Overview of Service Support & Service Delivery Functions
Service Delivery Functions

- Availability Management
- IT Services Continuity Management
- Capacity Management
- Financial Management
- Service Level Management
Availabilty Management

- Availability Management enables an organization to predict, plan for and manage the availability of services by ensuring that:
  - All services are supported by sufficient, reliable, and properly maintained configuration items (CM)
  - CI’s not supported internally are supported through appropriate contractual agreements with third party suppliers (SAM – ISM)
  - Changes are proposed to prevent future loss of service availability (SAM – ISM)
Availability Management - 2

- Availability Management is defined by: (MA, TS)
  - Reliability
  - Maintainability: Maintenance you do yourself as an organization
  - Resilience – Level of Redundancy you establish
  - Serviceability – Maintenance done by someone else
The IT Infrastructure and IT support organization

- Users
- IT Services
  - IT Systems
  - IT Systems
- IT Service Provider
- Availability (Service Level Agreements)
- Reliability + Manageability (Operational Level Agreements)
- Serviceability (Contracts)

- Software Developers
- Software Maintenance
- Other Maintenance
- Hardware
- Software suppliers
- Environment
- Telecomms
- Internal Suppliers and Maintainers
- External Suppliers and Maintainers
Availability is at the Core of Business and User Satisfaction

“A key component of Users’ perception on the quality of IT Services”

“Recognize that Availability is at the core of User satisfaction”
Business and User Satisfaction Levels Following an IT Failure

“The business and User view of the IT support Organization”

Business Satisfaction Report

30 min
Outage

60 min
Outage

“It is not enough to merely have a supply of IT support. You must also have effective IT support.”

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8.3 The Availability Management process

- Business Availability Requirements
- Business Impact Assessment
- Availability, Reliability and Maintainability Requirements
- Incident and Problem Data
- Configuration and Monitoring Data
- Service Level Achievements

Availability Management

- Availability and recovery design criteria
- IT infrastructure resilience and Risk Assessment
- Agreed targets for Availability, reliability and maintainability
- Reports of Availability, reliability and maintainability achieved
- Availability monitoring
- Availability improvement plans

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## The Cost of (Un)Availability

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<td>Base product and components</td>
<td>High Availability Design</td>
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**IT Services Continuity Management**

- IT Services Continuity Management is established to mitigate the risk of the business suffering a major IT disaster (RSKM).

- IT Services Continuity must be planned to:
  - Increase business dependency on IT
  - Reduce cost and time of recovery
  - Reduce cost to customer relationship
  - Survive
IT Services Continuity Management - 2

◆ Conduct **Risk Analysis** to determine:
  ◈ Value of assets
  ◈ Threats
  ◈ Vulnerabilities

◆ Conduct Risk Management to:
  ◈ Develop countermeasures
  ◈ Plan for potential disasters
  ◈ Manage a disaster
Establish Risk Mitigation Strategies (RSKM)

- Do Nothing
- Manual workarounds
- Reciprocal arrangements
- Gradual Recovery (cold standby)
- Intermediate Recovery (warm standby)
- Immediate Recovery (hot standby)
Conduct Tests and Reviews

- Initially followed by every 6-12 months after each disaster
- Test under realistic conditions (TS, VER, VAL)
- Move / protect any live services first
- Review and change the plan (VER)
- All changes made via the CAB – Change Advisory Board (CM)
**Business Continuity Lifecycle**

**Stage 1: Initiation**
- Initiate BCM

**Stage 2: Requirements and Strategy**
- Business Impact Analysis
- Risk Assessment
- Business Continuity Strategy

**Stage 3: Implementation**
- Organization and Implementation Planning
  - Implement Stand-by Arrangements
  - Develop Recovery Plans
  - Implement Risk Reduction Measures
  - Develop Procedures
  - Initiate Testing

**Stage 4: Operational Management**
- Assurance
  - Review and Audit
  - Testing
  - Change Management
  - Training
  - Education and Awareness
Responsibilities

Board
- Initiate BCM (Incorporating IT Service Continuity)
- Allocating resources, Set policy Direct and authorize

