



Overview of the Course

ITILv3 Foundations

<http://www.JasonDion.com>

ITILv3 Foundations: Cram to Pass!

- This course is a crash course and covers just the essentials needed to pass the exam
- If you have no previous experience in ITIL or IT Service Management, it is recommended to take our "ITIL® v3 Foundations: Your Complete ITIL® Exam Prep Course" instead
- This course moves at a quick pace, but if you watch the videos and take all the practice exams and score 85% or higher, you will be ready to pass the ITILv3 Foundations exam on your first attempt!





Exam Basics

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ITILv3 Foundations Exam

- Entry-level certification for ITIL
- Covers a general awareness of the elements, concepts, and terminology used in the ITIL Service Lifecycle and IT Service Management



Target Audience for the Certification

- People requiring an understanding of the ITIL framework
- People needing an understanding of how ITIL can enhance IT service management within an organization
- IT professionals in organizations that adopted ITIL and need to understand ongoing service improvement



Format of the Exam

- 40 multiple-choice questions
- 60 minutes to complete
- Passing Score: 65% (26 out of 40)
- Closed book exam
- Cost: \$150 (Prometric/VUE)





Exam Tips and Tricks

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Tips and Tricks

- There are no trick questions, but questions are *precisely worded*
- Read the questions multiple times to ensure you understand what you are being asked
- Be cautious of the words **Always** and **Never** in an answer



Tips and Tricks

- Look for distractors or red herrings, there is usually at least one in the answer choices
- If you see a question with **bold**, *italics*, or UPPERCASE, pay close attention to those words
- If a question asks about a process, make sure you don't answer with a function or service



Tips and Tricks

- Answers the questions based on your ITIL knowledge and studies, not your personal workplace experience
 - Your workplace may not be implementing ITIL in their IT Service Management operations...
- Choose the BEST answer...
 - Questions may have several “right” answers, but one is MOST right...
 - Look for the answer that is correct in the most situations!



Tips and Tricks

- You don't need to memorize the definitions word for word, but you must recognize right one
- Know generic process model and process characteristics
- Be able to differentiate between service, process, and function



Tips and Tricks

- If you get asked about service owner or process owner, verify your answer matches the question asked

If questions asks about a process, think twice before selecting an ANSWER with SERVICE in it!





ITSM and the ITIL Framework

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Service

- Means of delivering value to customers by facilitating the outcomes customers want to achieve without the ownership of specific costs and risk



IT Service Management (ITSM)

- Complete set of activities required to provide value to a customer through services, including policies and strategies to:
 - Plan
 - Design
 - Deliver
 - Operate
 - Control



IT Infrastructure Library (ITIL)

- Developed as a framework for organizations to use in order to perform ITSM
- *There are other IT frameworks, but only ITILv3 is covered on the exam...*
- The ITIL framework is made up of best practices...



Best Practices

- Proven activities or processes that have been successfully used by many different organizations in a specific industry



The Sources of Best Practices

- Standards
- Industry Practices
- Academic Research
- Training and Education
- Internal Experience





The Service Lifecycle

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The Service Lifecycle

- The ITIL Framework is built around the Service Lifecycle
- Consists of 5 phases
- *Each of which will be discussed in more detail throughout this course...*

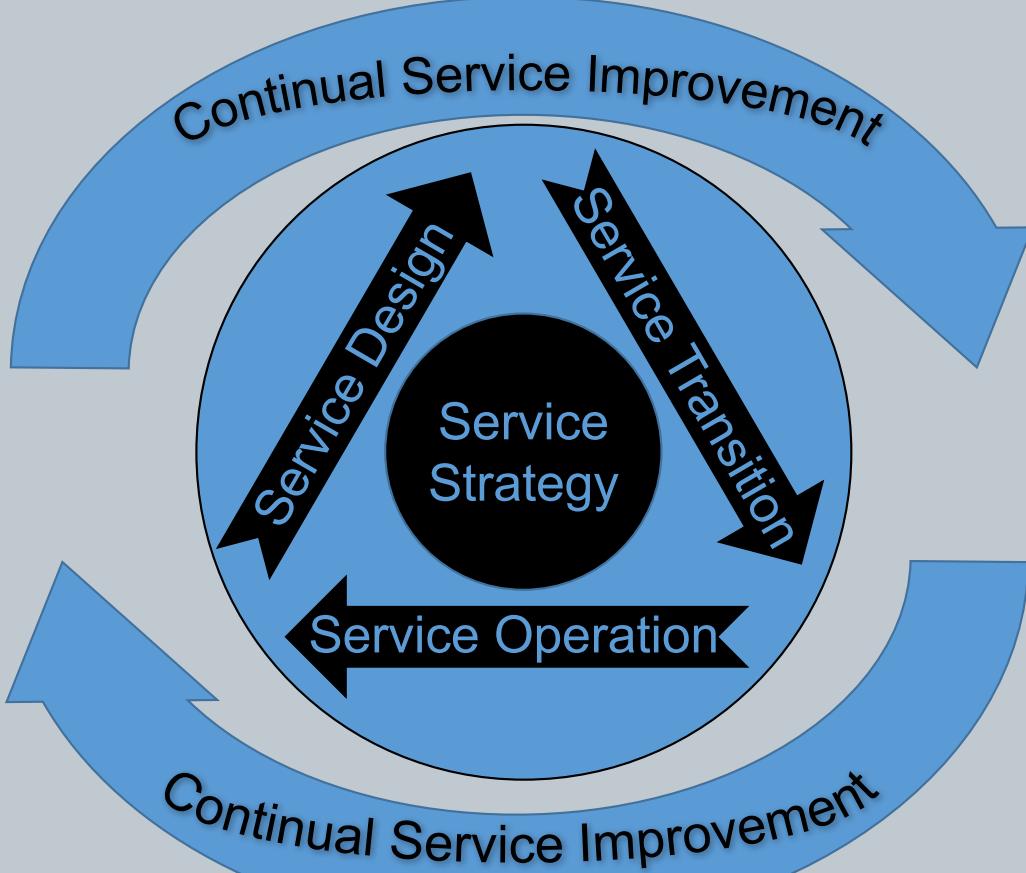


Service Lifecycle

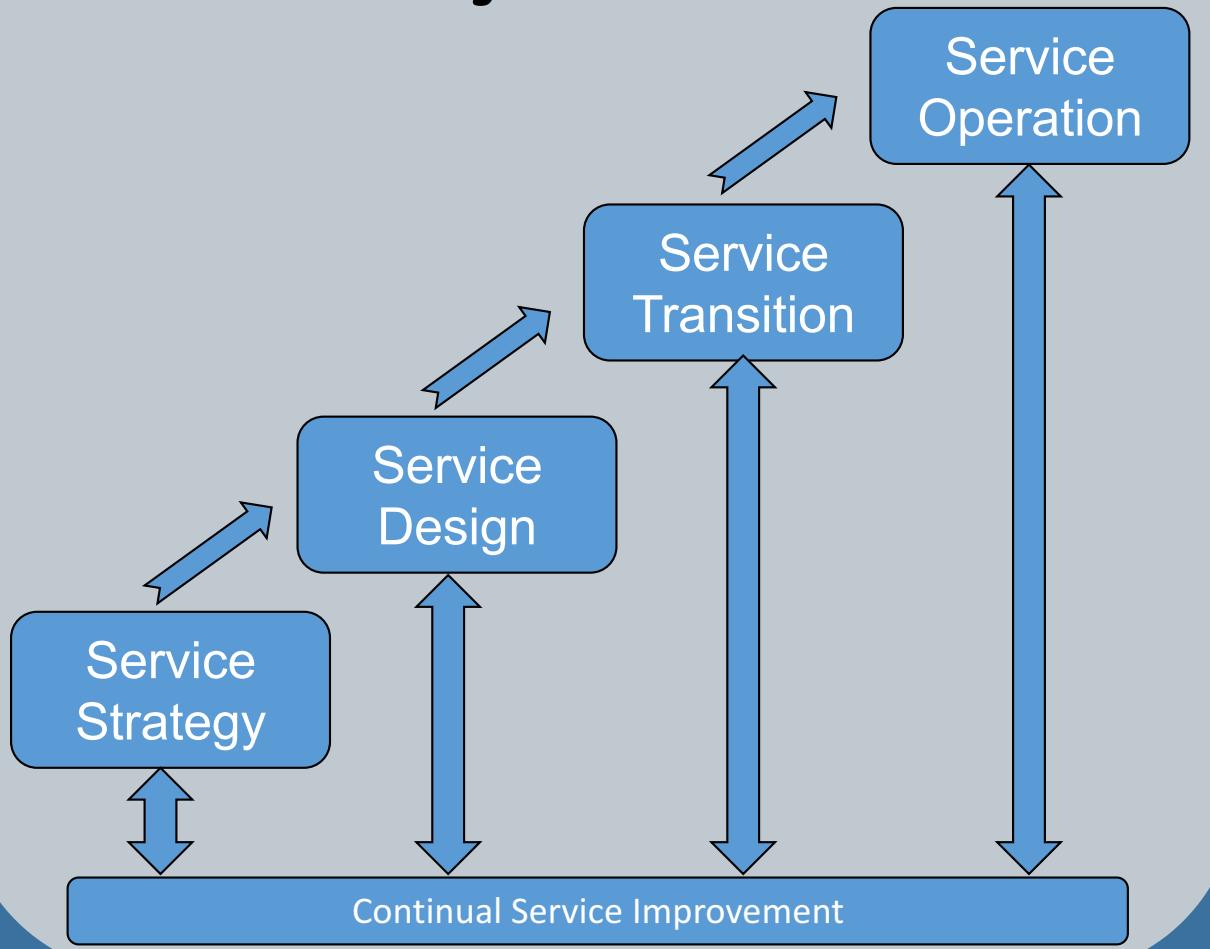
- Service Strategy
- Service Design
- Service Transition
- Service Operation
- Continual Service Improvement



Typical ITILv3 Lifecycle Diagram



ITILv3 Lifecycle With Feedback





Processes

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Process

- Set of coordinated activities combining resources and capability to produce an outcome that creates value for the customer
- ITIL covers 26 distinct processes
- *Only 22 processes are covered in the Foundations exam...*

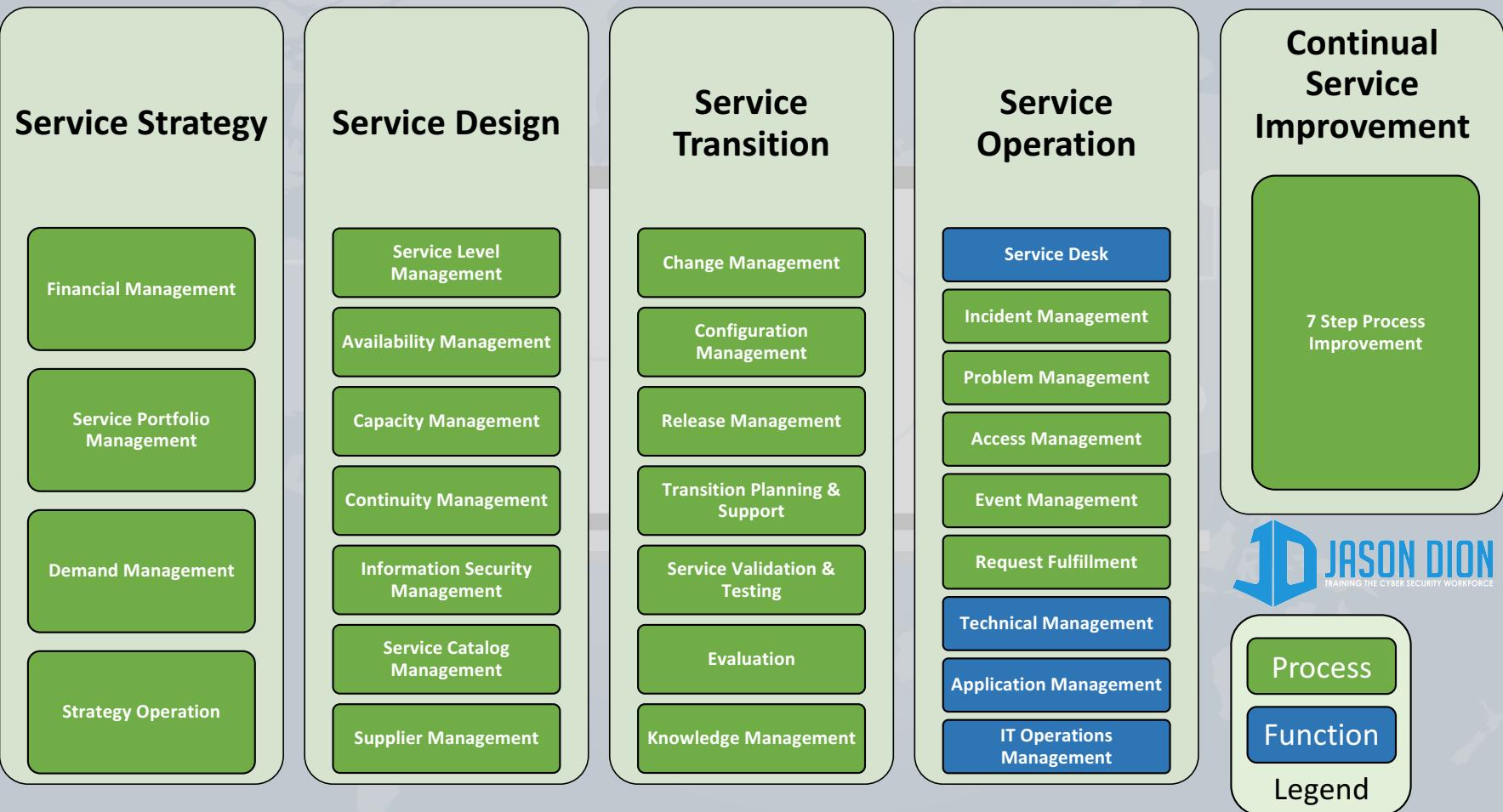


Process Characteristics

1. Responds to a specific event (called a trigger)
2. Measurable with metrics like performance, cost, productivity, quality, and duration.
3. Produces specific result
4. Delivers a result to a defined customer to meet expectations



ITILv3: Overview of Processes & Phases

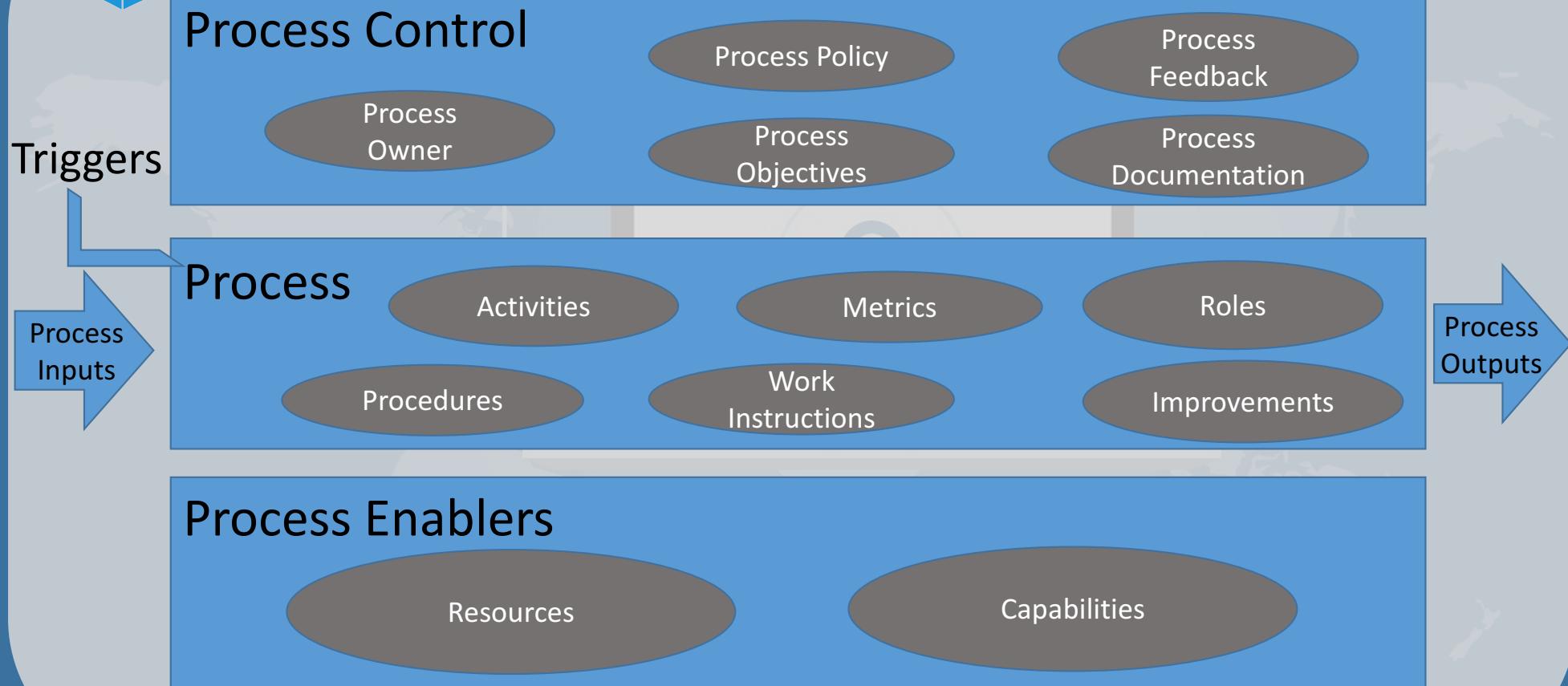


Three-Layered Model of a Process

- Process Control
 - Process Policies, ownership, documentation, review programs, etc.
- The Process Itself
 - Process steps, procedures, work instructions, roles, triggers, metrics, inputs, and outputs
- Process Enablers
 - Resources and capabilities required to support the process



Three-Layered Model of a Process





Functions

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Functions

- Self-contained unit of an organization specialized to perform specific tasks and are responsible for an outcome
- Functions actually perform the activities of processes
- Functions consist of a group of people and the tools they use



Processes vs Functions

- Processes help organizations achieve certain objectives, even across multiple functional groups
- Functions add stability and structure to the organization
 - Map to the organizational chart, have budgets tied to them, and defined reporting structures
- Processes and functions have roles

(Which we will discuss in the next lecture...)





Roles

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Roles

- A collection of specific responsibilities, duties, or positions within a process or function
- Roles can be held by an individual or team
- A single person or team can have more than one role



Four Standard Roles

- ITILv3 focuses on 4 standard roles
 - Service Owner
 - Process Owner
 - Service Manager
 - Process Manager
 - Process Practitioner



Service Owner

- Accountable for the overall design, performance, integration, improvement, and management of a single service
 - Initiation, transition, and maintaining of the service
 - Ensures service delivery is met
 - Identifies service improvements
 - Liaisons with Process Owners
 - Reporting and monitoring
 - Accountability for delivering the service



Process Owner

- Accountable for the overall design, performance, integration, improvement, and management of a single process
 - Initiation, transition, and maintaining of the process
 - Defines process strategy and policy
 - Assists in process design
 - Ensure process is documented
 - Auditing the process for efficiency
 - Communicating the process to others
 - Provision resources and training
 - Input into service improvement



Service Managers

- Accountable for the development, performance, and improvement of all services

Process Managers

- Accountable for the development, performance, and improvement of all processes

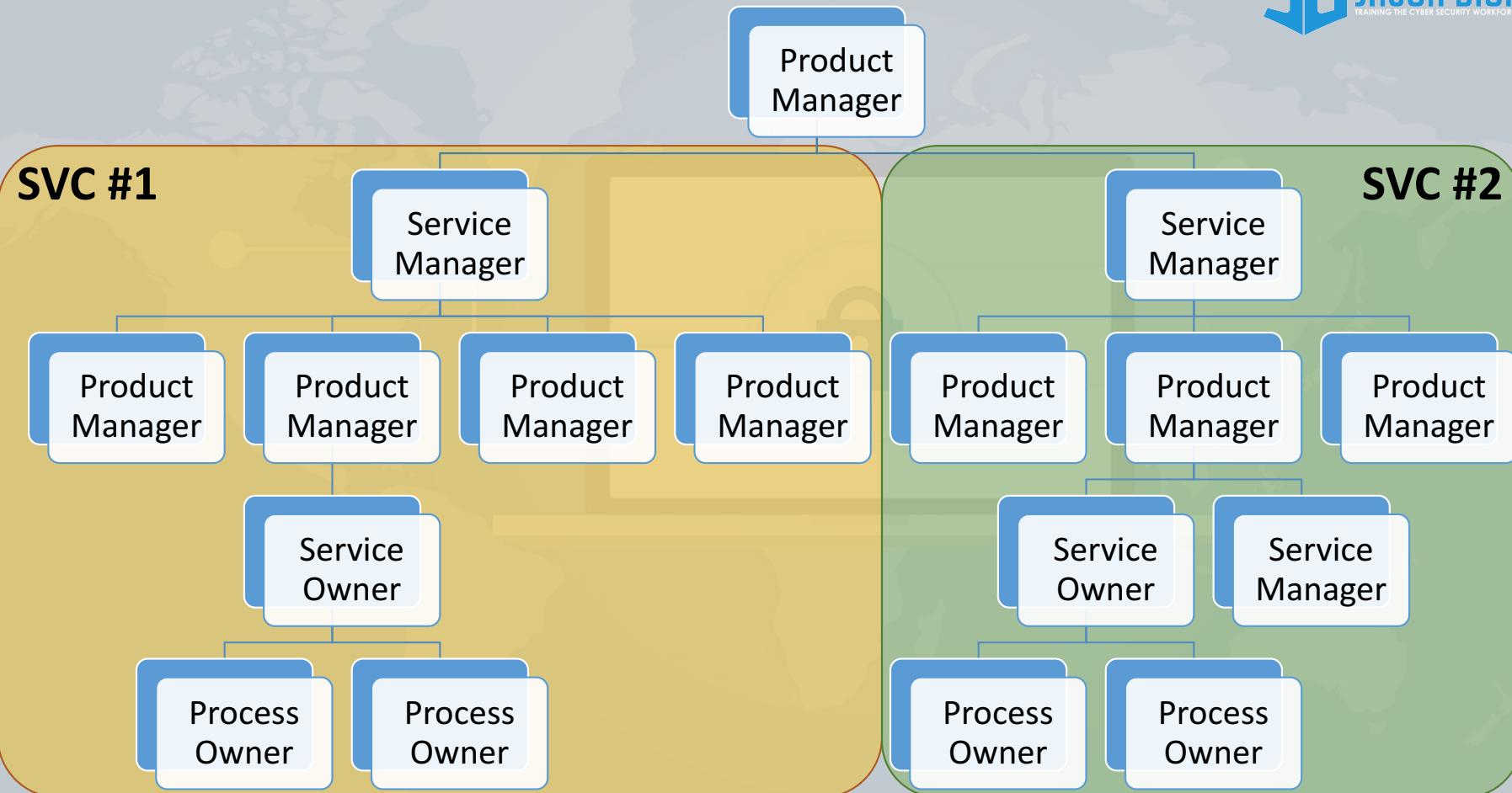


Product Manager

- Accountable for the development, performance, and improvement of a group of related services



ITILv3: Interconnection of Roles





Organizational Structure in ITIL

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Organizational Structure

- ITIL doesn't provide a model for organizational structure
- Instead, it provides useful guidance
- Each volume of the ITIL books has "Organizing for _____" for the 6th chapter
- Chapter 6 always contains numerous roles and responsibilities



Who is responsible for what?

