Information Technology Infrastructure Library

Perry Sellars & Tim Poole
Service Management the ITIL Way
Hewlett-Packard

What is ITIL?

- **I**nformation **T**echnology **I**nfrastructure **L**ibrary (series of reference books)

- Process-oriented, quality system for IT services

- Central Computer & Telecommunications Agency (CCTA)

Why Choose ITIL?

- Formal industry standard
  - Published reference model
  - Accepted & established world-wide (i.e., real world validation)

- Consistent language
  - common terms & meanings
  - common objectives & methods

- Supported by enterprise-class tools

HP & ITIL

- Foundation for HP's ITSM Reference Model

- OpenView Products
  - Synergy with OV Operations modules & ITSM framework
 - ITServiceDesk product "ITILized"

Benefits of ITIL

- Ensure stable, flexible, quality IT services
- Promote optimal IT service at justifiable costs
- Align IT services with business objectives
- Use resources more strategically & effectively
- Define and agree to service levels and customer satisfaction
- Reduce audit compliance efforts

IT Service Components

IT Services

People

Technology

Processes
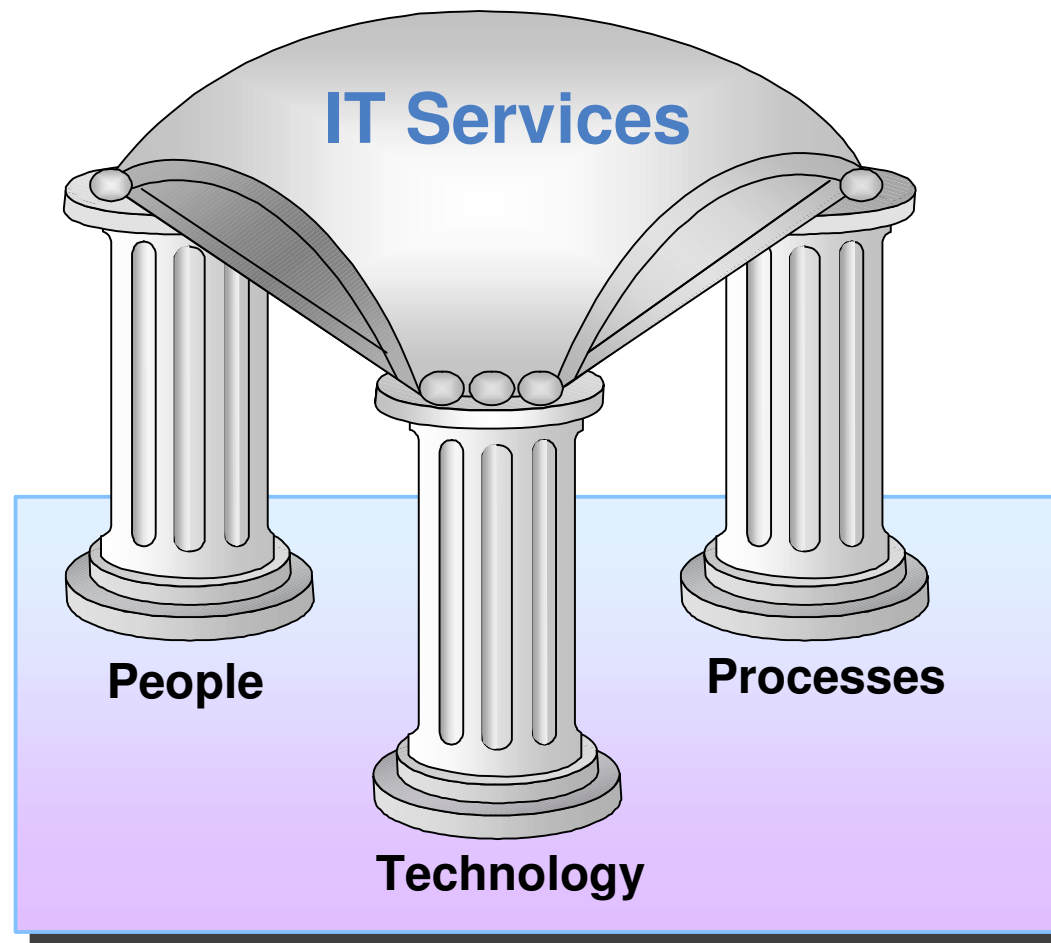
Putting Availability Numbers in Perspective

# of Nines	Uptime %	Down/ Year	Compare To
1.7	97%	11 days	Vacation
2	99%	3 days 16 hours	Long Weekend
2.5	99.5%	1 day 20 hours	Weekend
3	99.9%	9 hours	Full Workday
3.5	99.95%	4 hours 23 minutes	Dinner and a movie
3.75	99.975%	2 hours 11 minutes	Dinner or a movie
4	99.99%	53 minutes	Lunch
5	99.999%	5 minutes	Coffee break
6	99.9999%	32 seconds	Television commercial

Source: Illuminata Research Note, June 1999

Aligning Objectives - Business & IT

- Business Objectives

- IT Service Objectives

Business & IT Alignment

A man is flying in a hot air balloon & realizes he is lost. He reduces height & spots a man down below. He lowers the balloon further & shouts: "Excuse me, can you tell me where I am?"