Senior Management
- Manage IT Services Continuity
- Accept IT Service Continuity deliverables
- Communicate and Maintain Awareness
- Integrate with BCM across the Organization

Management
- Undertake IT Service Continuity analysis
- Define IT Service Continuity deliverables
- Contract for Services
- Manage test, reviews and assurance

Supervisor and staff
- Develop IT Service Continuity deliverables
- Negotiate Services
- Perform tests, reviews and assurance
- Devolve and Operate procedures

Organization

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Capacity Management assists the organization in determining the right, cost justifiable, capacity of IT resources such that the Service Levels linked to the business are achieved “at the right time” (Project Planning – SP 2.4 Plan for Project Resources)
Capacity Management is defined by:

- Demand Management – Business Capacity in management
- Workload Management – Service Capacity of Management
- Resource Management – Resource Capacity Management

Capacity Management must also take into consideration Performance Management:

- Internal and External Financial Data
- Usage Data
- SLM = Data / Response Times
- Capacity Database (CDB) is populated by Performance Management Data
Application sizing is required to estimate the resource requirements to support a proposed application change to ensure it meets its required service levels. (PP)

Modeling is often used to support Capacity Management (PP – SP 1.4)

- Trend Analysis
- Simulation Modeling
- Baseline Models
- Used to answer “What If” questions
The Capacity Management Process

Input

- Technology
- SLAs, SLRs and service catalogue
- Business plans and strategy
- IS/IT plans and strategy
- Business requirements and volumes
- Operational schedules
- Deployment and development plans and programs
- Forward Schedule of change
- Incidents and Problems
- Service reviews
- SLA breaches
- Financial plans
- Budgets

Sub-process

Business Capacity Management:
Trend, forecast, model, prototype, size and document future business requirements

Service Capacity Management:
Monitor, analyze, tune and report on service performance, establish baselines and profiles of use of services, manage demand for services

Resource Capacity Management:
Monitor, analyze, run and report on the utilization of components, establish baselines and profiles of use of components

Outputs

- Capacity Plan
- CDB
- Baselines and profiles
- Thresholds and alarms
- Capacity reports (regular, ad hoc, and exceptions)
- SLS and SLR recommendations
- Costing and charging recommendations
- Proactive changes and service improvements
- Revised operational schedule
- Effectiveness reviews
- Audit reports
Financial Management is used to provide information about the costs of delivering IT services that support customer business needs.

Financial control of costs is a must!

Cost factors include (PP):
- Equipment Costs
- Organization Costs
- Transfer Costs
- Accommodation Costs
- Software Costs
Different Types of Costs (PP)

- Fixed – Unaffected by the level of usage
- Variable – Varying according to the level of usage
- Direct – Usage specific to one service
- Indirect or Overhead – Usage not specific to one service
- Capital – Not diminished by usage
- Revenue or running – diminish with usage
Continuous Cost Awareness

- Recover from customers the full costs of the IT services provided (RM)
- Ensure that customers are aware of the costs they impose on IT (PP, RM, PMC)
- Ensure that providers have an incentive to deliver agreed quality and quantity of services (ISM)
Main Financial Management Processes

- Budgeting – The process of predicting and controlling the spending of money within the enterprise
  - Periodic negotiation cycle to set budgets (PP)
  - Day-to-day monitoring of the current budgets

- IT Accounting – The set of processes that enable the IT organization to fully account the way its money is spent

- Charging – The set of processes required to bill a customer for the services applied to them.
Service Level Management

- Service Level Management is designed to provide the balance between the Demand for IT services and the Supply of IT services by:
  - Knowing the requirements of the business
  - Knowing the capabilities of IT
Service Level Management strives for:

- Business-like relationship between customer and supplier (SAM – ISM)
- Improved specification and understanding of service requirements (RD, REQM)
- Greater flexibility and responsiveness in service provision
- Balance customer demands and cost of services provision (REQM)
- Quality Improvement (PPQA, VER)
- Objective Conflict Resolution (RD, PP)
The SLM process