- Roles can be filled by multiple people
- One person can fill many roles
- If many people are filling a role, ensure there are no gaps or seams
- Ensure all roles are filled by someone



ITIL's Organizational Focus...

- Focus is placed on relationships between functions and processes, and standard roles
- Much of the focus is on the four major functions:
 - Service Desk
 - Technical Management
 - Application Management
 - IT Operations Management





Service Desk

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Service Desk

- Provides a single, central point of contact for all users of IT services
- First point of contact for all issues with all services
 - Inbound incidents
 - Service requests
 - Change requests
 - ...and more
- Usually owns the Incident Management process



Help Desk -> Service Desk

- First service desks were simply call centers or help desks
- Over time, they became better organized and evolved into full service desks, offering more than just a “break-fix” mentality to problem solving



Local Service Desk

- Located physically close to the customers they support



Centralized Service Desk

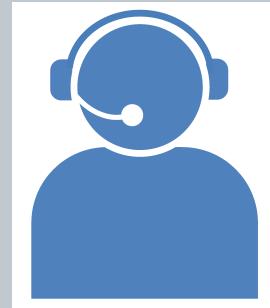
- Makes better use of resources, improves consistency, and centralizes management

New York

Washington

California

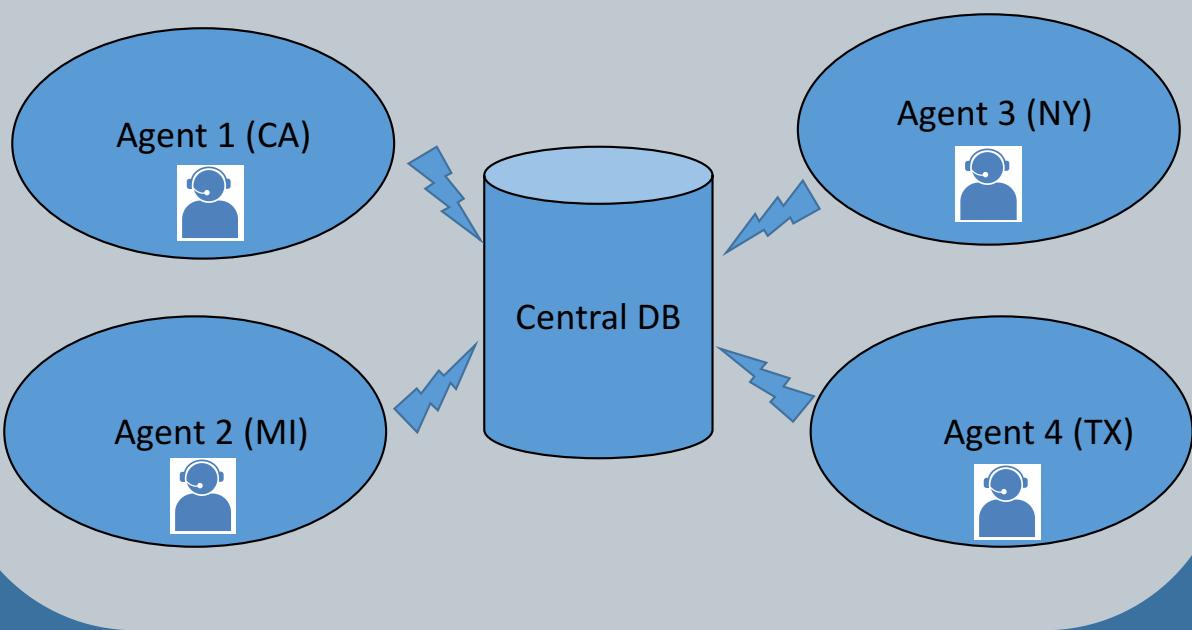
Florida



JASON DION
TRAINING THE CYBER SECURITY WORKFORCE

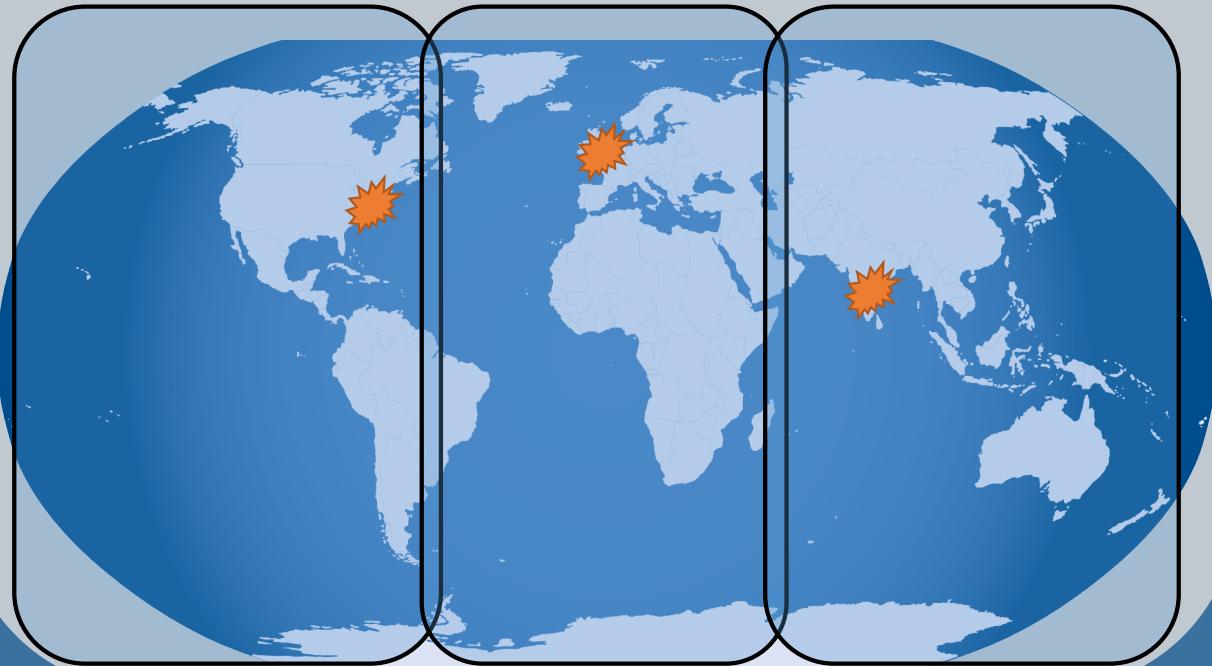
Virtual Service Desk

- Doesn't require a centralized location, but can still make better use of resources, improves consistency, and centralizes management



Follow-the-Sun

- Combines local, centralized, and virtual service desks, allowing for 24x7 coverage across all time zones





Technical Management

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Technical Management

- Responsible for the procurement, development, and management of the technical skill sets and resources required to support the infrastructure and the ITSM efforts
- Provides technical resources to all phases of the ITIL Lifecycle



Primary Role

- Ensure that the Service Provider has the right skill sets available to deliver the services it offers to its customers
- Usually divided into specialty areas:
 - Networking
 - Security
 - Databases
 - Storage
 - Servers
 - ...and more





Application Management

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Application Management

- Provide end-to-end management of applications in the environment
- Involves cultivating the skill sets and resources to support all phases of the lifecycle
- Also, helps to identify software requirements and their sourcing (internal/external)



App Management vs Development

- **Application Development**

Focused on design and construction of a application solution to gain initial utility

- **Application Management**

Focused on the ongoing oversight, operational management, and improvement of applications for both utility and warranty



Application Management

- Does not replace other core processes, but supports things like:
 - Incident Management
 - Problem Management
 - Change Management
 - Availability Management
 - ...and more





IT Operations Management

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IT Operations Management

- Provides a stable platform on which services can be delivered to meet the agreed-upon business needs
- To perform the day-to-day running of the IT infrastructure and the facilities that house it
- Split into two sub-functions
 - Operations Control
 - Facilities Management



Operations Control

- Monitors the infrastructure for optimal performance minute-by-minute and conducts the normal maintenance cycles required
 - Console Management
 - Backup and restoral operations
 - Media management
 - Batch job execution
 - ...and more



Operations Control: NOC

- Network Operations Center (NOC) or Operations Bridge are common terms for their workspace



Facilities Management

- Only concerned with physical environment of the IT infrastructure
 - Data centers, server rooms, ...
 - Power
 - Air Conditioning (HVAC)
 - Fire suppression
 - Physical access control
- Close relationship necessary with Operations Control for success





RACI Model

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RACI Model

- A generic tool for reviewing and assigning four key roles to any activity
- Each activity can have many roles who are responsible, consulted, and informed, but...
- Each activity can only have one role who is accountable!
- RACI provides the linkages between roles, their responsibility and accountability for a given tasks in a process



RACI Matrix

- **R (Responsible)**
Executes or performs the activity
- **A (Accountable)**
Owns the activity and must answer for its outcomes (can only be one person)
- **C (Consulted)**
Reviews and provides advice and authorization for the activity
- **I (Informed)**
Receives updates on activity's progress



Example RACI Matrix

Incident Management Process

	End User	Service Desk Analyst	Incident Response Team
Detect	R	I	R, I, C
Log	C	R	R, A
Categorize	C	R	R, A
Investigate	C	R, I	R, A

- Responsible
- Accountable
- Consulted
- Informed



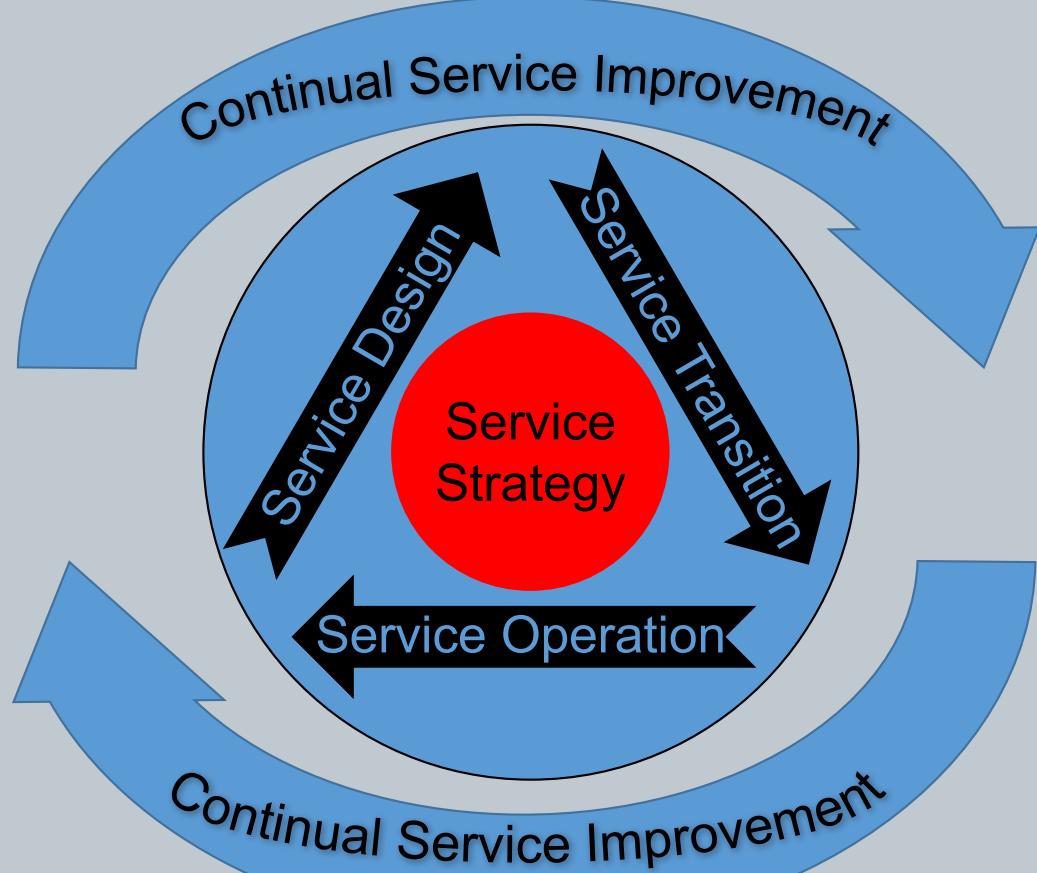


Service Strategy Phase

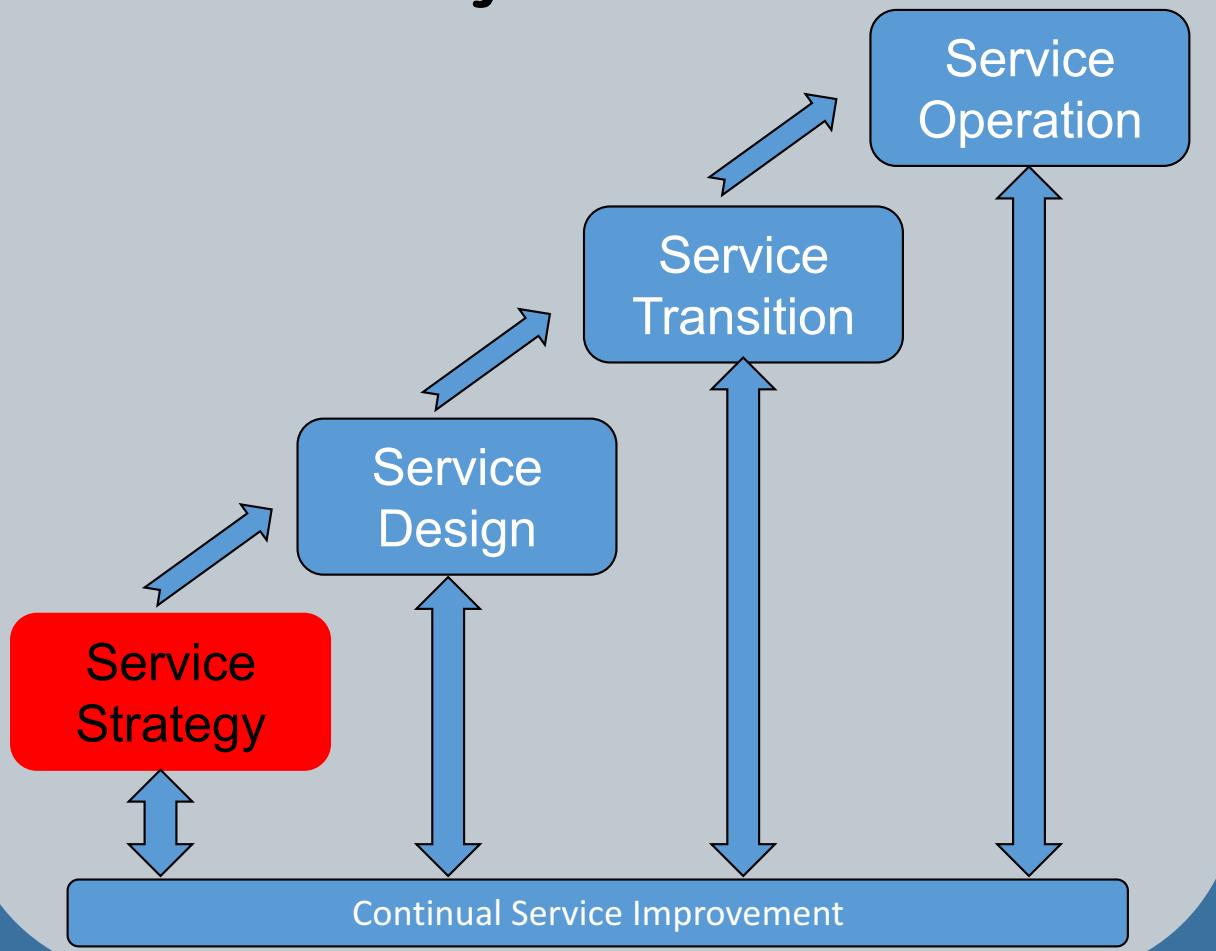
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Typical ITILv3 Lifecycle Diagram



ITILv3 Lifecycle With Feedback



Service Strategy

- Establishes and manages the broadest policies and standards to govern how a Service Provider will operate
- Determines the selection of services a Service Provider will offer to its customers
- Services shall:
 - Deliver value to customers
 - Enable the Service Providers to capture value
 - Be of acceptable cost to the Service Provider
 - Be of acceptable risk to the Service Provider



Definition of a Service (again)

- A means of providing value to customers by facilitating the outcomes they want to achieve without the ownership of specific costs and risks.



Business Value

- Service Strategy creates value to the service provider and its customer
 - Services offered align with business objectives
 - Services offered are likely to offer value
 - Customers can be charged for services
 - Or services give the provider another beneficial outcome
 - Service provider must be able to handle the costs and risks associated with offering the service



Service Strategy: Processes

- Service Portfolio Management
- Strategy Operation
- Financial Management
- Demand Management





Business Case Analysis

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Business Case

- Structured and documented justification for a new investment
- Argues the benefits and costs of a particular service
- Created for new or changing services
- Provides an expected Return on Investment (ROI)



Parts of a Business Case

- Introduction
- Methods and Assumptions
- Business Impacts
- Risks and Contingencies
- Recommendations



ROI or VOI

- Return on Investment (ROI)
 - Expected financial growth (\$ returned)
- Value on Investment (VOI)
 - Expected non-financial return (increased recognition or reputation)





Value: Utility and Warranty

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Value

- Value is created from the balance between *utility* and *warranty*
- Services *must have both utility and warranty in order to have value*



Utility

- “Fit for purpose”
- Functionality of a service
- Enabling a job to be done or done better
- Removes constraints or increased performance for the customer