The man below says: "Yes you're in a hot air balloon, hovering 30 feet above this field."

"You must work in Information Technology" says the balloonist.

"I do" replies the man. "How did you know."

"Well" says the balloonist, "everything you have told me is technically correct, but it's no use to anyone."
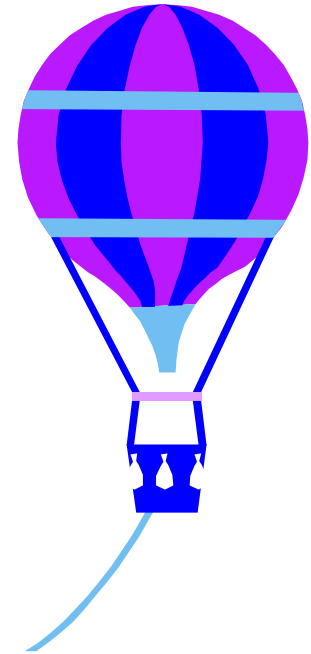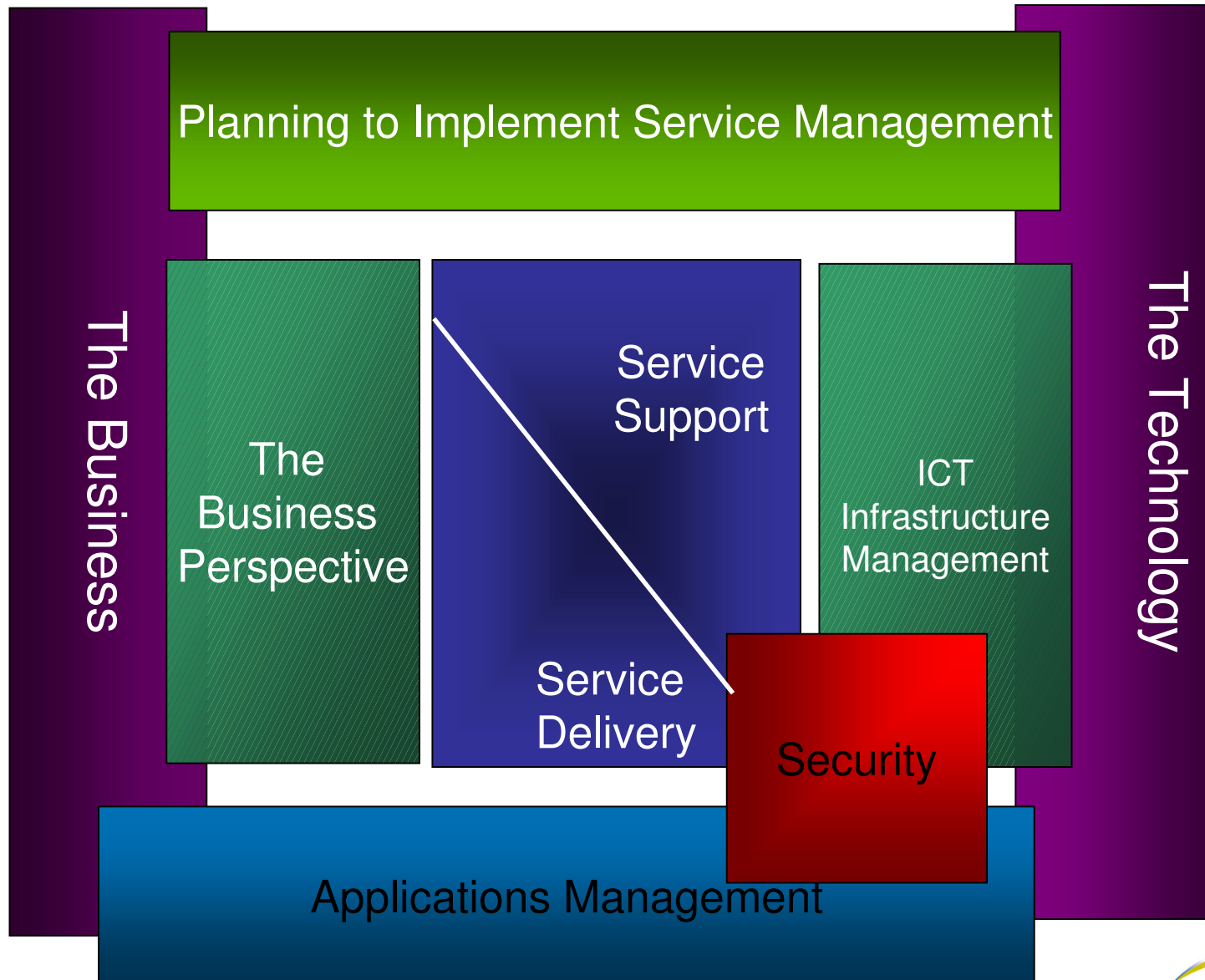
Business & IT Alignment