1. Planning
2. Implementation
3. Established Function
4. Catalogue Services
5. Draft
6. Negotiate
7. Review UCs And OLAs
8. Agree SLA’s
9. Manage the ongoing Process
10. Monitor
11. Report
12. Review
13. Periodic reviews
14. Review SLM process
15. Review SLAs OLAs and UCs
16. Implement SLAs
17. Review SLAs OLAs and UCs
18. Review SLM process
19. Periodic reviews
20. Review SLAs OLAs and UCs
21. Review SLM process
22. Periodic reviews
23. Review SLAs OLAs and UCs
24. Review SLM process
25. Periodic reviews
26. Review SLAs OLAs and UCs
27. Review SLM process
28. Periodic reviews
29. Review SLAs OLAs and UCs
30. Review SLM process
31. Periodic reviews
32. Review SLAs OLAs and UCs
33. Review SLM process
Service Support Functions

- Service Desk
- Incident Management
- Problem Management
- Change Management
- Configuration Management
- Release Management
The Service Desk is the primary point of contact for all:

- Calls
- Questions
- Requests
- Complaints
- Remarks

Service Desk Main Functions:

- Restore the service as quickly as possible
- Manage the incident life-cycle
- Support business activities
- Generate reports, communicate and promote issues
Service Desk Essentials

- Serve as the single point of contact (CM, REQM)
- Provide Customer Interface, Business Support, Incident Control and Management Information
- Concentrate on incident life-cycle management
- Determine Incident priority by business impact and urgency (REQM, CM)
- Conduct assessment of priorities to determine the deployment or manpower and other resources (REQM)
- Escalate issues to the proper next level as necessary (REQM, PPQA)
Incident Management focuses on:

- Restoring normal service as quickly as possible
- Minimizing the adverse impact on business operations
- Ensuring that the best possible levels of service quality and availability are maintained according to the SLAs (SAM – ISM)
Incident Management Terms

- **Incident** - any event which is not part of the standard operation of a service and which causes or may cause an interruption to or a reduction in the quality of that service

- **Work-Around** – Intermediate method of avoiding an Incident or Problem

- **Service Request** – Every Incident not being a failure in the IT infrastructure

- **Problem** – The unknown root cause of one or more incidents (CAR)
Known Error – A condition that exists after the successful diagnosis of the root cause of a problem when it is confirmed that a Configuration Item is at fault (CAR)

Priority – Impact on the business + Urgency / Effect upon business deadlines (PP)

Category – Classification of a group of Incidents (Applications, Hardware, etc.)

Escalation – Escalating the incident up the management chain (REQM, PPQA)
Scope of Incident Management

Incident Management Process
- Incident Recording and alerting
- Initial Support and Classification
- Investigation and Diagnosis
- Incident Trading
- Resolution and Recovery
- Incident Closure

Configurations Details

(CMDB)

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Incident Lifecycle

Incident Detection and Recording

Initial Classification & Support

Service Request

Service Request Procedure

Investigation & Diagnosis

Resolution and Recovery

Incident Closure

Ownership, Monitoring, Tracking, and Communication
First, Second- and Third-Line Support

Service Request Procedure

Detect & Record

Request

Initial Support

Resolved?

Resolved Recovery

Resolution Recovery

NO

Investigate Diagnose

Resolved?

Resolution Recovery

NO

Investigate Diagnose

Resolved?

Resolution Recovery

NO

Close

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Handling Incident Work-Arounds and Resolutions

Incident Management Process

- Incident Detection
- Problem Detected
- Matching Problems and Known Errors
- Workaround Found
- Accept Workaround
- Problem Records
- Work Around / Resolution Information
- Structural Resolution
- Incident Solved

Problem Management Process

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Problem Management stabilizes the IT Services through:

- Minimizing the consequences of incidents
- Removal of the root causes of incidents (CAR)
- Prevention of incidents and problems (OID, OPD, OPF)
- Prevent recurrence of Incidents related to errors (CM, OPD, OPF, OID)

End goal is not to be the best in fixing incidents but to become proactive and stop the problems from occurring in the first place.
Problem Management - 2