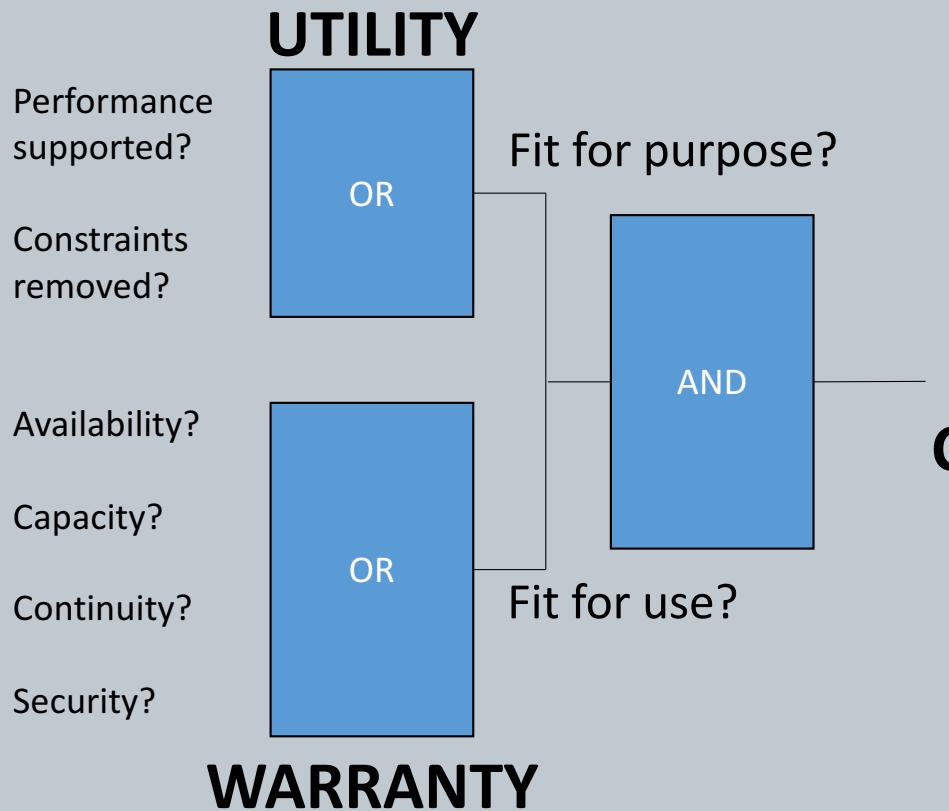


Warranty

- “Fit for use”
- Mix of availability, capacity, continuity, and security

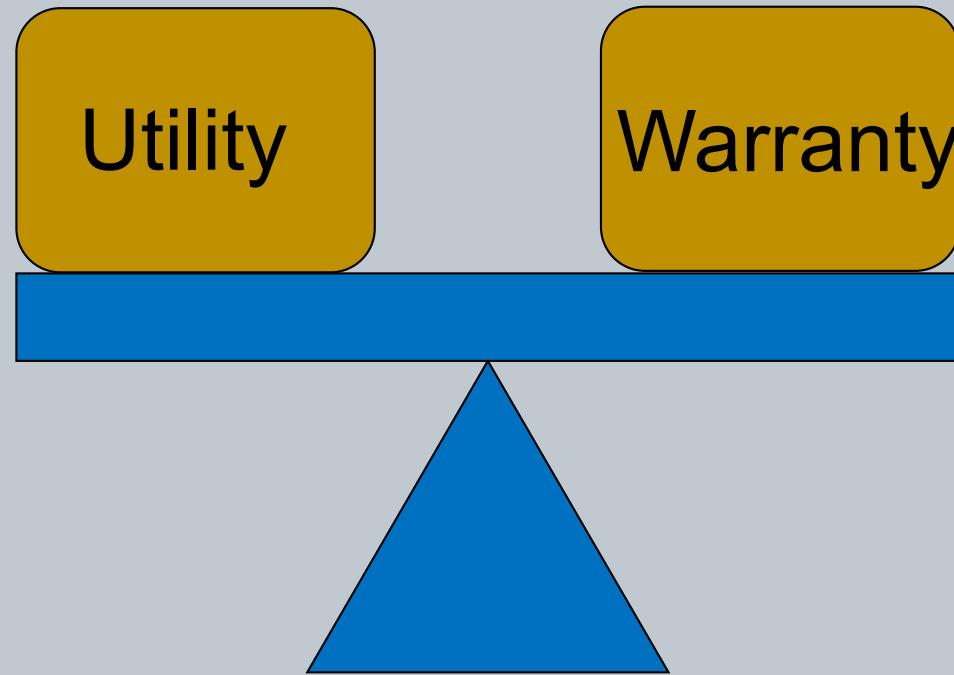


Creating Value



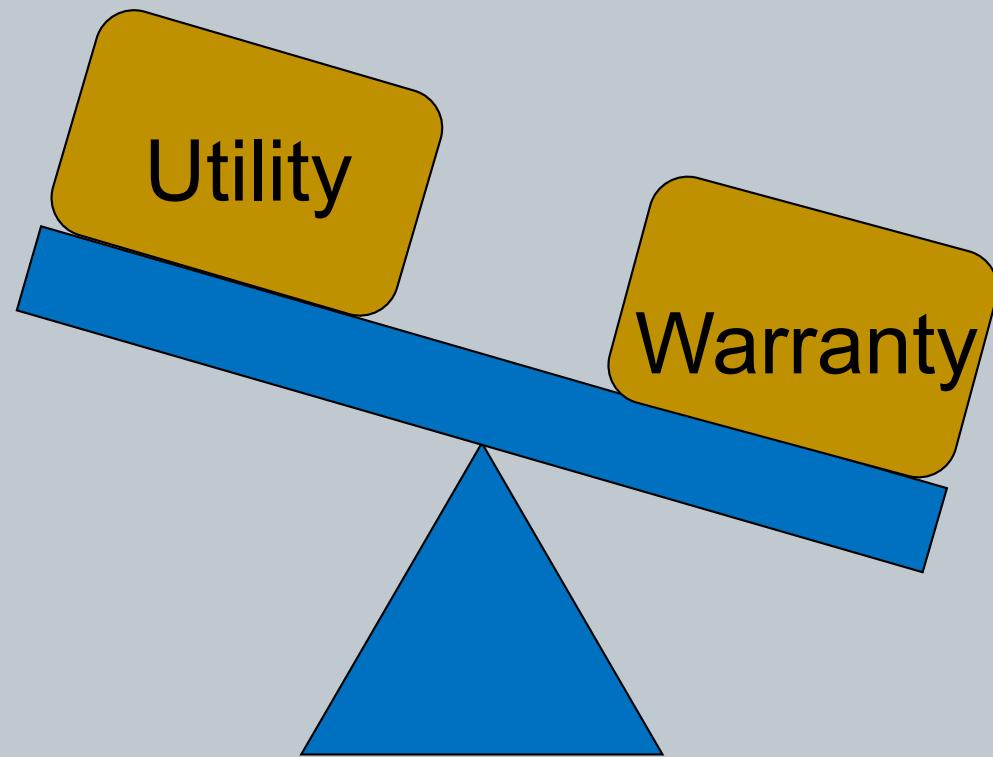
Maximum Value

- Perfect balance provides the most value
- Neither piece is more important



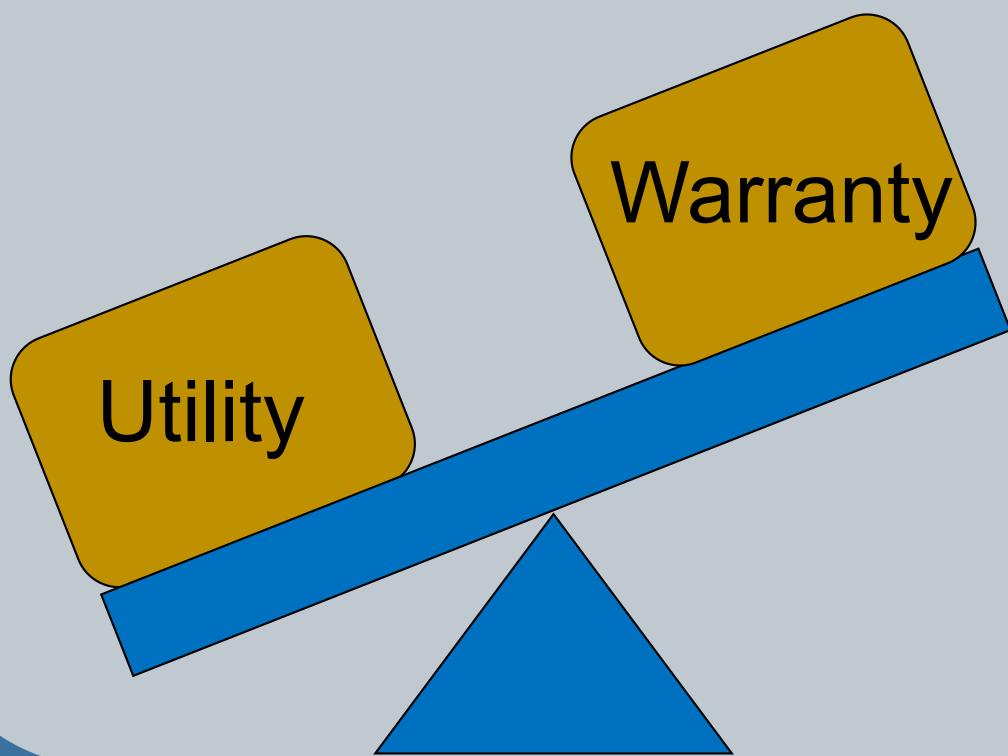
Poor Value

- High Utility: Best website
- Low Warranty: Limited bandwidth



Poor Value

- Low Utility: Poorly designed database
- High Warranty: 100% Availability



Value in Service Strategy

- Always try to understand the utility and warranty of any new or changed service
- Utility "sells" services
- Warranty requires resources & therefore represents cost





Service Assets

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What is an asset?

- Refers to resources and capabilities which the service provider must allocate to provide a given service



Resources

- Contribute to a service
- Are Tangible
- Can be purchased
- Raw materials, Financial capital, Infrastructure, Applications, Information, and People



Capabilities

- Specialized skills or abilities
- Applied by organization to add value
- Are Intangible
- Management, organization, processes, skills, etc.





Service Portfolio Management

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Service Portfolio Management

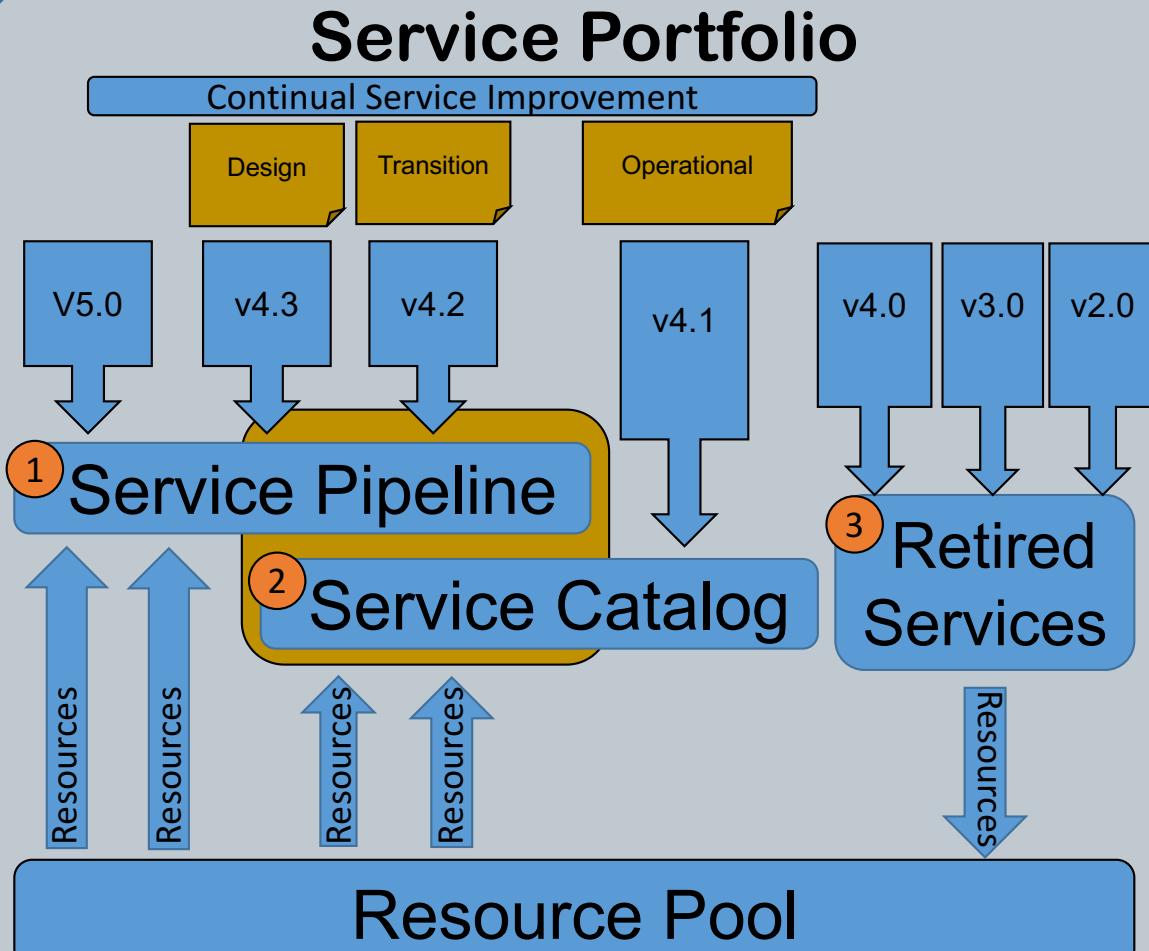
- Process concerned with managing the services that comprise the service portfolio
- Organized by which services are identified, described, evaluated, selected, and charted, as well as their place in the portfolio



Service Portfolio

- Complete set of services under management by a Service Provider
- Three Major Pieces
 - Service Pipeline
 - Service Catalog
 - Retired Services





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Service Portfolio

(Planned, current, and retired services)

Service Portfolio (Simplified)



Service Pipeline

- Planned or under development



Service Catalog

- Currently available to customers



Retired Services

- No longer available to customers



Who allocates resources, anyway?

- Service Portfolio's purpose is to help Service Provider understand how its resources are used to maximize value
- Resources are allocated to resources throughout their lifecycle from the IT director's resource pool
- Services will usually use more resource in Operations than in earlier stages





Strategy Management Process

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Strategy Management Process

- Purpose is to ensure a service strategy is defined, maintained, and managed
- Concerned with development of service concepts in preparation for selection of services to be provided
- Also known as Strategy Operation Process



Key Activities

- Understand the market
- Develop the offerings/services
- Develop strategic assets
- Prepare for service execution



Understand the Market

- Who is the customer?
- What do they value?
- How do they define value?



Develop the Offerings/Services

- What services could be offered to provide value to your customers?
- How can we offer a unique or distinctive value?



Develop Strategic Assets

- What resources would be required to offer the proposed services?
- What capabilities would need to be used to provide the services?



Prepare for Service Execution

- How can we prepare to develop the service?
- What are the service objectives?
- What critical success factors must be met to achieve the objectives?



Prepare for Service Execution

- How can we prepare to develop the service?
- What are the service objectives?
- What critical success factors must be met to achieve the objectives?





Demand Management Process

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Demand Management

- Purpose is to identify the demand for a particular service to prevent capacity limitations
- Unmanaged demand is a cost and risk to the service provider



Major Activities

- Identify and analyze patterns of business activity (PBA)
- Analyze usage of services by different types of users and identify/document user profiles



Important Considerations

- Business have busy and slow periods
- Retailers are busier during the holiday season
- Many companies don't account for large demand and it cripples them





Financial Management Process

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Financial Management (FM)

- Purpose is to understand and manage financial resources, costs, and opportunities for services
- Provides clear method for generating data to aid in management decisions



Major Activities

- Secure funding to design, develop, and deliver services to support business processes
- Ensure service provider doesn't promise what they cannot deliver
- Maintain balance of cost and quality; supply and demand



Three Key Activities

- Budgeting
 - Forecasting and planning of how to spend money
- Accounting
 - Tracking of money by cost centers and against the original budget
- Charging
 - Getting payment from the customers for services



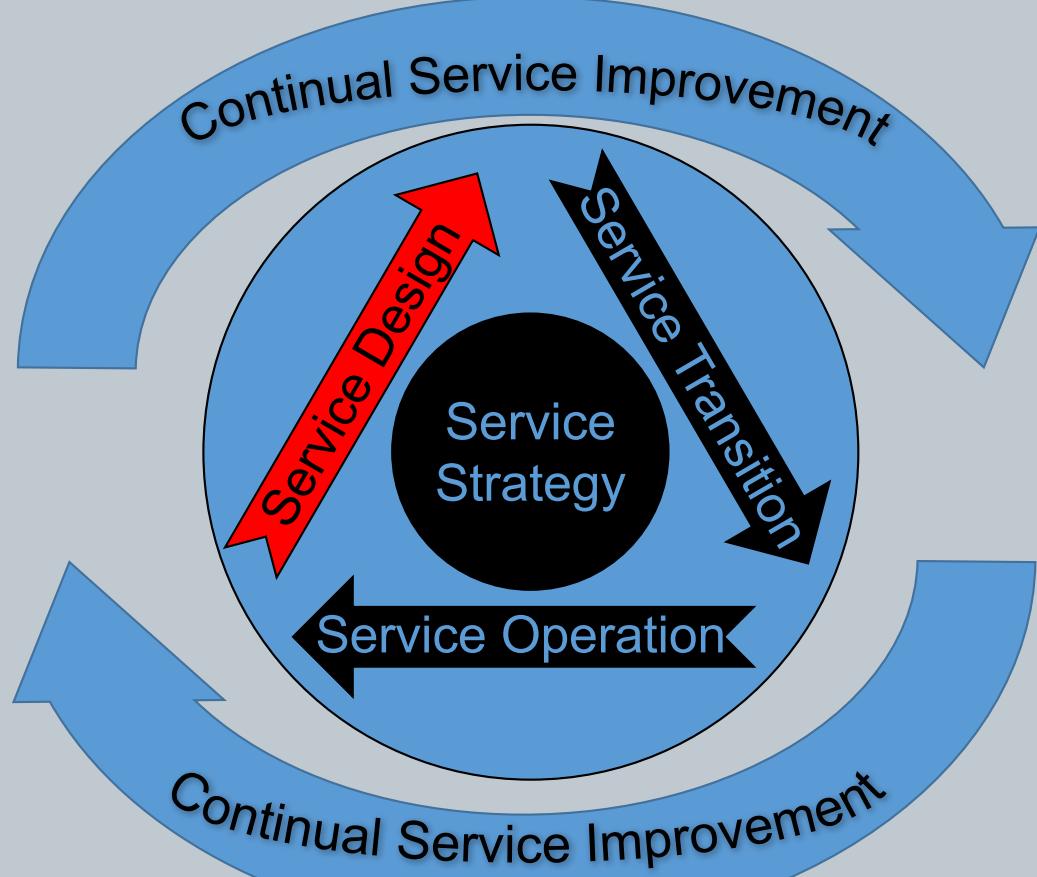


Service Design Phase

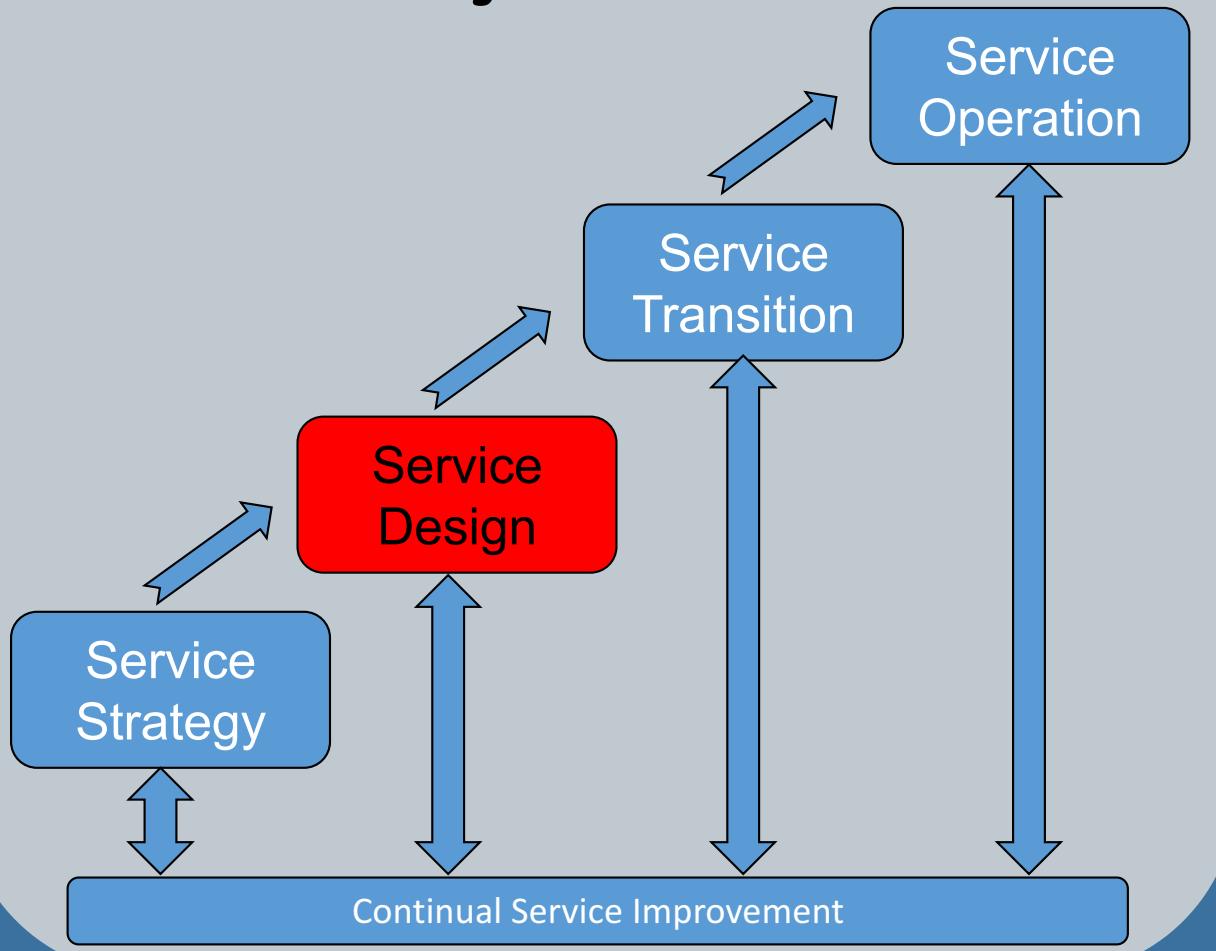
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Typical ITILv3 Lifecycle Diagram



ITILv3 Lifecycle With Feedback



Service Design

- Conduct the detailed planning of the service and all supporting materials to allow it into the live environment
- How will it be supported?
- How will it be tested?
- How will future development occur?



When is Service Design Complete?

- Service Design is complete when:
 - Detailed
 - Comprehensive
 - Effective (but not necessarily efficient)
 - Agreed upon by stakeholders



Key Takeaways

- Detailed blueprint of the service, including:
 - Components of the service
 - Identify if resources be shared with another existing service
 - Test plan
 - Support plan
 - Future development plan





Business Value

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Business Value in Service Design

- Services aligned with business objectives
- Services provide agreed upon utility and warranty to meet objectives identified in Service Strategy
- Service management processes are capable of supporting the service



Business Value in Service Design

- Service management systems and tools support the service offerings
- Services are built to the agreed upon architectural standards
- Services designed so performance is adequately measured





Quality in Service Design

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Quality in Service Design

- Important to consider the entire service holistically to ensure quality
- Requires clear specifications for what level of quality must be achieved
- Processes must exist to ensure warranty (fit for purpose)



Quality in Service Design

- Quality in the Service Design phase leads to quality in Service Operations later on...
- It is harder and more costly to fix things later...
- Design it right the first time!