The man below says, "You must work in business."

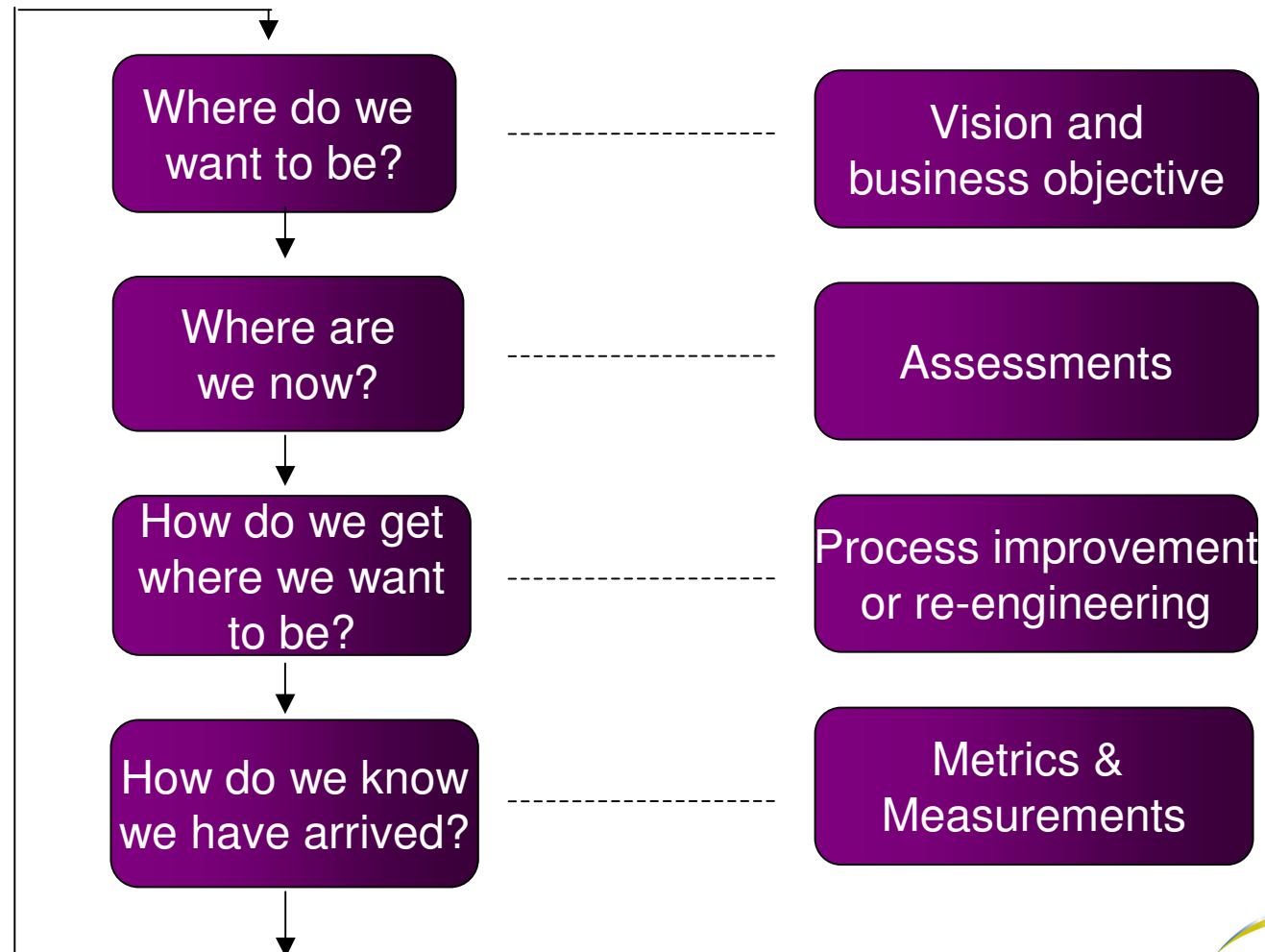"I do" replies the balloonist, "but how did you know?"