- Inputs to Problem Management process
  - Incident details (CM)
  - Configuration details (CM)
  - Defined work-arounds

- Outputs from Problem Management process
  - Known errors
  - Requests for change
  - Updated Problem Records including work arounds and solutions
Problem Management - 3

- Known Errors resulting from development should be made known to the Helpdesk (GP 2.7 – Identify and Involve Relevant Stakeholders)

- Proactive Problem Management focuses on:
  - Trend Analysis
  - Targeting Support Action
  - Providing Information to the Organization
Problem Control

Tracking and Monitoring of Problems

Problem identification and recording

Problem classification

Problem investigating and diagnosis

RFC and possible resolution and closure

Error Control
Incident-Matching Process Flow

- Inform Customer/User Of Work-Around
- Update Incident count On Known Error record
- Update Incident record With ID of Known Error
- Update Incident record With Category Data
- Extract Resolution or Circumvention Action from Known Error Database
- Support Required?
  - Y: Execute Resolution action
  - N: Allocate to Problem Management Team

- Incident Alert
  - Routine Incident?
    - Y: Update Incident count On Problem record
    - N: Match on Known Error Database?
      - Y: Update Incident record With ID of Known Error
      - N: Match on Problem Database?
        - Y: Raise new record On Problem database
        - N: Support Required?
          - Y: Extract resolution or Circumvention action From Problem Database
          - N: Inform Customer/User Of Work-Around

- New Problem Alert
- Process Incident/Problem

Error Control

Tracking and Monitoring of Errors

Identify and Record Error

Problem classification

Problem investigating and diagnosis

Close Error and Associated Problems

RFC

Change successfully implemented
Error Cycle in the Live and Development Environments

Live Operations

Problems

Investigations and diagnosis

Live Known Errors DB

Release

Development Known Errors DB

Application Development And Maintenance

Problems

Investigations and diagnosis

Request for Change

Change Management
Change Management

- Change Management is implemented to implement approved changes efficiently, cost effectively and with minimal risk to the existing and to the new IT infrastructure.

Change Management tasks include:

- Filtering Changes (REQM, CM)
- Managing Change Process (CM)
- Managing Changes (CM)
- Chairing CAB (CM)
- Review and Closure (CM)
- Management Information (CM, GP 2.7)
Change Management Process (CM)

- Request for a change
- Registration and Classification
- Monitoring and Planning
- Approving
- Build and Test
- Authorize Implementation
- Implementation
- Evaluate
Impact of a Change should be formulated according to incident classifications such as:

- **Category 1** – Little impact on current services
- **Category 2** – Clear impact on services
  - Request for Change (RFC) must be discussed in the Change Advisory Board
- **Category 3** – Significant impact on the services and the business
  - The RFC will have to be submitted to the board level Executive Committee
◆ Changes should be prioritized according to the business objectives and strategic planning

◆ A Change “Backout” plan must always be possible

◆ Change management always ends with a review of the change (CM)
Relationship between Capacity Management, Change Management, Configuration Management, and Release Management

- **Change Management**
  - Assesses impact
- **Capacity Management**
  - Assesses impact on Business & IT Performance
- **Configuration Management**
  - Identifies areas impacted
- **Configuration Management**
  - Updates records
- **Release Management**
  - Controls release of new software or hardware if required to implement Change
An Approach for Standard Change Management Procedures

Request for Change RFC

Initial Assessment

What is the Scope of the Change?

Apply appropriate Change Model

Implementation as Defined in model

RFC CAN ARISE VIA INTERNET, KEYBOARD OR ANY OTHER SOURCE

Change Model Scope
- Mega Change
- Massive Change
- Medium Change
- Mini Change
- Tiny Change
- Minuscule Change

Models pre-defined by Change Management And agreed with the organization

The model may be specific to type (e.g. Network Or PC) or to severity of impact, or whatever is Specific to your organization

These example models would be designed With Tasks specific to the level of control desired by your organization

Approach

Log Seek Approve Seek CAB Build
Estimate Approval Etc.

Log Check All Update Close
Signature Actions CDMB Etc.