4 P's of Service Design

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4 P's of Service Design

- People
- Processes
- Products
- Partners



People

- Consists of our technical staff, users, customers, stakeholders, board executives, and many others
- People need to be trained, managed, supervised, led, hired, fired, convinced, etc.



Processes

- ITIL is all about processes
- 26 processes in ITIL v3
- Service Design considers the processes while designing a new service



Products

- Made up of other services, technology (hardware, software, etc.), tools needed to support the services



Partners

- People and organizations that help us provide excellent services
- Manufacturers
- Suppliers
- Vendors
- Etc...





5 Aspects of Service Design

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5 Aspects of Service Design

- New or changed service itself
- Service Management processes needed to support
- Service Management Systems and tools required to support
- Technology architectures used by the service
- Measurement systems and metrics needed to understand performance





Service Catalog Management

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Service Catalog Management Process

- Involves management and control of the Service Catalog



What is a Service Catalog?

- A database or structured document with information about all live services including those available for deployment that it is widely available to those who are approved to access it
- Enables all stakeholders to have a clear understanding of services provided to support the business
- Creates a list and definition of services



Service Catalog Information

- Features of the service
- Usage guidelines for the service
- Methods for accessing the service
- Pricing information (if costing is used)
- Key points of contact
- Service Level Agreement requirements



Service Catalog Benefits

- Identifies services to bundle, providing better solutions
- Informs customers of services available
- Helps service staff understand their part in the business process
- Manages customer's expectations concerning services to be rolled out
- Publishes key SLA targets



Why's Service Catalog in Service Design?

- Manages the structure and contents of the catalog
- Ensures catalog is complete, accurate, and current
- Checks and authorizes any proposed changes to the catalog
- Service Design generates much of the information and documentation needed





Service Catalog Types

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Different Types of Service Catalogs

- Simple Service Catalog
- Business or Customer
- Technical or Supporting
- Alternate Views



Simple Service Catalog

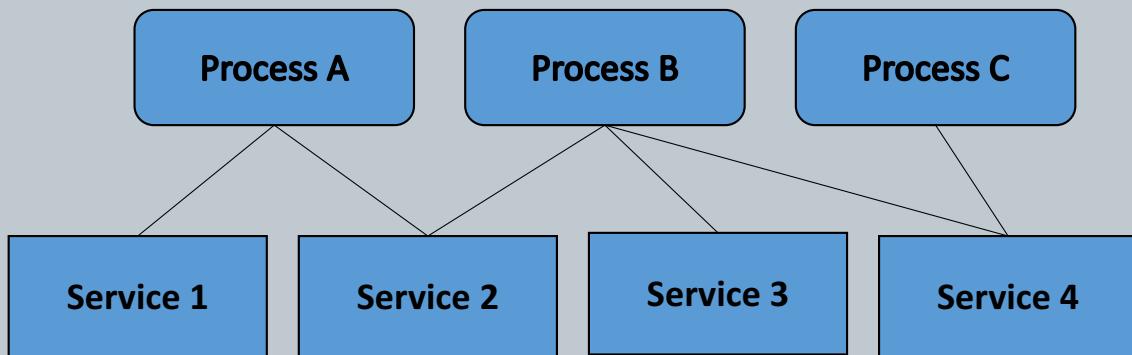
- Simplified matrix of available services
- Comprehensive and accurate info

Service	Students	Instructors	Sales	Payroll
Web Browsing	X	X	X	X
E-Mail	X	X	X	X
Paycheck Printing				X
IT Service Desk	X	X	X	X



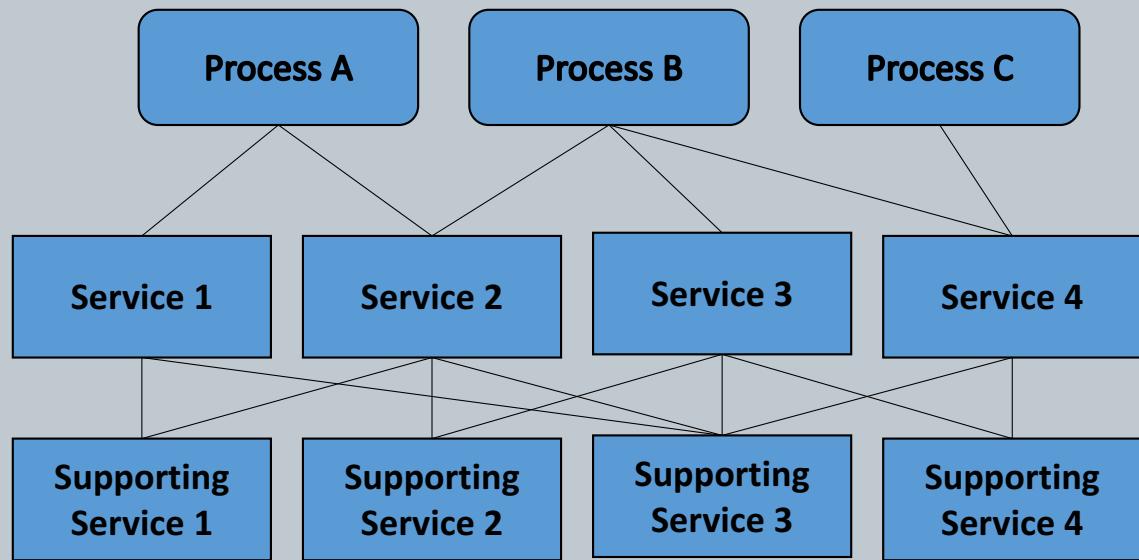
Business or Customer Service Catalog

- Identifies the business processes that are being supported by the services
- Detailed versions can include service hours, SLA info, escalation paths, etc.

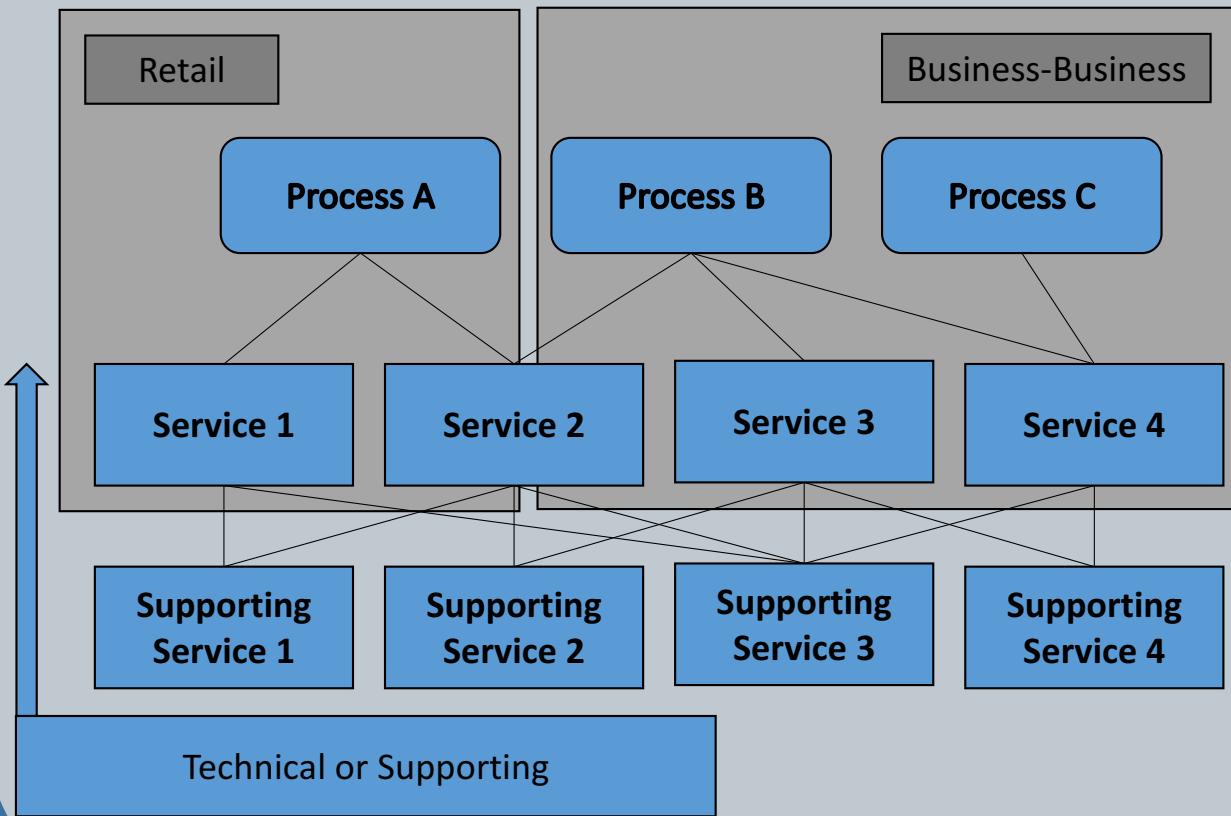


Technical or Supporting Service Catalog

- Another level of depth, covering infrastructure, applications, and outsourced services



Alternate Views: Three-View





Service Level Management

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Service Level Management Process

- Secures and manages agreements between the service provider and the customer regarding the utility (level of performance) and warranty (level of reliability) of the service
- Ensures all current and planned IT services are delivered to agreed upon, achievable targets



Service Level Management

- What metrics are we collecting and comparing our performance to?
- What utility and warranty did you promise to your customers?
- Are your targets achievable and measureable?
- Are the targets relevant?



How Is Service Level Management Achieved?



Always remember...

- Ensure SLM and BRM are aligned
- Negotiation is key!
- Monitor, report, and review SLA targets



Three Kinds of Important Documents

- Service Level Agreement (SLA)
- Operational Level Agreement (OLA)
- Underpinning Contract (UC)



Service Level Agreement (SLA)

- Written agreement between IT service provider and customer providing key service targets and responsibilities of both parties
- Formal document, but not necessarily a contract
- Clear, concise language and both parties agree upon its contents



Operational Level Agreement (OLA)

- Underpinning written agreement between two elements of the service provider organization regarding key service targets and responsibilities of both parties for the services being supported
- Like an SLA, but for within the service providers organization



Underpinning Contract (UC)

- Legally binding agreement that conform to contract law and organizational contract policy
- Written in “legalese” for the lawyers
- Negotiated by the Supplier Management



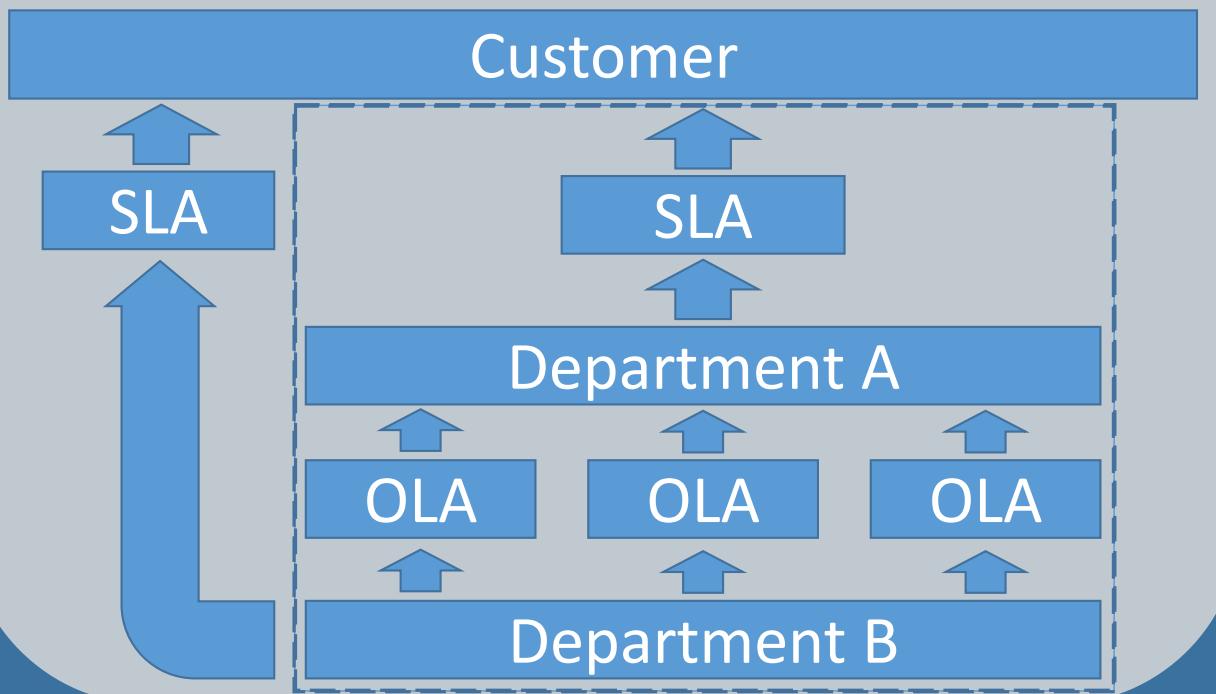
Why is SLM Part of Service Design?

- Provides an opportunity to establish the performance requirements early in the service development, ensuring the design work can be directed to meet the requirements



Challenges in SLM

- Keeping all the SLAs, OLAs, and UCs in proper alignment to support the services and business processes





Availability Management Process

ITILv3 Foundations

<http://www.jasondion.com>

Availability Management Process

- Concerned with meeting current and future availability needs of the business
- Ensure that the level of availability delivered in all IT services meets the agreed availability needs and/or service level targets in a cost effective and timely manner



Definition: Availability

- Ability of a service, system, or configuration item to perform its function when required



Two Types of Availability

- Service Availability
 - Focused on end-to-end service that is experienced by the end user or customer
- Component Availability
 - Focused on each individual piece that together provides the end-to-end experience
- Which is more important?



Keys to Availability Management

- Develop Service Level Targets of availability portions of SLAs
- Design services capable of meeting the agreed upon availability requirements
- Measure and monitor availability
- Respond to incidents that detract from our availability





Capacity Management Process

ITILv3 Foundations

<http://www.jasondion.com>

Capacity Management Process

- Concerned with meeting current and future capacity and performance-related needs of the business
- Ensure that the capacity of IT services and of the IT infrastructure meets the agreed capacity and performance-related requirements in a cost-effective and timely manner



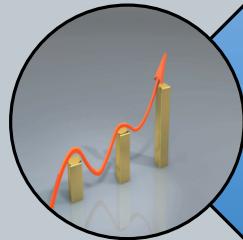
Definition: Capacity

- Maximum throughput of a service, system, or configuration item

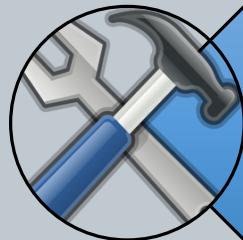


Major Capacity Activities

Capacity Planning Is Conducted Top-Down



Business Capacity Management



Service Capacity Management



Component Capacity Management



Business Capacity

- Aligns capacity management to business plans and strategy
- Translates requirements into services and infrastructure
- Coordinates with Business Relationship Management



Service Capacity

- Ensures services underpin the business processes and outcomes
- Focuses on end-to-end performance of operational services and workloads
- Coordinates with Service Portfolio Management



Component Capacity

- Ensures appropriate understanding of the technical components in the infrastructure
- Employs data analysis techniques to get maximum value from components
- Coordinates with Configuration Management to ensure optimal configuration items are used



Capacity Plan

- Capacity management process' product
- Plan includes:
 - Details current and historic utilization level and performance
 - Forecasts the capacity changes for needed to support future requirements
 - List of assumptions used
 - Costed list of recommendations



Importance of Capacity Plan

- IT Directors use the Capacity Plan when making service decisions
- Balancing act
 - Supply vs Demand
 - Cost vs Resources
- Questions to consider
 - Can my current infrastructure support a new service?
 - Do I need to buy more infrastructure to support a new service?





IT Service Continuity Management

ITILv3 Foundations

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IT Service Continuity Management

- Responsible for ensuring that the service provider can always provide the minimum agreed upon service levels
- Manages the risks associated with a disaster (and more) that could seriously affect critical IT services



Management of Risk

- Risk analysis focuses on likely events and their impacts
- ITSCM looks at unlikely events (but conceivable ones) that would have large impacts on your services, therefore contingencies plans must be considered and made
- Considers the Business Impact Analysis (BIA) to produce the IT Service Continuity Plan

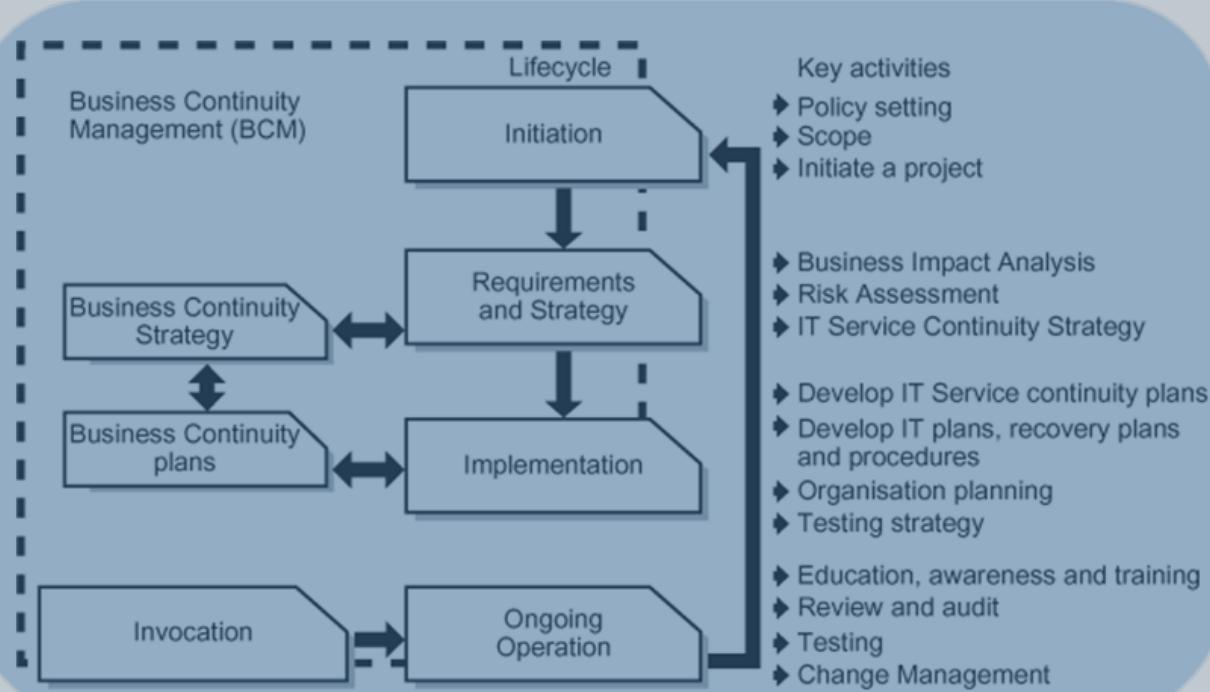


ITSCM and Risk Analysis

	Low Impact	High Impact
High Likelihood	Availability Management	Availability Management
Low Likelihood	Availability Management	IT Service Continuity Management



IT Service Continuity Management Process Workflow





Information Security Management

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Information Security Management

- Aligns IT security with business security and to ensure the IT security aspects match agreed-upon needs of the business
- Protects IT assets and services from security threats

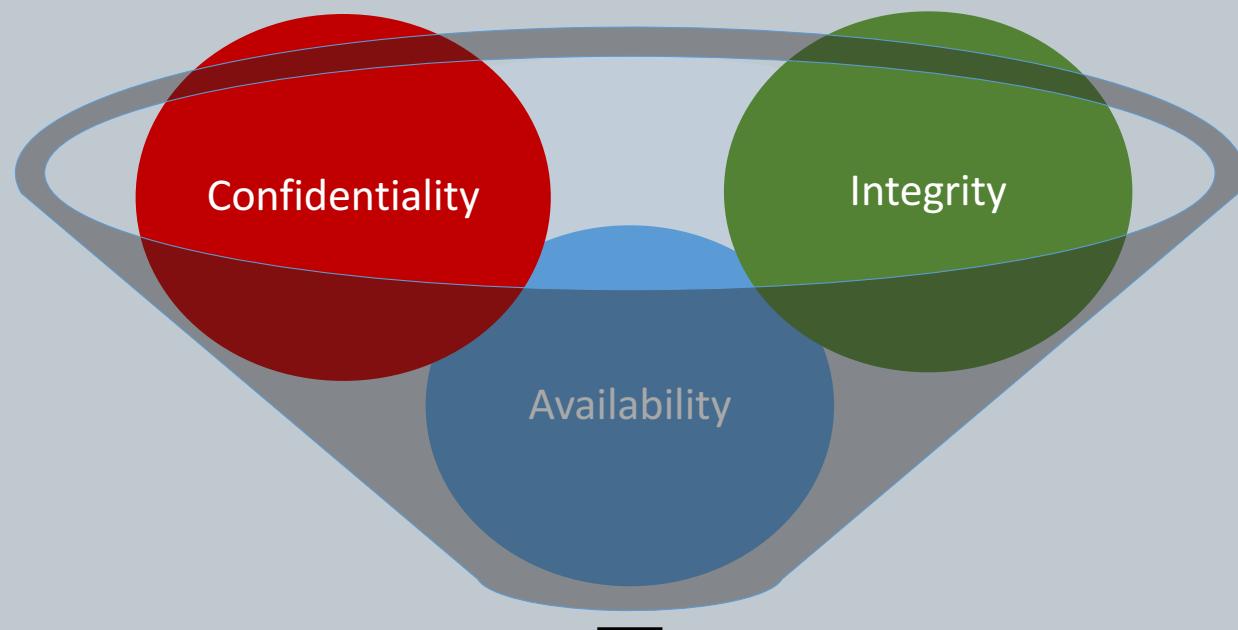


Key Actions

- Fits into the organizations larger security management efforts
- Develops and manages the IT Security Policy for the organization
 - Feeds the Access Management process that occurs during Service Operations



