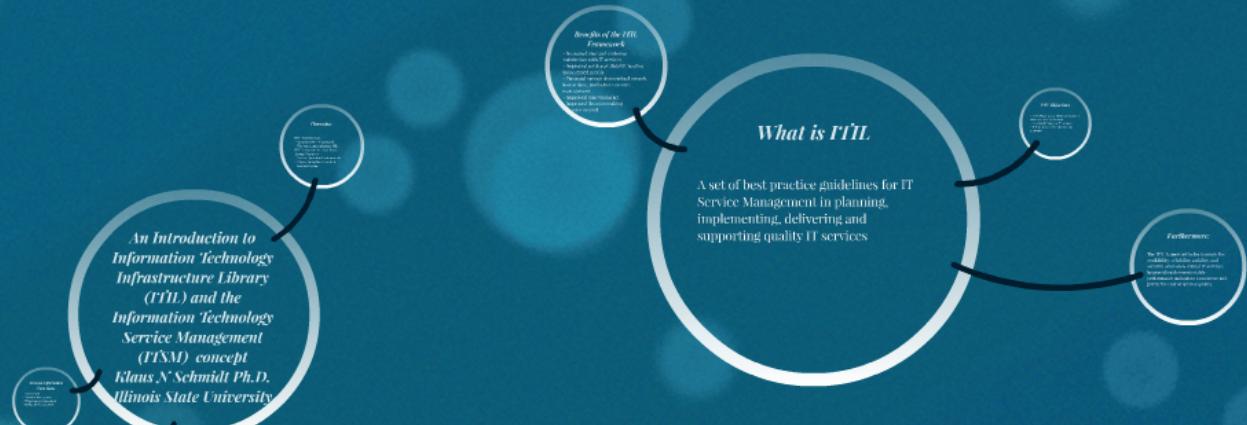
Benefits of the ITIL Framework

Service Strategy (1/2)

is about the selection of services an organization will offer to customers

provides guidance on how to design processes that add real value to an organization

sets the principles for developing service management policies, guidelines and processes across the service lifecycle

thinks about 'why' is something done rather than 'how' is something done

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Overview

ITIL/ITSM Overview
- Benefits of ITIL Framework
- Why Companies Adopting ITIL?
ITIL Framework Service Lifecycle
Service Operation
- Service Operation Fundamentals
- Balance in Service Operation
- Communication

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Service Operation Functions

- Service Desk
- Technical Management
- IT Operations Management
- Application Management

Service Operation Processes

Event Management
Incident Management
Request Fulfillment
Problem Management
Access Management

Why do Companies adopt ITIL (1-2)

Infrastructure for customer focused service
Maintain business and service structure
Monitor, measure and add value to the publications

Why (continued)

- Manage IT infrastructure and budget
- Manage risk and investment
- Change organizational culture
- Improve the relationship with customers
- Optimize and/or reduce costs

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Benefits of the ITIL Framework

- Increased user and customer satisfaction with IT services
- Improved service availability leading to increased profits
- Financial savings from reduced rework, loss of time, and better resource management
- Improved time to market
- Improved decision making
- Vendor neutral

ITIL Objectives

- Align IT services with the current and future needs of customers
- Continually improve IT services
- Reduce long-term cost of service provision

Furthermore:

The ITIL framework helps improve the availability, reliability, stability, and security of mission critical IT services by providing demonstratable performance indicators to measure and justify the cost of service quality.