Log
Seek
Estimate
Approve
Seek CAB
Build
Etc.

Approve
Seek CAB
Build
e
Estimate
Approval
Etc.

Approve
Seek CAB
Build
Etc.

Estimate
Approval
Etc.

Estimate
Approval
Etc.

Approval
Etc.

Approval
Etc.

Etc.

Etc.

Etc.

Etc.

Etc.

Etc.

Etc.

Etc.
Scope for Extending Change Management and Configuration Management Control

- Business Processes
- IT Processes
- Procurement Lifecycles
- Software Lifecycles

Configuration Management
Configuration Management

- Configuration Management (CM)
  - Provides information on the IT Infrastructure to all other processes and the IT Management
  - Enables control of the infrastructure by monitoring and maintaining information on:
    - Resources needed to deliver services
    - Configuration Item status and history
    - Configuration Item relationships
Configuration Management Tasks

- Identification and naming
- Management Information
- Verification (VER, PPQA)
- Control
- Status Accounting

Configuration Management Database

- Contains all relevant details of each Configuration Item
- Contains details of the important relationships between CIs
Configuration Item

- Is needed to deliver a service
- Is uniquely identifiable
- Is subject to change
- Can be managed
- Has a category, relationships, attributes and a status

Configuration Management support all other processes!
CMDB interfacing to Incident, Problem, Change and Release Management

- Start
- Incident
- Problem
- Known Error
- Request for Change
- Change Authorized
- Change Tested, Implemented and Released
- End

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Relationship between Configuration, Change and Release Management

Change Management

Request for Change
Register and allocation RFC number

Assess
Analyse impact, broker agreement where assessors differ

Approved Change

Implement Change
This will involve pre-release testing where software changes are required

Post-Implementation Review
Has change met originator’s expectations?

Close Change

End

Release Management

Report & configuration audit to check environment

Reports & configuration audit to check environment

Reports on CIS, areas & parties impacted

Update CM records

Baseline, release software from DSL & update DSL & CM records

CMDB

Reports & configuration audit to check environment

Reports on CIS, areas & parties impacted

Update CM records

Baseline, release software from DSL & update DSL & CM records

Definitive Software Library

Release & Distribute New Versions of software and hardware with documentation

Baseline, release software from DSL & update DSL & CM records

Check all CM records were updated

Update CM records

Baseline, release software from DSL & update DSL & CM records

Check all CM records were updated

End
Release Management provides service support by:

- Safeguarding all software and related items (CM)
- Ensuring that only tested / correct version of authorized software and hardware are in use
- Ensuring that the right software is in the right place at the right time
- Ensuring that the right hardware is in the right place at the right time
Release Management

- Releases are done under the control of Change Management (CM)

- Release Management tasks include:
  - Define the release policies
  - Controlling the Software Library
  - Controlling the Hardware Storage
  - Distributing the Software and Associated CIs
  - Carrying out Software audits
  - Managing the software releases
  - Overseeing the build of the software releases
### Major Activities in Release Management (VER – VAL)

<table>
<thead>
<tr>
<th>Development Environment</th>
<th>Controlled Test Environment</th>
<th>Live Environment</th>
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#### Release Management

- **Release Policy**
- **Release Planning**
- **Design and develop, or order and purchase the software**
- **Build and configure the Release**
- **Fit-for-Purpose testing**
- **Release Acceptance**
- **Roll-out planning**
- **Communications preparation and training**
- **Distribution and installation**

**Configuration Management Database (CMDB)**

**And**

**Definitive Software Library (DSL)**
Simplified Example of an IT Software Infrastructure

IT Infrastructure

- System 1
  - Suite 1-1
  - Suite 1-2
- System 2
  - Suite 2-1
  - Program 2-1-1
  - Module
- System 3
  - Suite 2-2
  - Program 2-1-2
  - Module 2-1-1-2
  - Module 2-1-1-3
Definitive Software Library and CMDB relationship

Physical CLs

DSL

Build New Release

Test New Release

Information about the CLs

CMDB

Release Record

Distribute new Release to live locations

Implement new Release