Components of Security (CIA)



Information Systems Security,
Data and Services



Aspects of the CIA Triad

- Confidentiality
 - Ensuring only those with a "need to know" can access the data
- Integrity
 - Data and services are complete and accurate
- Availability
 - Ensures the customer actually access the data they are authorized to access

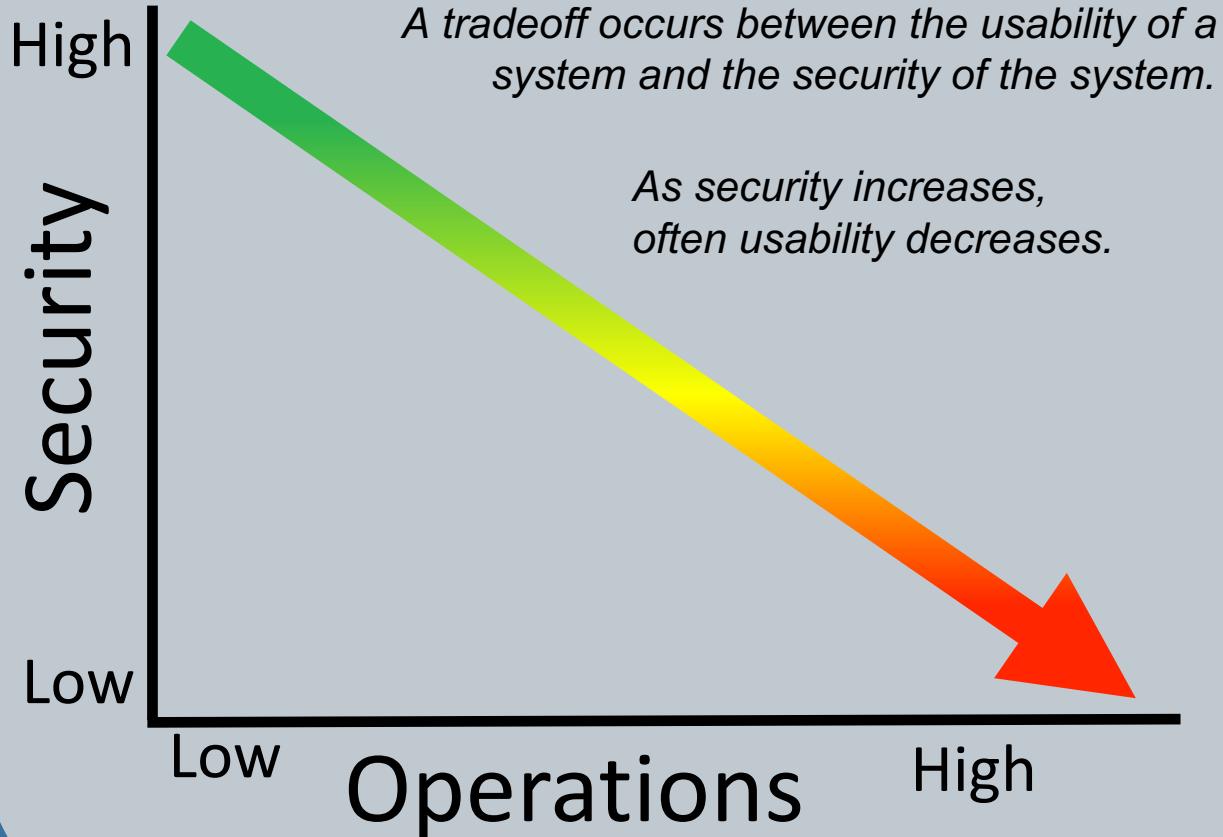


Two More Aspects to Security...

- Authenticity
 - Ensures that the actions and identities of those making them are authentic
- Non-Repudiation
 - Ensures that when an action is made, the person who made it cannot claim they didn't do it



Security versus Operations



Bottom Line...

- You can outsource a service, but not the responsibility for it...
- If you outsource things to a third party, ensure the contract specifies they are still responsible for following your IT Security policies
- ISO 27000 is the international standard for Information Security Management





Supplier Management Process

ITILv3 Foundations

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Supplier Management Process

- Obtain quality service from suppliers that provides fiscal value to meet agreed-upon needs of the business and ensures suppliers meet their contractual obligations
- Obtains value for the money spent with third-party suppliers



Supplier Management

- Similar to Service Level Management, but with external suppliers instead of internal suppliers and customers
- Organizations rely on external suppliers in order to service their customers
- Four Categories
 - Strategic
 - Tactical
 - Operational
 - Commodity



Strategic Suppliers

- Involves senior managers and sharing of confidential long-term plans
- Example:
 - Roll-out of a new nationwide fiber optic network



Tactical Suppliers

- Involves significant commercial activity and business interaction
- Example:
 - Generator maintenance



Operational Suppliers

- Involves supply of operational services
- Example:
 - Hosting of a minor service or website



Commodity Suppliers

- Involves provision of low-value products
- Example:
 - Purchasing of printer ink or bathroom supplies



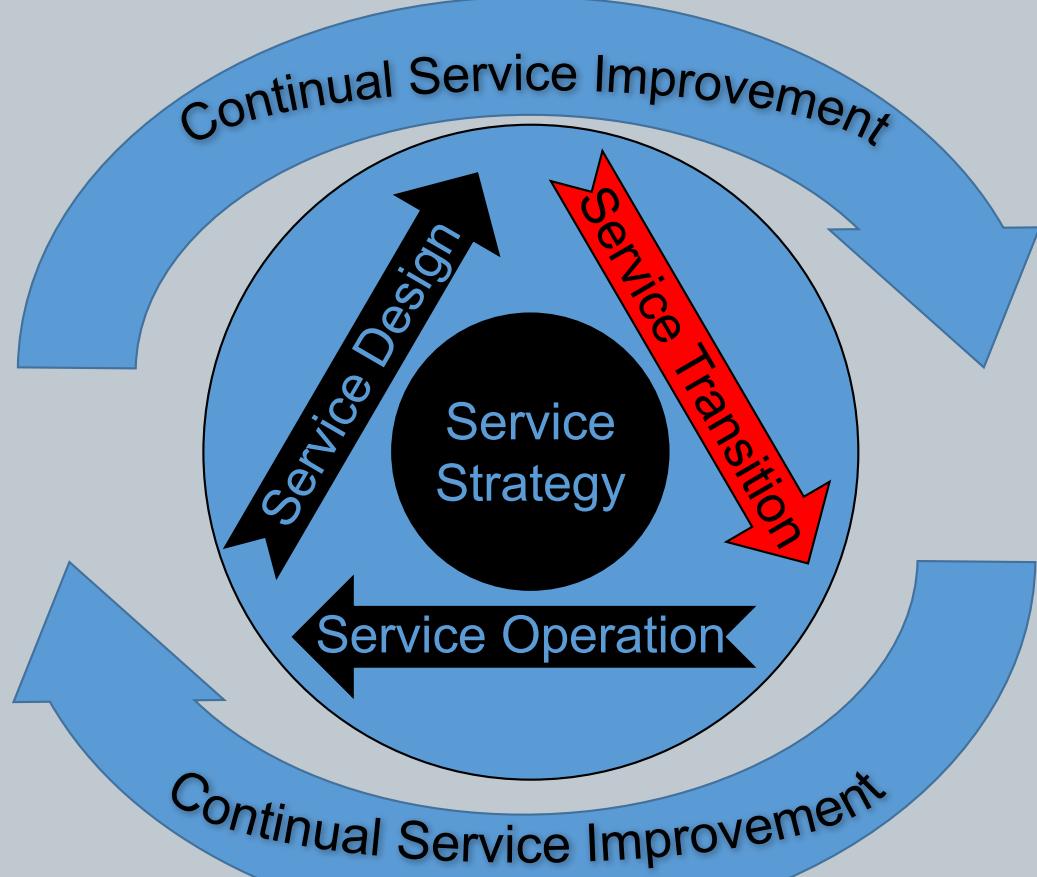


Service Transition Phase

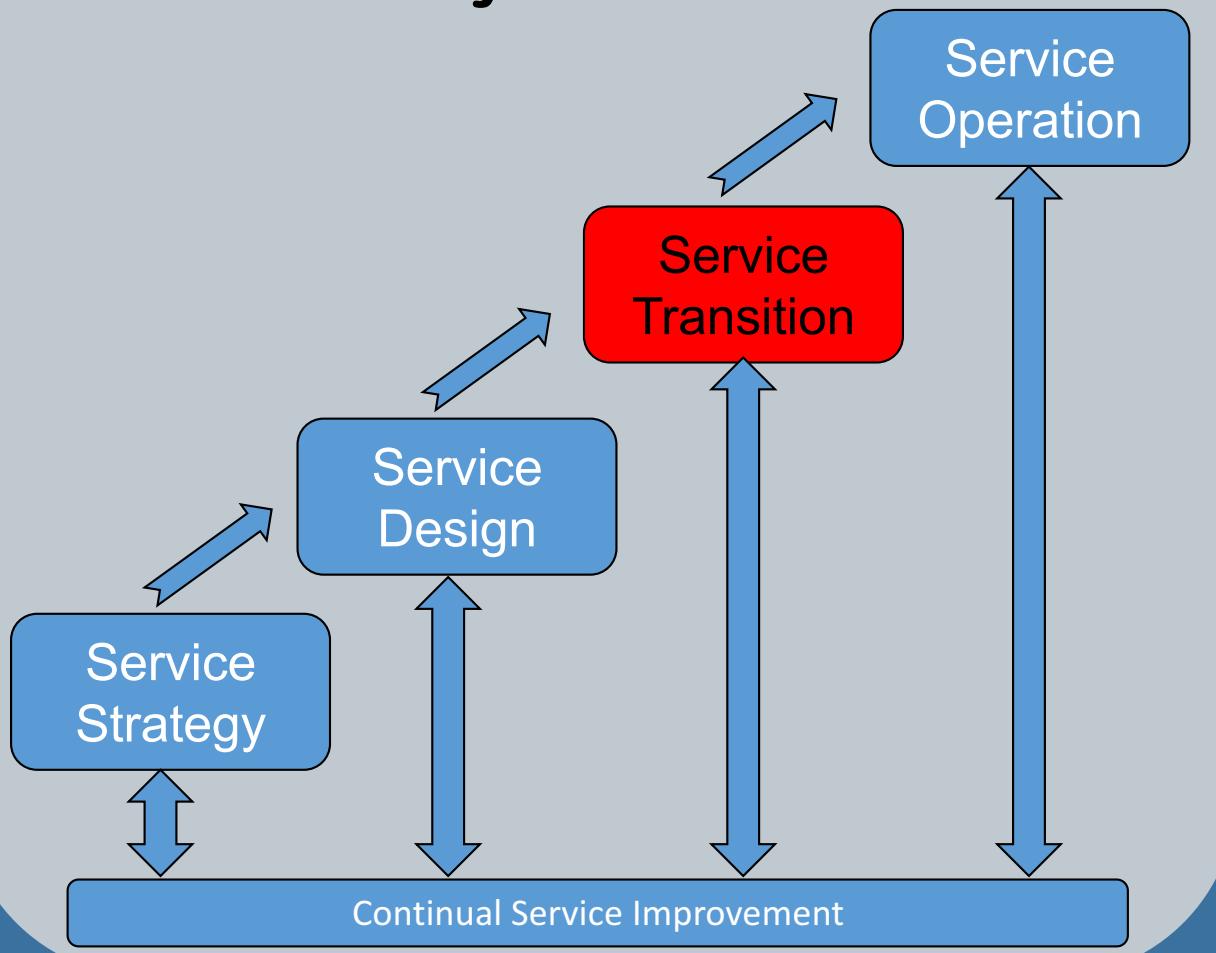
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Typical ITILv3 Lifecycle Diagram



ITILv3 Lifecycle With Feedback



Service Transition

- Concerned with the management of change and, more specifically, with the introduction of new and changed services into the live environment
- Stage where things are purchased, installed, configured, tested, launched, and operated



Business Value

- Service Transition creates value by:
 - Enabling business change
 - Minimizing impact to the business that might otherwise result from unmanaged change
 - Enabling the business to make use of new and changed services
 - Ensuring that designs for services are implemented as intended
 - Ensuring that the Service Management organization is prepared to support new and changed services
 - Reducing the number of defects introduced into the live environment



Key Takeaways

- Physical development and implementation of service
- Thoroughly tested and fielded into a live environment with no shortcomings identified
- Configuration has been documented
- Operations has been trained and ready to receive the new service





Service V-Model

ITILv3 Foundations

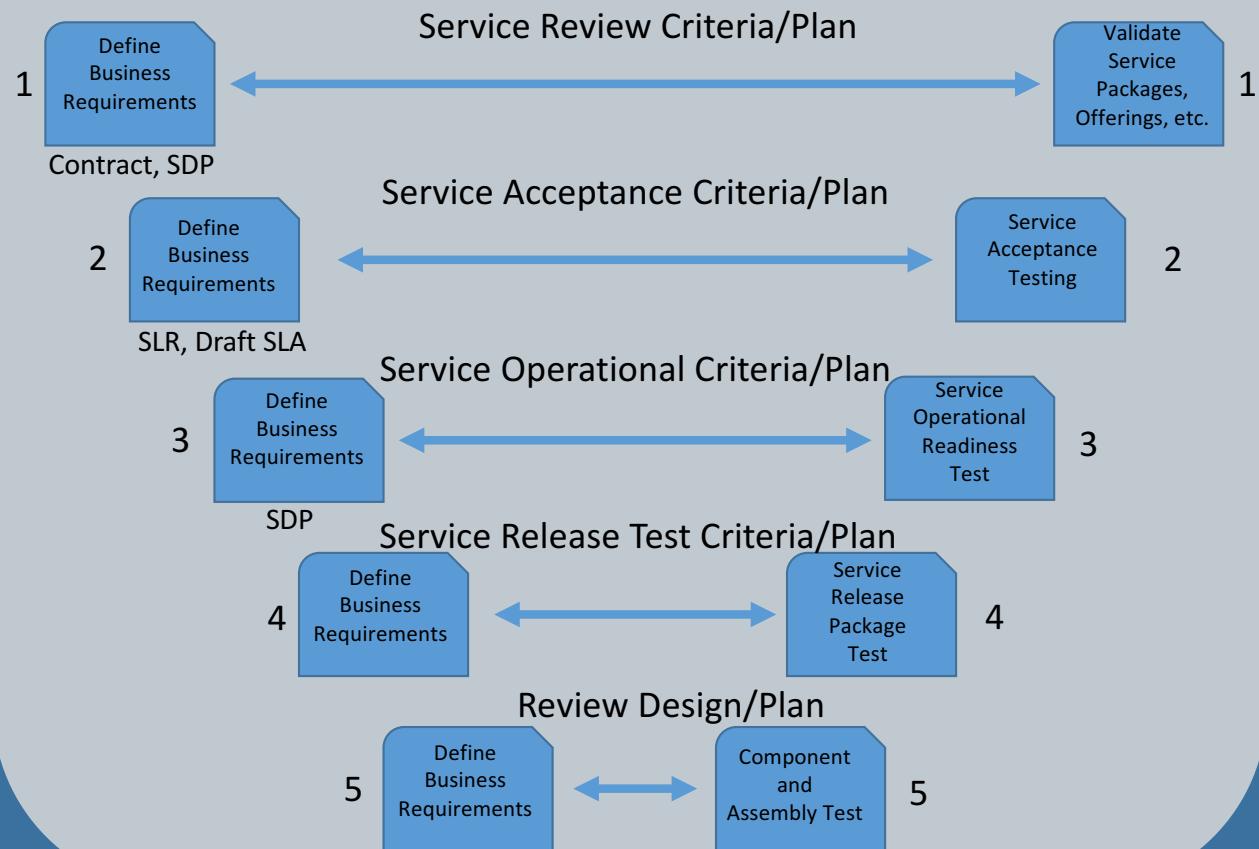
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Service V-Model

- Defines progressive levels of activity and levels of testing/validation towards a defined objective such as a release or major change
- Testing at each level is imperative prior to moving to the next level in order to reduce risk



Service V-Model





Change Management

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Change Management

- To control the lifecycle of all changes, enabling beneficial changes to be made with a minimal disruption of IT services
- Concerned with recording, evaluating, approving, testing, and reviewing changes to services, systems, and other configuration items



What is Change?

- Addition, modification, or removal of anything that could have an effect on IT services
- All changes involve risk

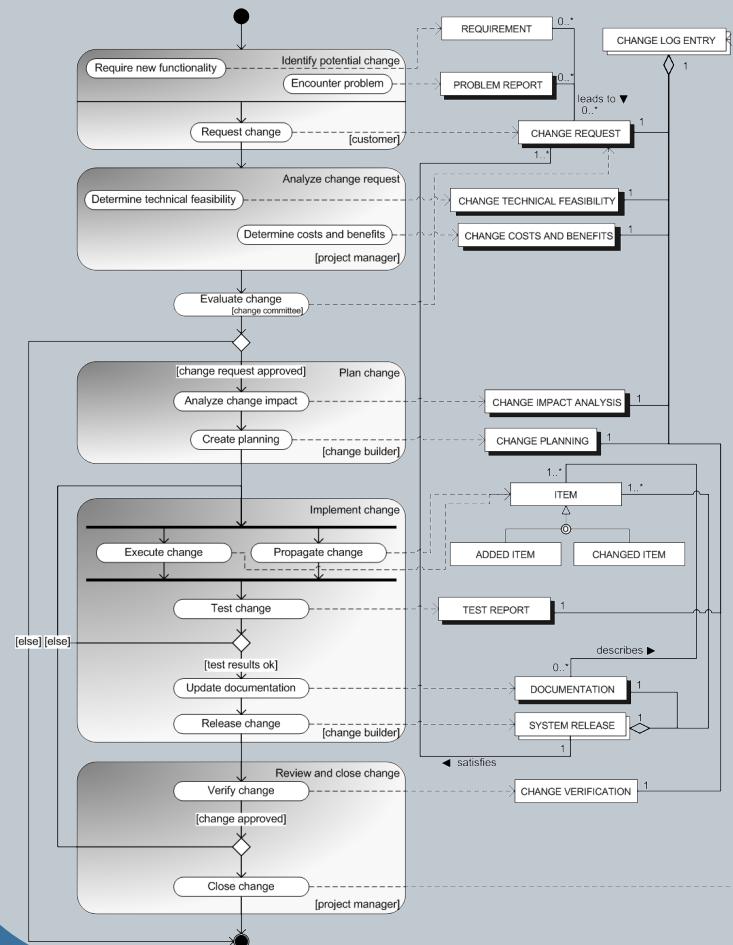


Request for Change (RFC)

- Documented request to alter a service or other Configuration Item (CI)
- RFCs are issued by customers, IT staff, users, or others, and are received by the Service Desk
- RFCs initiate a change in the Change Management process



Change Management Process



Change
is
Updated/
Recorded
in
CMS



Change Management Activities

- Recording of RFCs
- Review of RFCs
- Assessment and Evaluation of RFCs
- Authorization of RFCs
- Planning
- Implementation coordination
- Review and Closure





Types of Changes

ITILv3 Foundations

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Three Types of Changes

- Normal changes
- Standard changes
- Emergency changes



Normal Changes

- Change that has a uniqueness to them that represents a higher risk or uncertainty of outcome
- The default type of change that occurs, whereas Emergency and Standard are variations on the Normal Change procedures
- Example:
Adding a new server or service



Standard Changes

- Typical day-to-day changes that are low-risk and well understood
- Utilizes a shorter version of the Normal Change procedures
- Minimizes bureaucracy and quickly satisfies customer needs
- Example:
Moving a workstation to an office



Emergency Changes

- Address unforeseen operational issues, such as failures, security threats, and vulnerabilities
- Rapid change is required to continue the business operations
- Emergency changes should still follow the documented procedures, they use Emergency Change Management process





Authority for Changes

ITILv3 Foundations

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Change Manager

- Protector and enforcer of the standards and processes to ensure positive change
- Ensures all change authorities have approved the changes before he does
- Ensures good governance
- Provides final approval on RFC



Change Advisory Board (CAB)

- Focused on providing a go/no-go decision for all changes
- Meet on a regular basis (i.e. weekly)
- In large organizations, there may be many smaller CABs, but one is always the final decision maker



Emergency Change Advisory Board (ECAB)

- Special group convened by the Change Manager to advise on the approval/rejection and planning for an emergency change
- Membership of ECAB includes people with experience and authority to make rapid decisions





Change Models

ITILv3 Foundations

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Change Models

- Predefined steps, procedures, and guidelines taken to handling a certain type of change
- Numerous change models exist, with one for each configuration item
- Used to help minimize risk, save costs, and improve the consistency of change execution



Simple or Complex?

- Change models could be simple or complex
- Simple:
Used for tasks like change a password or moving a workstation
- Complex:
Used for tasks like major system rollouts or configuration changes





Release and Deployment

ITILv3 Foundations

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Release and Deployment

- Plans, schedules, and controls the build, test, and deployment of releases, as well as to deliver new functionality required by the business while protecting the integrity of existing services
- Based upon technical and business criteria



What is a Release?

- One or more changes to an IT service that are built, tested, and deployed together to achieve an objective
- Releases consist of software, hardware, configurations, or a combination of these three



What is a Release Unit?