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Why do Companies adopt ITIL (1/2)

Deliver value for customer through service

Integrate business and service strategies

Monitor, measure and optimize service performance

Why (continued)

- Manage IT investment and budget
- Manage risk and knowledge
- Change organizational culture
- Improve the relationship with customers
- Optimize and reduce costs

Service

Service Strategy
Service Design
Service Transition
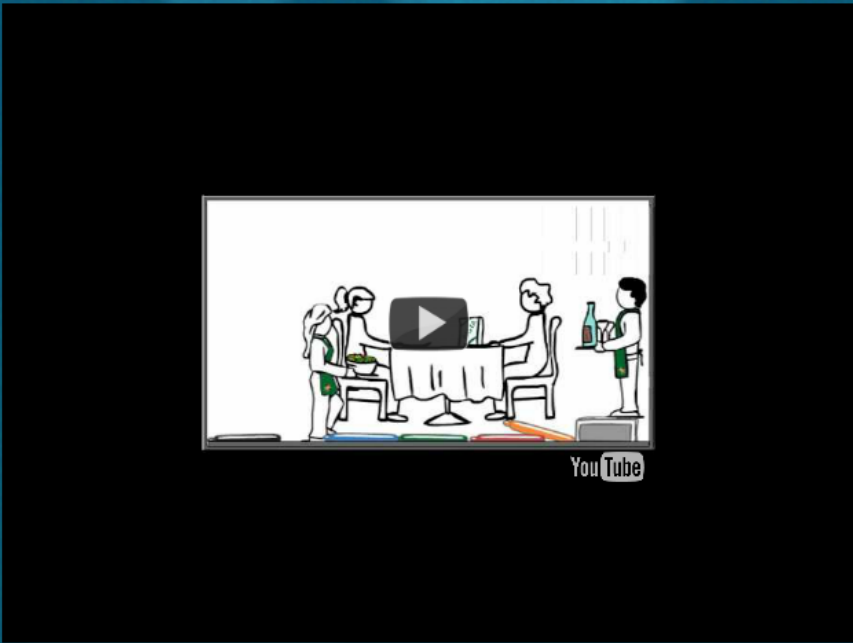Service Operation
Continual Service

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Service Lifecycle

Service Strategy
Service Design
Service Transition
Service Operation
Continual Service Improvement

Service Strategy (1/2)

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Service Strategy (2/2)

it defines the market by looking at what the business needs and what it does not need!

it develops strategies to satisfy the business needs

it develops strategic assets which focus on using services to create business value

it prepares for execution, selecting the appropriate strategy to deliver services

Service Design

turns the service strategy into a plan for delivering the business objectives

for services to provide true value to the business, they must be designed with the business objectives in mind!

Service Transition

ensures that the values identified in the service strategy are effectively transitioned so that they can be realized in service operations

safeguards managing and controlling changes into the live IT operational environment, including the development and transition of new or changed IT services

Service Operation

provides guidance on achieving effectiveness and efficiency in delivery of services to ensure value for the customers, users, and service providers

delivers and supports operational IT services to meet business needs and expectations

deliver forecasted business benefits

Continual Service Improvement

align and continuously re-align IT services to meet changing business needs

identifies and implements improvements to IT services that support business processes

reviews, analyzes and makes recommendations on improvement opportunities

looking for ways to improve process effectiveness, efficiency, and cost effectiveness – without sacrificing customer satisfaction

The purpose of the Service Operation phase of the ITIL Service Lifecycle

Purpose of ITIL Service Operations:

To coordinate and carry out the activities and processes required to deliver and manage services at agreed levels to customers.

Responsible for ongoing management of the technology that is used to deliver and support services.

Service Operations Objectives:

- Maintain business satisfaction and confidence in IT through effective and efficient delivery and support of agreed IT services.
- Minimize the impact of service outages on day-to-day business activities.
- Ensure that access to agreed IT services is only provided to those authorized to receive those services.

Service Operations Scope

Services – All activities associated with operational services regardless of whether they are executed by the service provider, a third party supplier or by users and customers.