- A particular set of configuration items released together for a specific deployment effort





Service Asset and Configuration

ITILv3 Foundations

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Service Asset and Configuration

- To ensure that assets needed to deliver services are managed and accurate/reliable information about them is available
- *This makes Service Asset and Configuration Management (SACM) vital to knowledge management*



Configuration Items (CIs)

- CIs are the individual records in your Configuration Management DB (CMDB)
- CIs are components or service assets that need to be identified and managed



Baselines

- The documented and validated configuration of a component, system, service, etc.
- A snapshot of a particular configuration at a moment in time
- The starting point when new equipment arrives, you must document the changes from baseline to account for the differences in design vice operation
- Workstation and server baselines are the most commonly used



Configuration Management System

- An essential set of tools, data, and information on configurations
- Part of the Service Knowledge Management System (SKMS) and each SKMS can only have one CMS
- Includes information on incidents, service requests, changes, problems, releases, errors, and more



Definitive Media Library (DML)

- A secure storage area for authorized software versions for every CI, including the licensing information and documentation
- Everything must be quality checked before being put into the DML
- We will cover this more in the Release and Deployment Management lesson





Service Validation & Testing

ITILv3 Foundations

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Service Validation & Testing

- Provides separate and more focused support for testing prior to release
- Service Validation and Testing aid in higher levels of quality control and less errors



Important Considerations

- Testing is performed under both the Change Management process and the Release & Deployment process
- Different testers than the Release & Deployment personnel conduct the testing to ensure compliance and proper validation





Transition Planning & Support

ITILv3 Foundations

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Transition Planning & Support

- Provides broader support for large-scale transitions and releases
- If your organization has a large volume of changes, it can be helpful to implement this as a separate process
- Example:
During a merger or acquisition





Evaluation Process

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Evaluation Process

- Provides support for post-release evaluation and confirmation of customer acceptance of new and changed services
- If your organization has had a problem with customer acceptance in the past, it can be helpful to implement this as a separate process





Knowledge Management

ITILv3 Foundations

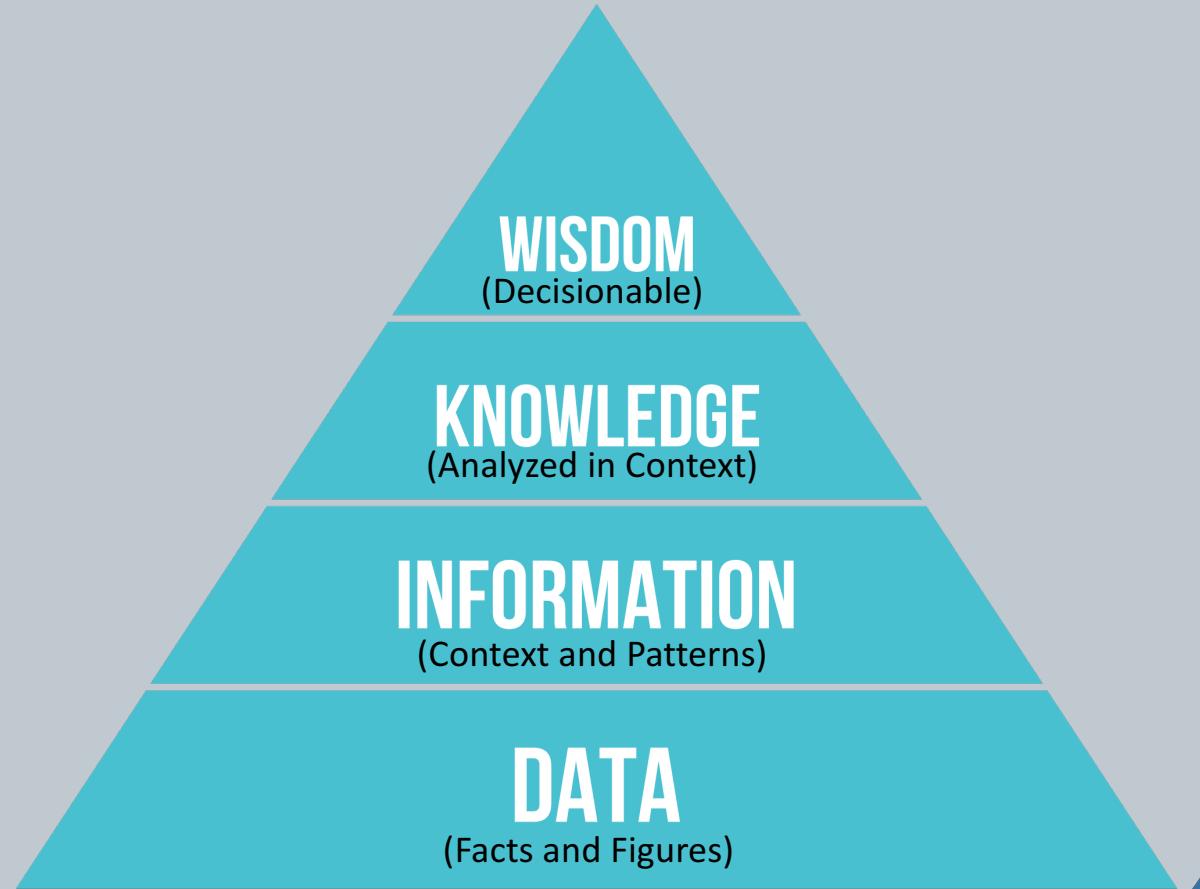
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Knowledge Management

- Provides support for the capture and effective publishing of knowledge during the Service Transition phase
- Knowledge Management begins in Service Transition, but continues throughout the rest of the lifecycle



Data-Information-Knowledge-Wisdom



Service Knowledge Management System

- Data comes from many sources (config DBs, service management tools, and even open-sources)
- SKMS contain all the data in a collection of repositories and systems
- SKMS houses the Configuration Management Systems and those contain the Configuration Management Databases



Service Knowledge Management System

Service Knowledge Management System (SKMS)

Contains CMS, service portfolios, service level agreements, capacity plan, user skill levels, technical documentation, and more

Configuration Management System (CMS)

Contains CMDBs and the tools used to manage themselves, the CMDBs, and the knowledge derived from these different tools

Configuration Management Database (CMDB)

Contains configuration item records for incidents, service requests, problems, known errors, changes, released, and more



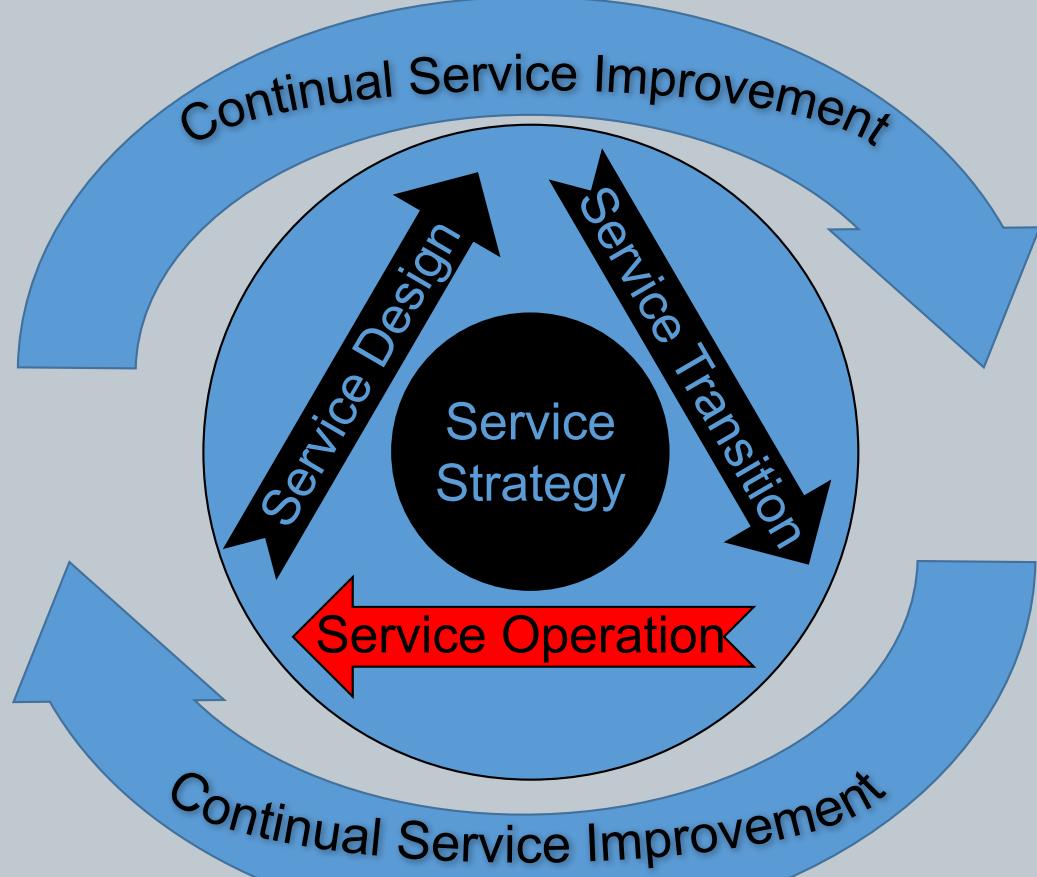


Service Operation Phase

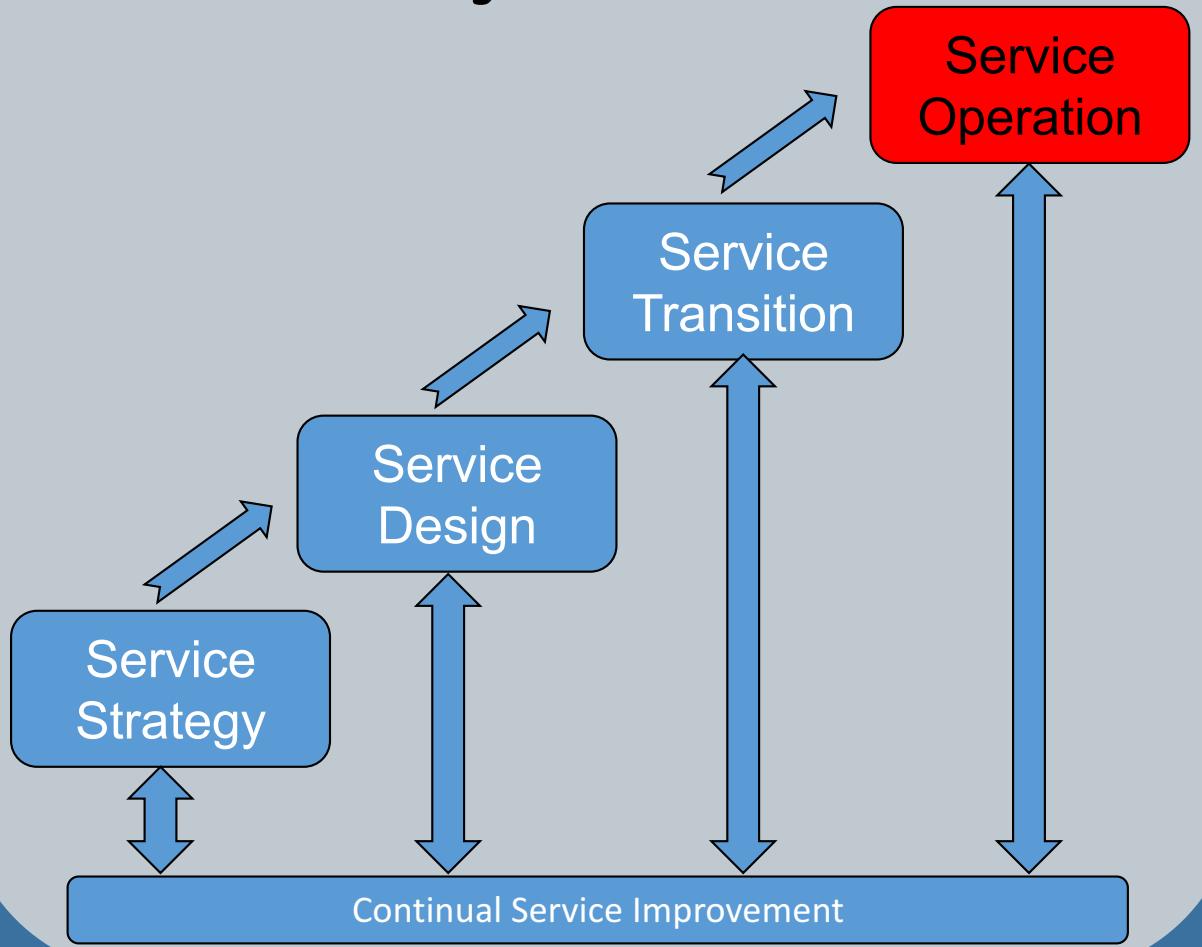
ITILv3 Foundations

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Typical ITILv3 Lifecycle Diagram



ITILv3 Lifecycle With Feedback



Service Operation

- Begins upon transition of a new service to facilitate the outcomes desired by customers
- Urgent operational problems are handled by this stage, others are fed back to Strategy, Design, or Transition (as appropriate)



Business Value

- Service Operation creates value by:
 - Having value realized by the customer
 - Ensuring services are operated within expected performance parameters
 - Restoring services quickly in the event of service interruption
 - Minimizing impact to the business in the event of service interruption
 - Providing a focal point for communication between users and the Service Provider organization



Key Takeaways

- Service Operations never really end, but it will feedback to earlier stages for future development
- Provides your users and customers with agreed upon services
- Identified faults are quickly fixed or referred back to an earlier stage





Principles of Service Operation

ITILv3 Foundations

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Principles

- Balance
- Communication



The Four Elements of Balance

- Internal IT vs. External Business
- Stability vs. Responsiveness
- Cost vs. Quality
- Proactive vs. Reactive



Communication is Critical

- With users and customers
- Between operational teams
- Between operational shifts
- In performance reporting
- With projects and programs
- For changes, releases, & deployments
- About failures, exceptions, & emergencies





Incident Management Process

ITILv3 Foundations

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Incident Management Process

- Restore normal service operation as quickly as possible while minimizing the adverse impact on business operations, thereby ensuring the agreed-upon level of service quality is maintained
- Covers any event or occurrence that disrupts or may disrupt service delivery



What is An Incident?

- An unplanned interruption to an IT service, a reduction in the quality of an IT service, or failure of a CI that may impact an IT service



What is An Event?

- Any change of state of an infrastructure or other item which has significance for the delivery of a service



What is a Problem?

- Underlying cause of one or more incident, or even possible incidents (like warnings)



What is a Workaround?

- Method to minimize or eliminate the impact of an incident until a permanent fix can be implemented
- Example
 - A server loses power when an electrical breaker trips. You reset the breaker and restart the server.

Did we solve the root cause?

Why did the breaker trip?



What is a Known Error?

- Exists when you have an incident and a current workaround
- Not as good as a permanent solution, but it allows business operations to continue until a permanent solution can be implemented
- Example
 - You can't use the microwave and the toaster at the same time...



Known Error Database (KEDB)

- Forms part of the Configuration Management System (CMS)
- Details problems, workarounds, and known errors in a common database
- Contains Error records and Problem Records (these are different things)



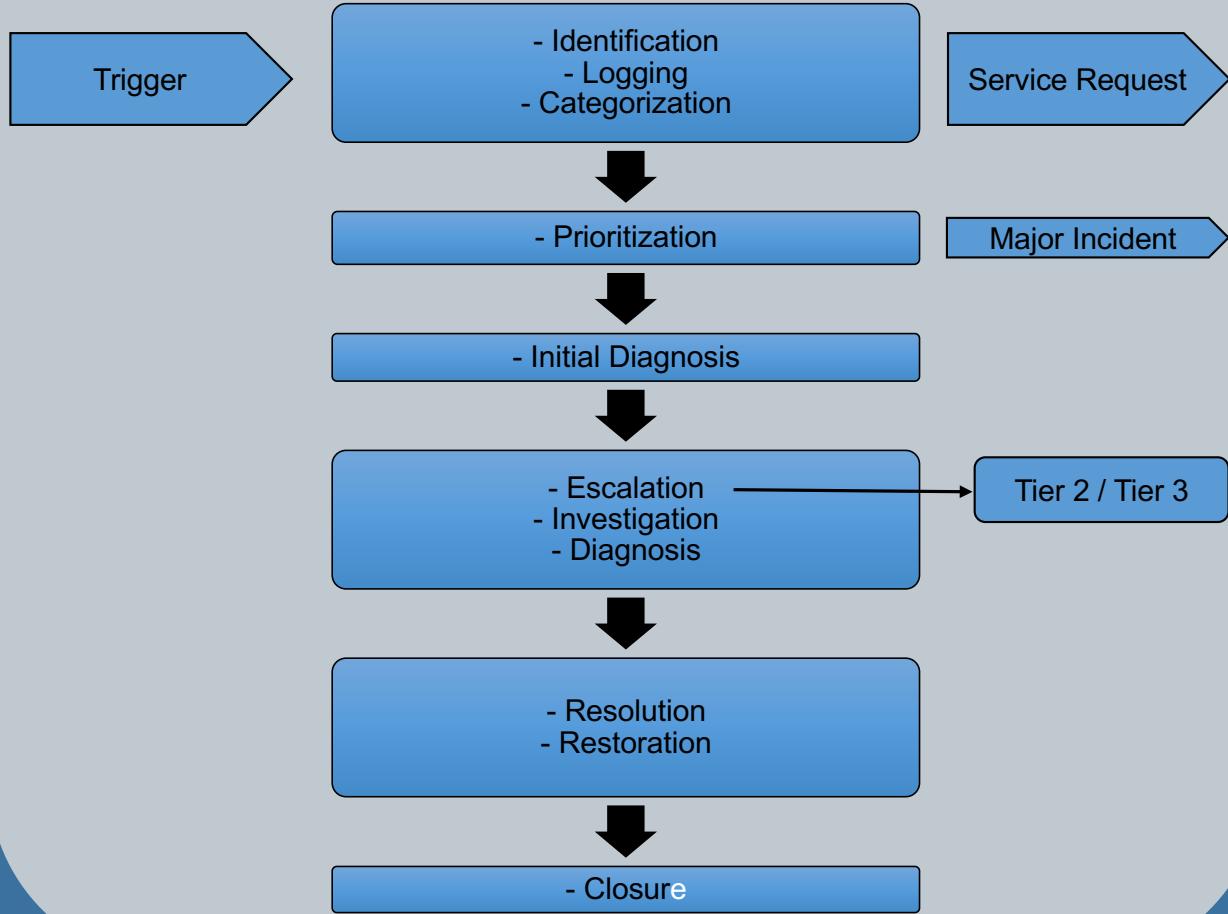


Incident Management Activities

ITILv3 Foundations

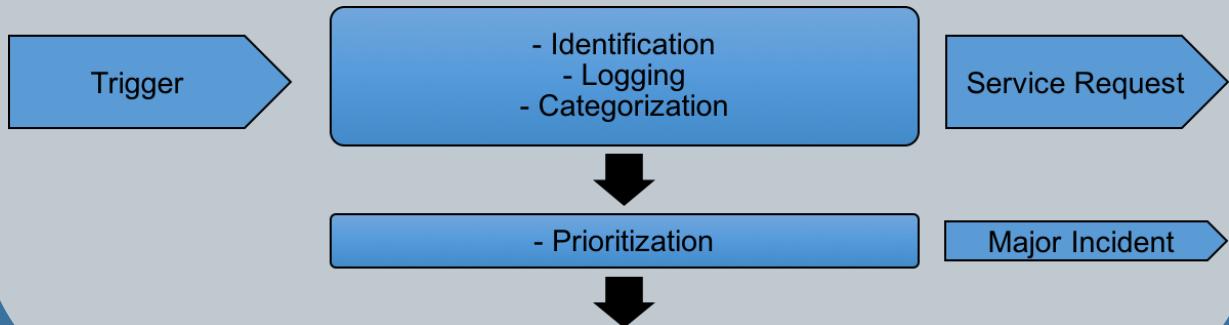
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Incident Management Process



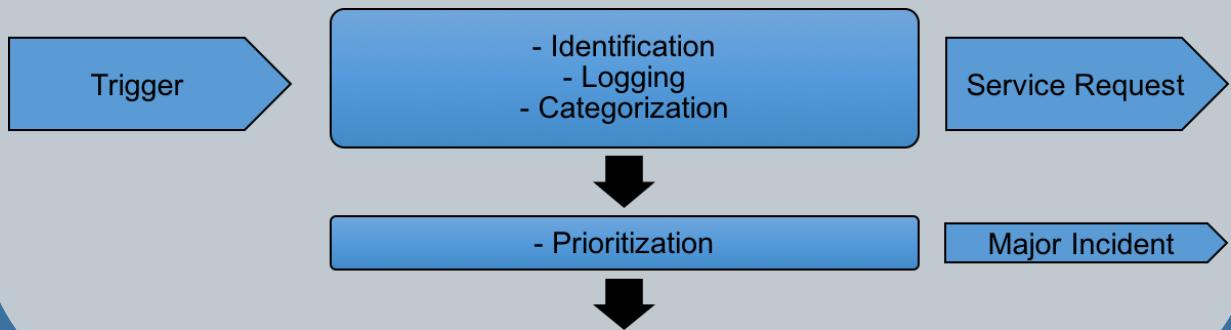
Detection/Identification

- Occurs when a trigger happens
 - Exception occurs in Event Management
 - Technician discovers an issue
 - System auto-detects an issue and creates a service ticket
 - User calls to complain



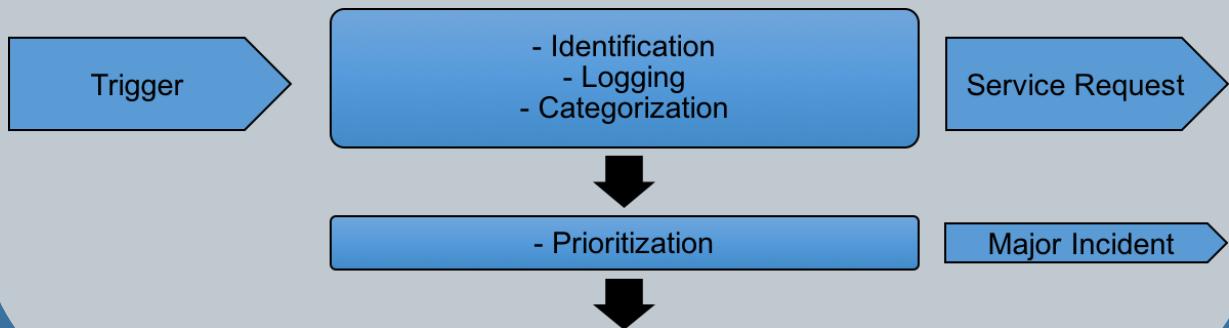
Logging

- Service desk logs all incidents
 - Help Desk Analyst creates a ticket with as much detailed information as they can gather on the incident



Classification/Categorization

- Service desk determines if an incident or just a service request
 - Push ticket to service request (OR)
 - Continue incident process per SLAs



Prioritization

- Service occurs based on triage of events and priority
 - Impact
 - What is effect on the business?
 - Urgency
 - How long before impact is considered significant?



Prioritization

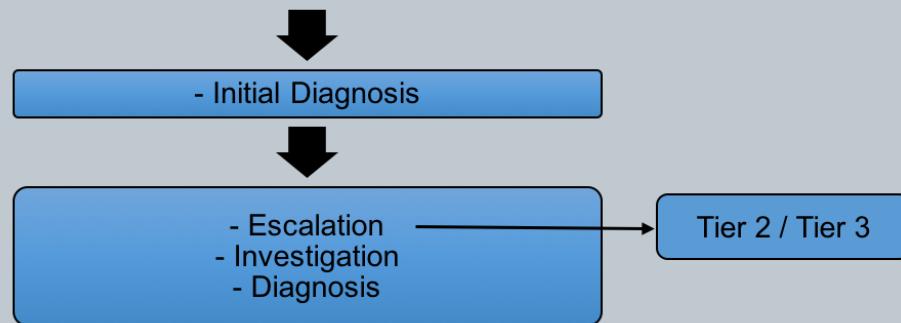
- Priority is determined by the SLA
- Also determines timeline to correct

Priority	Category	Time to Correct
1	Critical	1 hour
2	High	4 hours
3	Medium	48 hours
4	Low	96 hours
5	When able	N/A



Initial Diagnosis & Escalation

- Tier 1 Support is all about triage
 - What can I fix quickly?
 - What needs a specialist?
- If the Service Desk can't fix it fast, escalate to a higher tier or a specialist



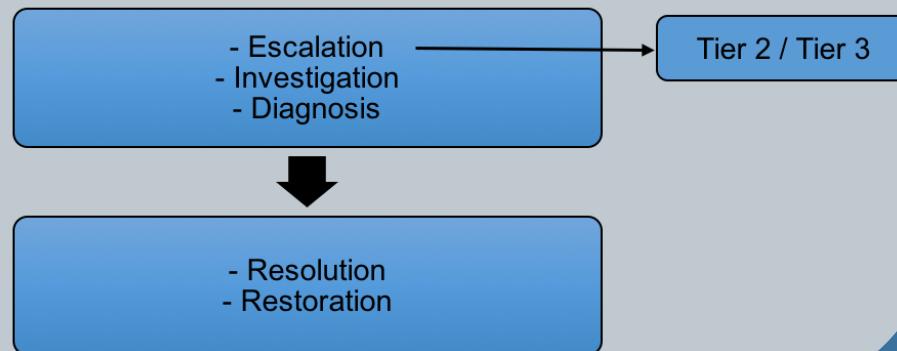
Escalation

- Functional
 - Most common escalation
 - Incident requires a specialist or skills beyond initial Tier of the Service Desk
- Hierarchal
 - Referred to management due to severity, persons affected, or permission to obtain replacement components due to cost threshold
- *Remember:*
 - *Service Desk still owns the incident...*



Resolution and Recovery

- Complete investigation and appropriate incident correction occurs
- Incident solution is reported back to the Service Desk and the user



Closure

- Just because the technician says it is fixed, doesn't mean you close it
- Check with the end user that it works
- Close the ticket and detail what was wrong and how it was fixed



- Resolution
- Restoration



- Closure





Problem Management Process

ITILv3 Foundations

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Problem vs. Incident Management

- Problem Management focuses on the long-term solution and fixing the root cause
- Incident Management often focuses on *firefighting* and correcting issues as quickly as possible



Problem Management Process

- To manage problems through their lifecycle, seeking to minimize the adverse impact of incidents and problems caused by underlying errors and to prevent recurrence of incidents related to those errors



Scope

- Triggered by Event Management, Incident Management, and Problem Management
- Implements solutions through Change Management and the Release & Deployment processes
- Proactively uses Availability Management and Capacity Management to prevent issues



Two Kinds of Problem Management

- Reactive Problem Management

Charged with responding to problems as they arise in the environment, driving by the incident management process

- Proactive Problem Management

Charged with proactively seeking out improvements to service and infrastructure before an incident occurs





Event Management Process

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Event Management Process

- To be able to manage events throughout their lifecycle
- *Lifecycle of an event is usually short*
- An event is a change of state that has significance for the management of a CI or IT service



Event Types

- Informational
- Warning
- Exception



Informational

- Shows that everything is operating properly
- Examples:
 - Successful logons by an authorized user
 - Completion of a server backup to an offsite data center



JASON DION
TRAINING THE CYBER SECURITY WORKFORCE

Warning

- Something isn't operating properly
- Usually a threshold has been breached, and this gives us enough time to respond before a failure
- Examples:
 - Server's primary hard disk is over 80% capacity
 - Network utilization is over 85%



Exception

- An error condition is occurring
- Performance level is currently unacceptable
- Examples:
 - Failed login attempts after 3 tries by user
 - Software license has expired
 - Backup server's network connectivity is no longer functional



What Do You Do With An Alert?

- Information
 - Considered a completed event and are logged in the CMS
- Warning
 - Trigger a Problem Management process to determine the root cause and logged in CMS
- Exception
 - Triggers an Incident Management process or Change Management issue





Service Request Fulfillment

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Service Request Fulfillment Process

- To manage the lifecycle for all service requests from users
- Deliver value directly and swiftly to users, enhancing their efficiency and effectiveness
- Assists users in situations where no service degradation or interruption is involved



WARNING: Stick to the Process...

- Users want to circumvent the process
- Then, it usually makes the request take longer and aggravates both the user and the IT staff



Types of Requests

- Numerous types of requests are made:
 - New account creation
 - New hardware
 - New software
 - Resetting their password
 - Move a workstation to a new office



Key Takeaways

- Request fulfillment is about handling all requests, not necessarily solving them
- All requests should be recorded, as this helps Continual Service Improvement
- Requests can trigger other processes (Change, Incident, & Problem MGMT)
- Some requests are impossible to fulfill





Access Management Process

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Access Management Process

- To provide the access rights to allow users to utilize a given service or group of services
- Access Management executes the IT Security Policy set forth by the organization in the Information Security Management process



Organizational Access Management

- Some organizations do not treat access management as a separate process
- Access management may be rolled into Request Fulfillment, Change Management, or Release & Deployment depending on your organizational design





Service Operations Integration

ITILv3 Foundations

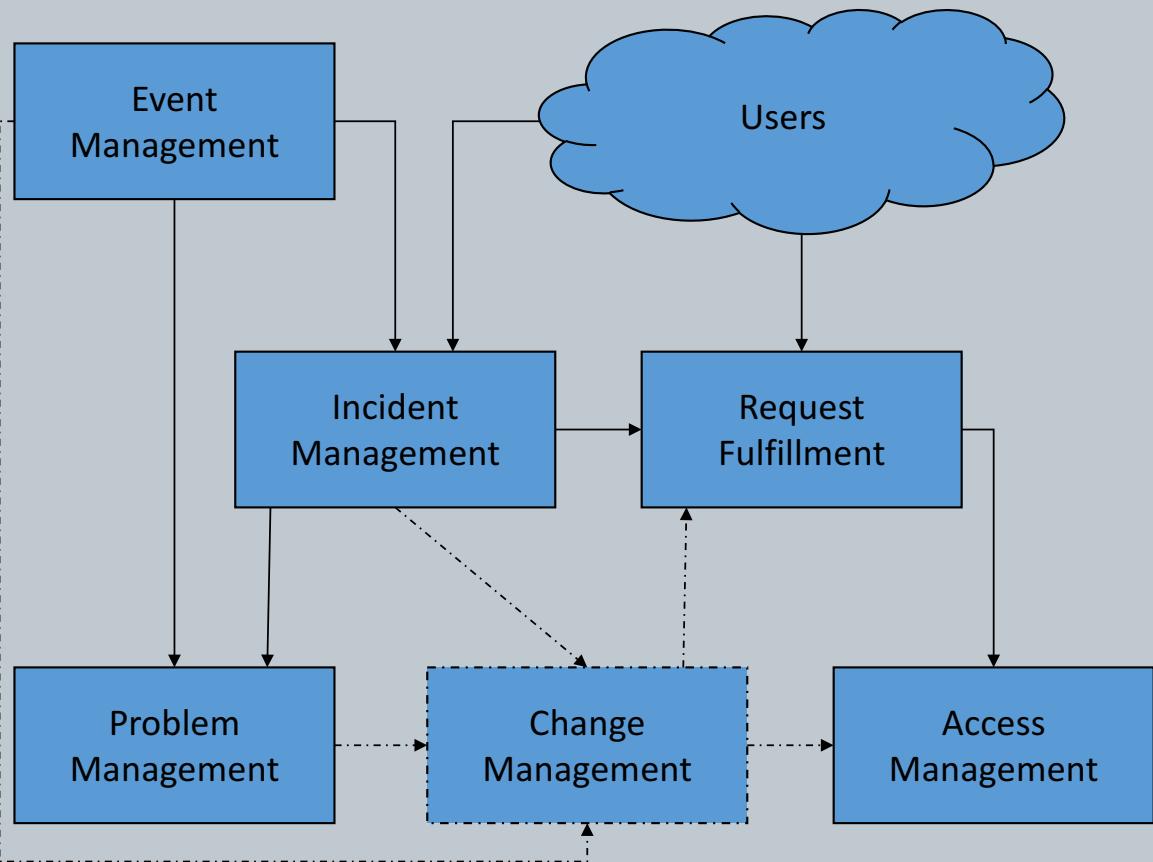
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Service Operation Interaction

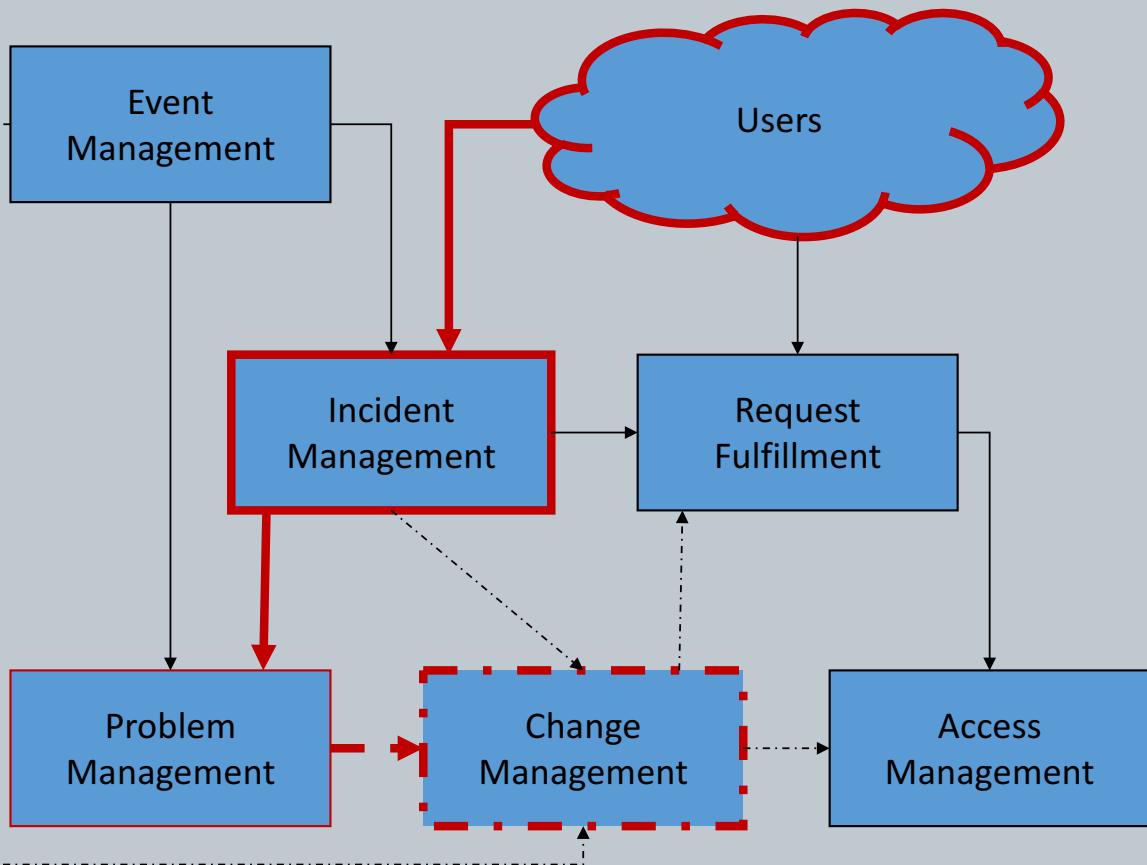
- Many of the processes in Service Operations trigger each other and are interwoven by events, incidents, and problems