Processes – Operational aspects of all processes whatever part of the lifecycle they originate from (e.g. operational aspects of capacity and availability management)

Technology – Management of technology delivering the services

People – The people managing the services, processes and technology

rvice Operations Objectives:

Value of Service Operation to Business

- From a customer viewpoint, Service Operation is where actual value is seen
- Services run within budget and ROI targets
- Design flaws will be fixed and unforeseen requirements satisfied
- Increased Efficiency will be obtained
- IT services will be optimized

The Balance of Service Operations (1/2)

Internal IT view versus external business view

- Internal: Performance and management of IT infrastructure devices, systems and staff, with little regard to the end result on the service
- External: Achieving high levels if IT service performance with little regard to how it is achieved

Stability versus Responsiveness

- **Stability:** Technology – developing and refining standard IT Management techniques and processes
- **Responsiveness:** Output to the business – agreement with required changes before determining what it will take to deliver them

The Balance of Service Operations (2/2)

Quality of Service versus Cost of Service
- **Quality:** Delivering the level of quality demanded by business regardless of what it takes
- **Cost:** Meeting budget and reducing costs

Reactive versus Proactive
- **Reactive:** Responds to business needs and incidents only after they are reported
- **Proactive:** Anticipates business requirements before they are reported and problems before they occur

Service Operation Communication

- Routine operation communication
- Communication between shifts
- Performance reporting
- Communication in projects
- Communication related to changes
- Communication related to exceptions
- Communication related to emergencies
- Training on new or customized processes and service designs
- Communication of strategy and design to Service Operation teams

Service Operation Processes

Event Management
    Activities to detect events, make sense of them and determine appropriate control action

Incident Management
    To restore normal service as quickly as possible and minimize adverse impact on business

Request Fulfillment
    To manage the lifecycle of requests from users

Problem Management
    To manage the lifecycle of all problems from identification to removal and minimize the adverse impact of incidents and problems

Access Management
    The process of granting authorized users the right to use a service, while preventing access to non-authorized users

Event Management: Types of Events

- **Informational Events** – An event that is only meant to provide information (i.e. a transaction has been completed successfully)
- **Warning Events** – An event which is meant as a proactive measure to indicate that a service or a device is reaching a threshold (i.e. Memory utilization on a server is currently at 65% and increasing. If it reaches 75%, response times will be unacceptably long)
- **Exception Events** – A service or device is currently operating abnormally. Exceptions could represent a total failure, impaired functionality or degraded performance (i.e. A user attempts to log on to an application with the incurrect password)

Event Management: Key Performance Indicators

- Number of events compared with the number of incidents.
- Number and percentage of each type of event per platform or application versus total number of platforms and applications.
- Number and percentage of events that require human intervention and whether this was performed.
- Number of incidents that occurred and percentage of these that were triggered without a corresponding event.

Incident Management

An incident is an unplanned interruption or reduction in quality of an IT service

Is a process for logging, recording and resolving incidents.

Focuses on restoring normal service operations as quickly as possible

Attempts to minimize the adverse impact on business operations

Is primarily a reactive process providing guidance on diagnostic and escalation procedures required to restore services

Incident Management

Incident Management Performance Indicators

Number/Percentage of proactively recorded Incidents

Average time to resolve Incidents

Number of Incidents/workstation within Service Level Agreements

Percentage of Incidents resolved at First Line, Second Line Support

Total number of Remote resolution of Incidents

Incident Prioritization

Impact and urgency of incident will determine its priority!

Impact:

    Effect on the business/organization – business criticality

    Defined in the Service Level Agreement

    Often measured in financial terms but consideration can be given in terms of legislation, regulation, security or reputation

Urgency:

    Speed needed to resolve it

Priority:

    Sequence of dealing with events, determined by impact, urgency, and effort, not assigned by the user, but by the business!

Examples: Impact, Urgency and Priority

High Impact with High Urgency: A fire that just started in the primary datacenter

High Impact with Low Urgency: A new pricing model that will be effective the next financial year

Low Impact with High Urgency: An executive's printer that won't print his family portrait in color

Low Impact with Low Urgency: A projector that was left running by the instructor after the last class

Problem Management

Purpose (Goal)
- The purpose of problem management seeks to minimize the adverse impact of incidents and problems on the business that are caused by underlying errors within the IT infrastructure
- To proactively prevent the recurrence of incidents related to these errors.