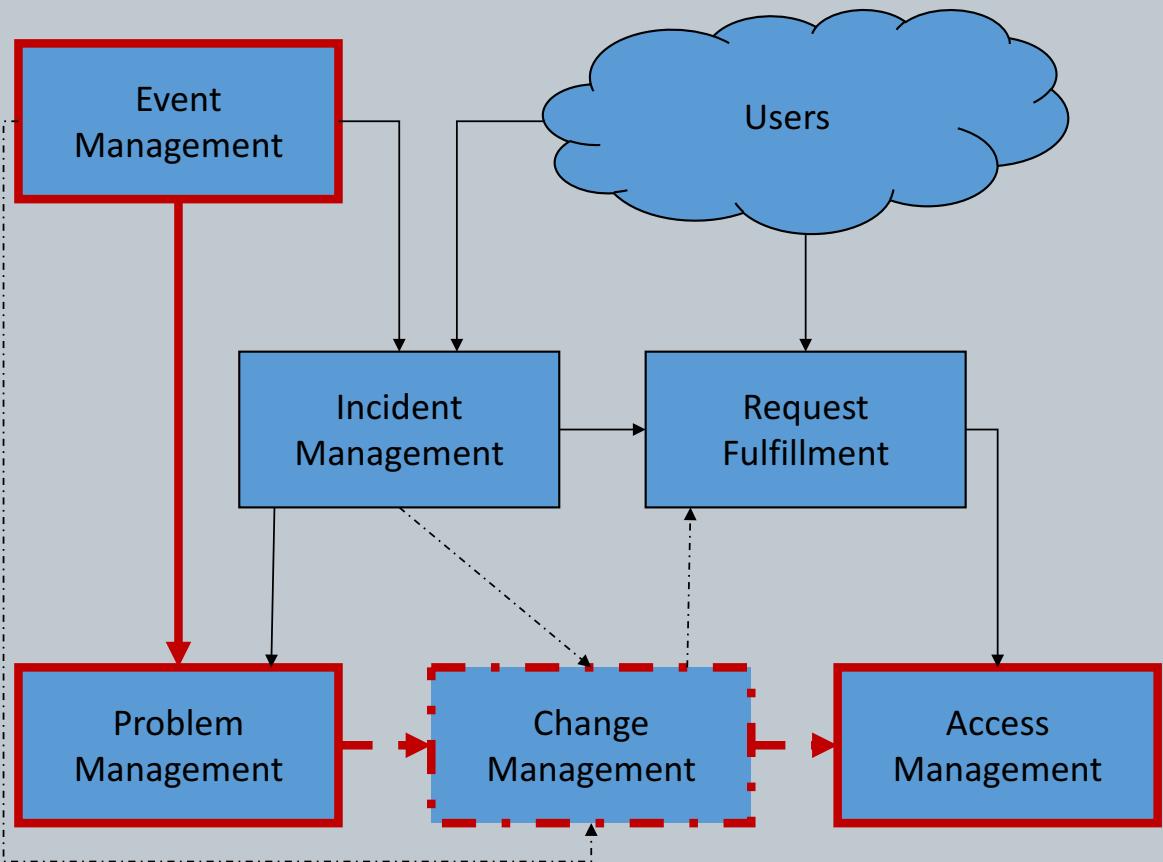
Service Operation Interactions



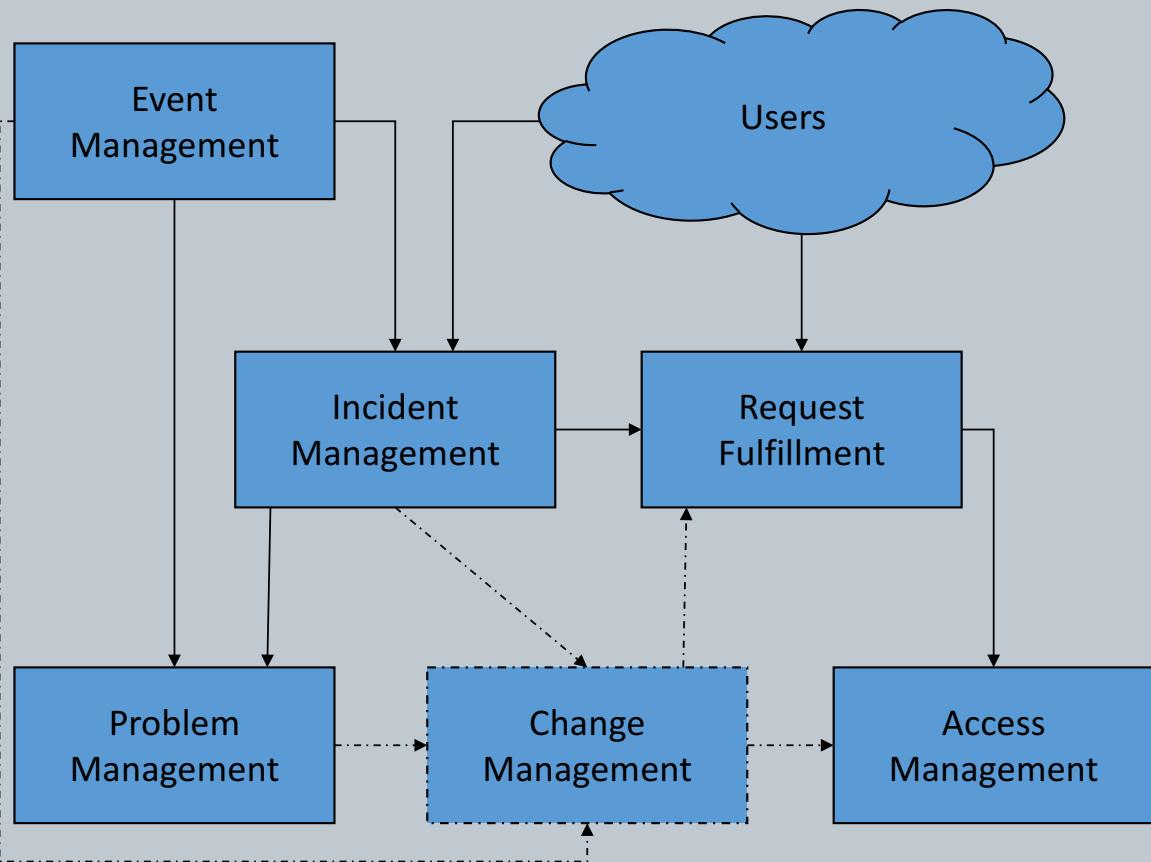
Service Operation Interactions



Service Operation Interactions



Service Operation Interactions



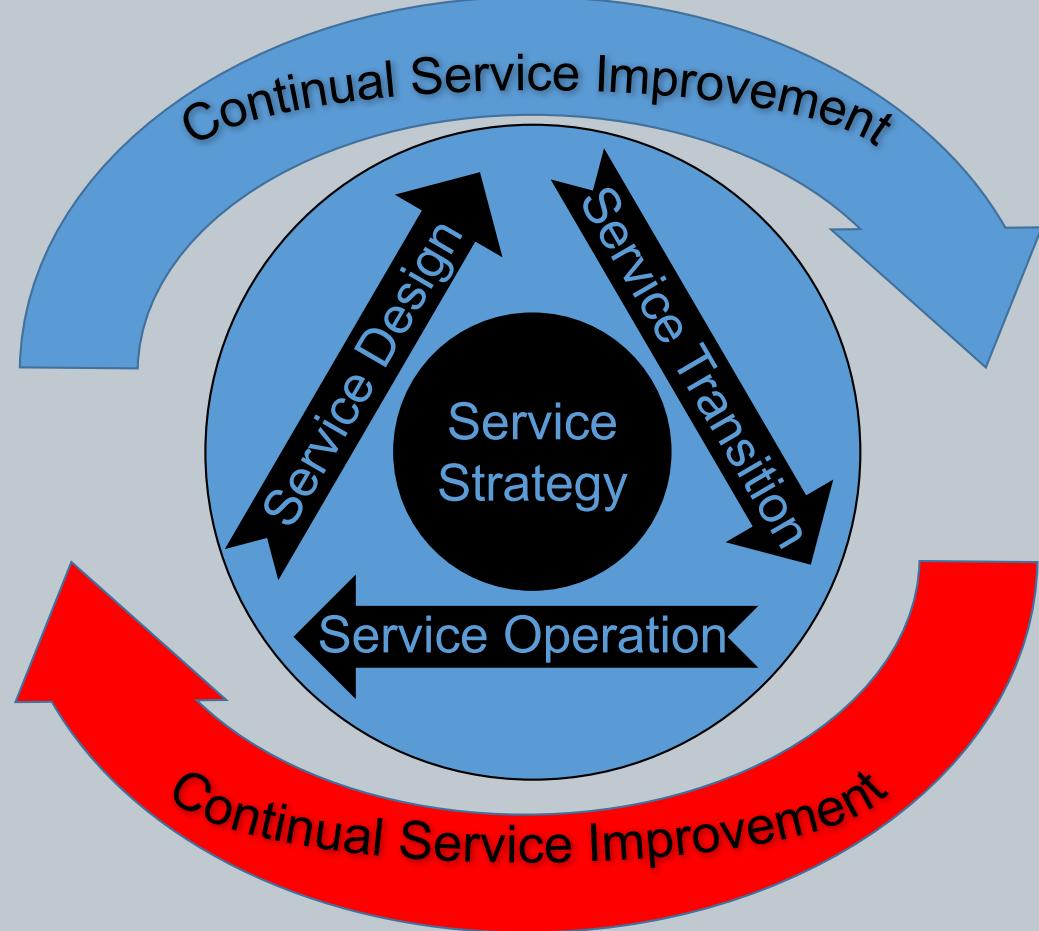


Continual Service Improvement

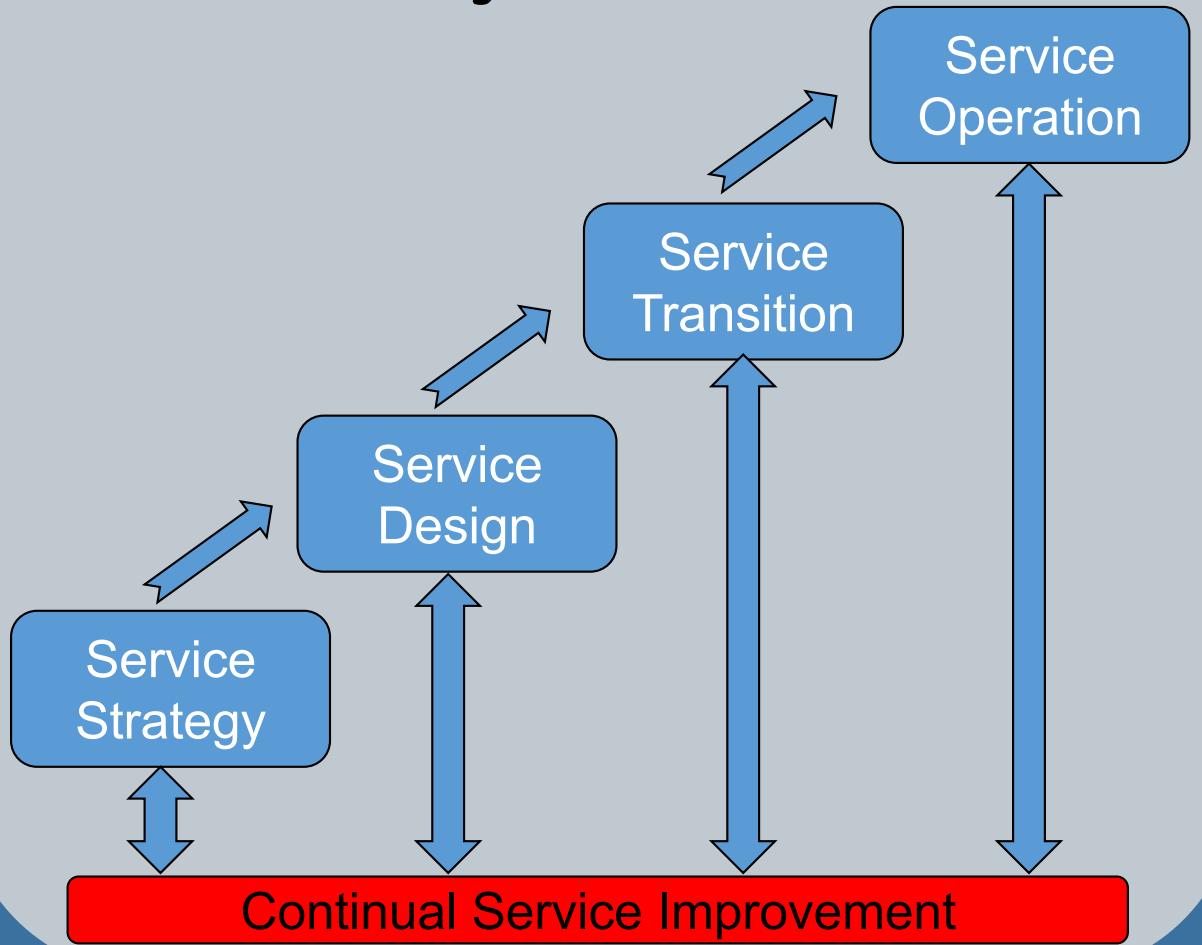
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Typical ITILv3 Lifecycle Diagram



ITILv3 Lifecycle With Feedback



Continual Service Improvement

- Alignment and realignment of services, processes, functions, etc. to changing business needs
- Occurs during all stages
- Most useful starting in Service Operation
- Identifies processes and functions that need to be strengthened to increase efficiency



Efficiency is Key!

- Main effort in Continual Service Improvement is increasing efficiency
 - Are you tracking customer issues?
 - What issues keep occurring?
 - Which processes are failing?
 - Which service agreements aren't working?



Business Value in CSI

- Ensures services, processes, and other aspects of Service Management are aligned with business objectives
- Ensures that services meet agreed upon performance levels
- Ensures that efficiency (cost) of service delivery is always improving
- Ensures that all aspects of Service Management are undergoing constant reviews



Key Takeaways

- Captures relevant information to inform appropriate fix actions
- Interprocess links are verified as functional, effective, & efficient
- Continual Service Improvement can occur at all stages, and even on itself!
- Service Operations data is critical to feed into the Continual Service Improvement process (metrics, ...)



Service Improvement Plan (SIP)

- Primary output of the periodic service reviews conducted as part of the CSI process
- Maps specific improvement objectives for an identified time period between one service review and the next service review





Measurements and Metrics

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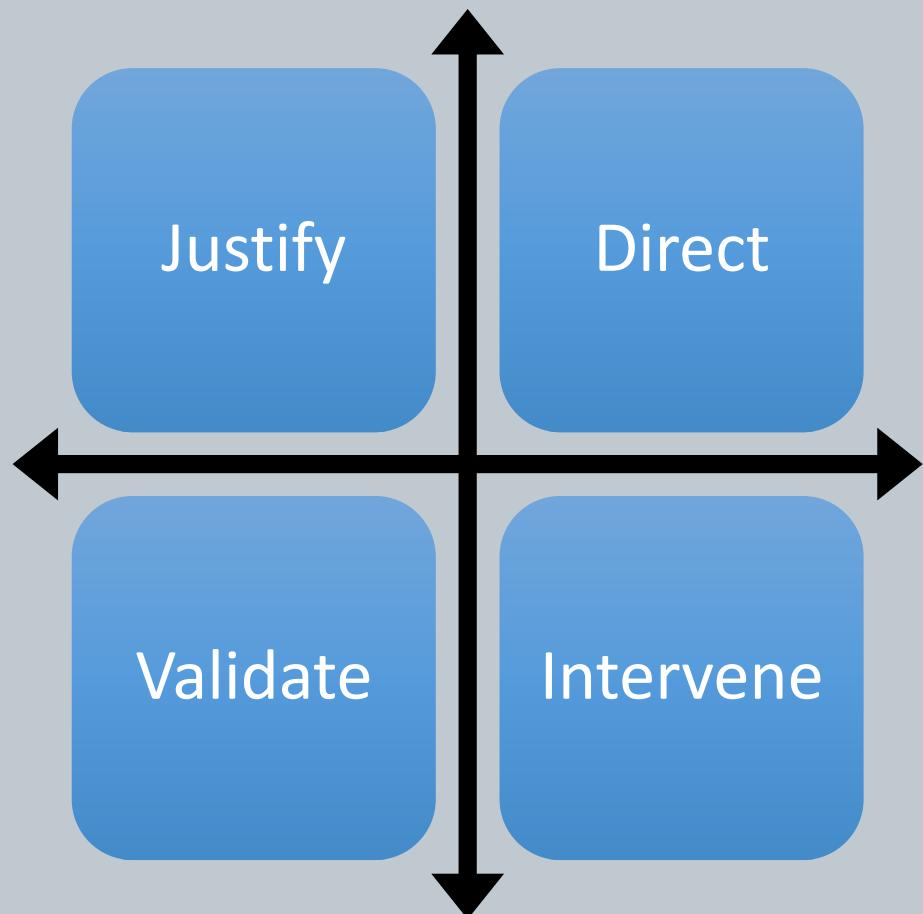
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Measurement

- To validate previous decisions
 - Provide evidence that we are doing things right
- To direct activities by setting targets
 - Are we meeting the SLAs?
- To justify a course of action
 - Provides evidence that a path is the right one
- To course correct errors
 - What do we do when a threshold is breached in Event Management?



Measurement



Metrics

- Measure that is captured and reported on a given service, process, or activity
- Technology Metrics
Component or application-based like server availability or application performance
- Process Metrics
Capture using process workflow management tools
- Service Metrics
Measures end-to-end experience using service management tools



Key Performance Indicator (KPI)

- Metric used to help manage an IT service, process, or activity
- Quantitative or Qualitative
- KPIs are supported by metrics



Critical Success Factor (CSF)

- Something that MUST happen for an IT service, process, or activity to succeed
- CSFs are supported by related KPIs

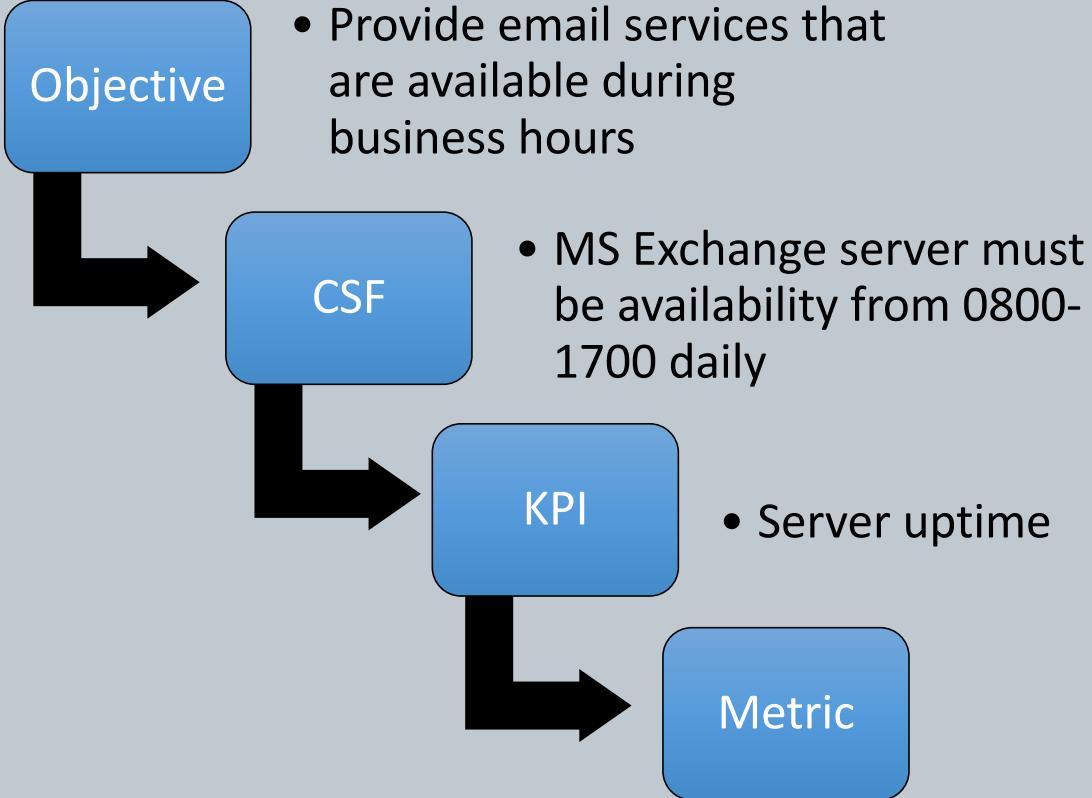


Objectives

- Establish the reason for measurement
- Measurements themselves have no value, their only value is to support achievement of a specific objective



Measuring Objectives





Seven-Step Improvement Process

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7 Steps to Service Improvement

1. Define the vision/strategy
2. Define what is to be measured
3. Gather the relevant data
4. Process the data for analysis
 - Data becomes information
5. Analyze the data for trends
 - Information becomes knowledge
6. Leaders assess knowledge and produce service improvement plans
7. Implement the agreed-upon changes





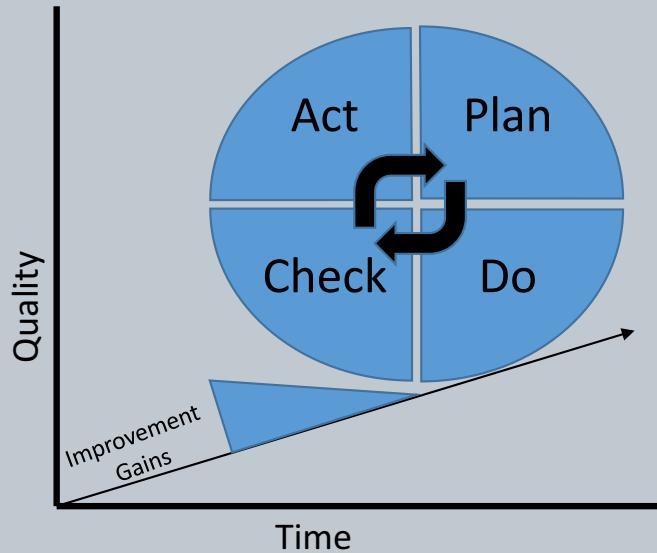
Deming Cycle

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Deming Cycle

- An improvement model developed by W. Edwards Deming
- Used with great success in the Japanese auto industry
- Four Steps



Deming Cycle and the 7 Steps

Deming	Step	Activity
Plan	1	<ul style="list-style-type: none">• Identify vision, strategy, goals
	2	<ul style="list-style-type: none">• Define what to measure
Do	3	<ul style="list-style-type: none">• Gather data
	4	<ul style="list-style-type: none">• Process data
Check	5	<ul style="list-style-type: none">• Analyze data
	6	<p>Present and use information</p>
Act	7	<ul style="list-style-type: none">• Implement changes





CSI Model

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CSI Model

- It is helpful to have a overview of the CSI process and how to implement it
- CSI Model is a simple set of guiding questions used to organize and perpetuate an improvement program
- Closely mirrors the ITIL 7-Step Improvement Process



CSI Model





The Role of Automation

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The Role of Automation

- Automation is important because it helps humans better understand the wide variety of factors that affect service management
- Human can only focus on a few factors at once when making a decision in a complex situation (called “Bounded rationality”)
- Automation helps human decision makers effectively confront complex scenarios and make the best decision



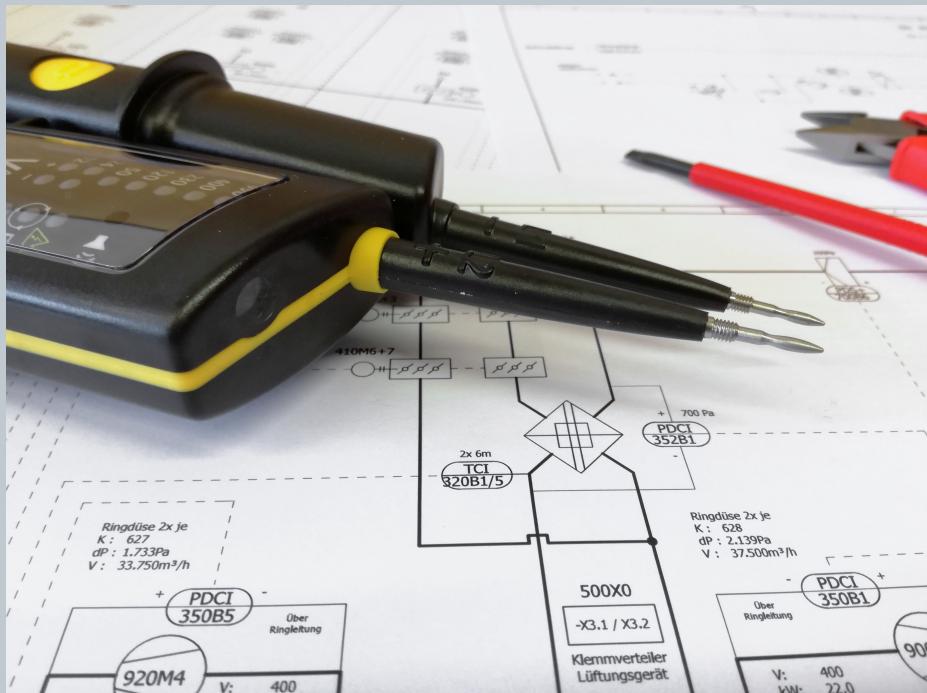
Automation: Pattern Identification

- Automation is used to identify patterns and trends in large data sets, such as event logs, incident logs, and change requests



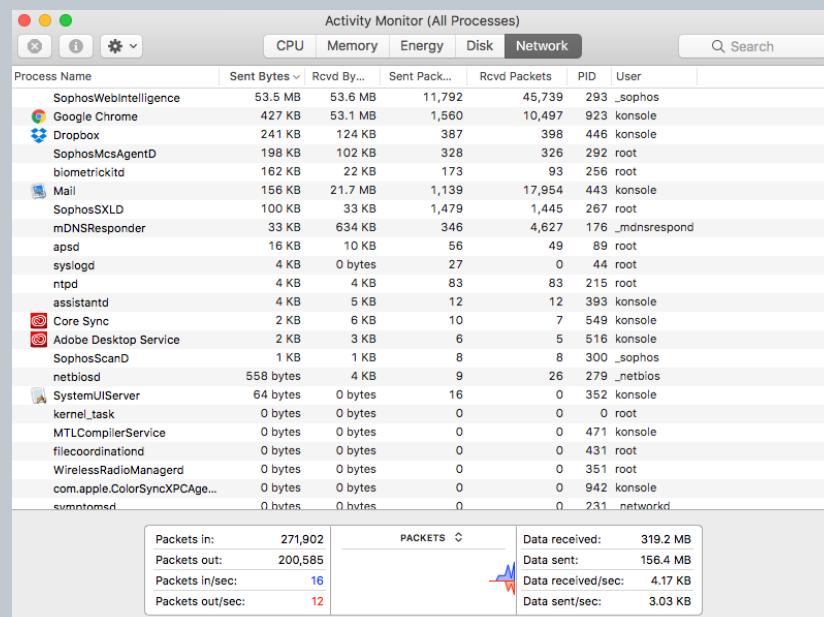
Automation: Guarantee Consistency

- Automation aids in guaranteeing consistency during design phases of the lifecycle



Automation: Record Data

- Automation is used to accurately record high volumes of detailed data, such as incident logs and event logs



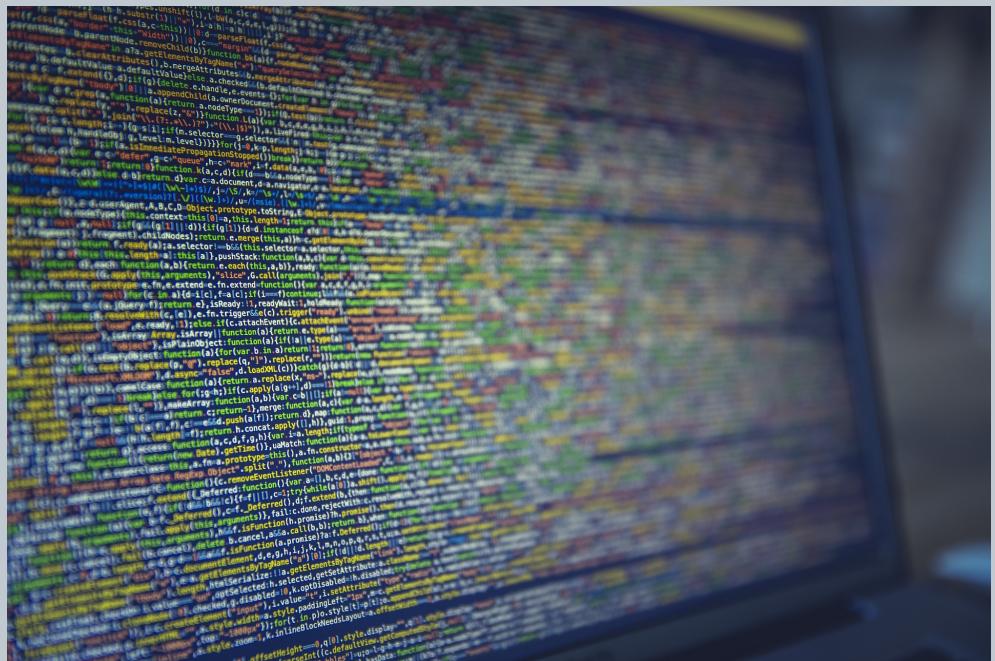
Automation: Prioritization

- Automation is used to accurately prioritize incidents, problems, changes, and other issues



Automation: Real-time Response

- Automation is used to respond to issues and events in real-time



Keys to Successful Automation

- Process definitions must come before attempts to buy and apply an automation solution
- Simplify your processes as much as possible before automating them