Objetives
- To ensure that problems are identified and resolved
- To eliminate recurring incidents
- To minimize the impact of the incidents or problems that can not be prevented
- Get to the root cause of the incidents, document and communicate known errors and initiate actions to improve or correct the situation

Types of Problem Management

Reactive Problem Management:
concerned with solving problems in response to one or more incidents.

Proactive Problem Management:
concerned with identifying and solving problems and known errors before further incidents related to them can occur again.

Example: trend analysis activities to find common underlying causes of historical incidents that took place to prevent their recurrence.

Benefits of Problem Management

- Improve Quality of service to users
- Improve user satisfaction
- Reduce or eliminate the impact of an incident
- Decrease number of incidents
- Improve ability to manage changes to the IT Infrastructure
- More efficient Service Desk operations
- Enhanced ability to analyze and proactively address IT trends and issues

Problem Management Key Performance Indicators

- total number of problems recorded in a period (as a control measure)
- percentage of problems resolved within Service Level Agreements (SLA) targets
- number and percentage of problems that exceeded their target resolution times
- backlog of outstanding problems and their trend (static, reducing or increasing)
- average cost of handling a problem
- number of Known Errors added to the KEDB
- percentage accuracy of the Known Error Database (KEDB – from audits of the database)
- percentage of Major Problem Reviews completed successfully and on time

Request Fulfillment

Purpose (Goal)

The purpose of request fulfillment is to manage the lifecycle of all service requests from the users.

Objectives

- To provide a channel for users to request and receive standard services for which a predefined approval qualification process exists
- To provide information to users and customers about the availability of services and the procedure for obtaining them
- To source and deliver the components of requested standard services (e.g. licences and software media)
- To assist with general information, complaints or comments

Request Fulfillment: Service Request

A request from a user for information, or advice, or for a Standard Change or for Access to an IT Service

Service Requests are usually handled by Service Desk

Examples:

- Request to install an additional software application onto a particular workstation
- Request to relocate some items of desktop equipment
- Reset a password
- Provide standard IT service for a new user i.e. e-mail
- Relocate a desktop or printer

Request Fulfillment Key Performance Indicators

- Total number of Service Requests (as a controlmeasure)
- Breakdown of service requests at each stage (e.g. logged, WIP, closed, etc.)
- Size of current backlog of outstanding Service Requests
- Mean elapsed time for handling each type of Service Request
- Number and percentage of Service Requests completed within agreed target times
- Average cost per type of Service Request
- Level of client satisfaction with handling of Service Requests (as measured in some form of satisfaction survey)

Access Management

Purpose (Goal)
- The purpose of Access Management is to provide the right for users to be able to use a service or group of services
- Execute the policies and actions defined in Information security management

Objectives
- Granting authorized users the access to their Required services
- Ensure that the access provided is at correct level
- Revoke the access after getting the necessary approvals
- Prevent non-authorized access (from possible sources)

Access Management Policies

Access Management is the process that enables users to use the services that are documented in the Service Catalogue. It comprises the following basic concepts:

- Access refers to the level and extent of a service's functionality or data that a user is entitled to use.
- Identity refers to the information about them that distinguishes them as an individual and which verifies their status within the organization.
- Rights (also called privileges) refer to the actual settings whereby a user is provided access to a service or group of services. Typical rights, or levels of access, include read, write, execute, change, delete.
- Services or service groups. Most users do not use only one service, and users performing a similar set of activities will use a similar set of services.

Access Management: Key Performance Indicators

- Number of requests for access (Service Request, RFC, etc.)
- Instances of access granted, by service, user, department, etc.
- Instances of access granted by department or individual granting rights
- Number of incidents requiring a reset of access rights
- Number of incidents caused by incorrect access settings.
- Number of audit findings that discovered incorrect access settings for users that have changed roles or left the company

Questions ?

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