"Well", says the man, "you don't know where you are, or where you're going, but you expect me to be able to help. You're in the same position you were before we met, but now it's my fault."
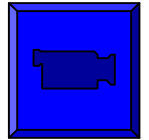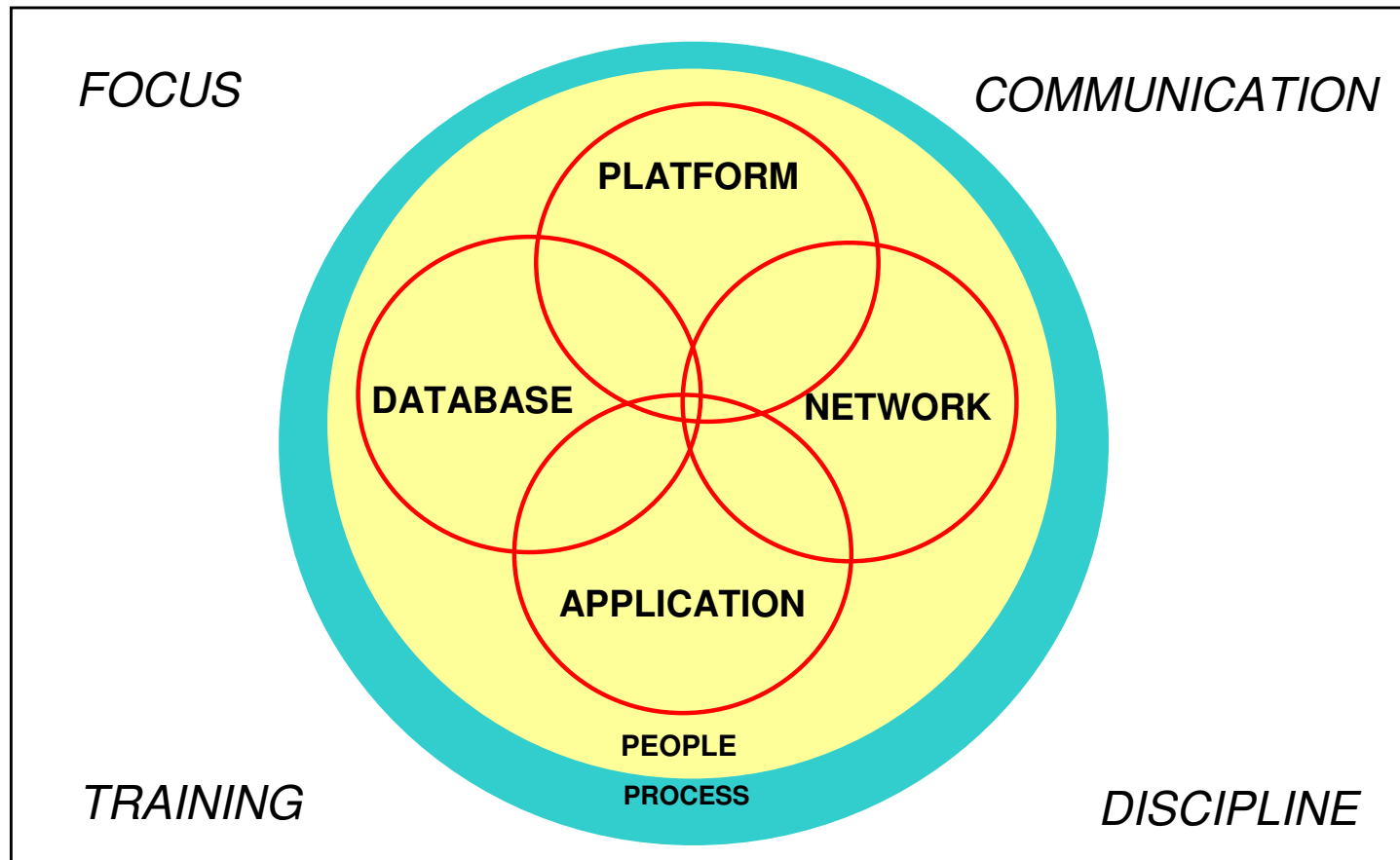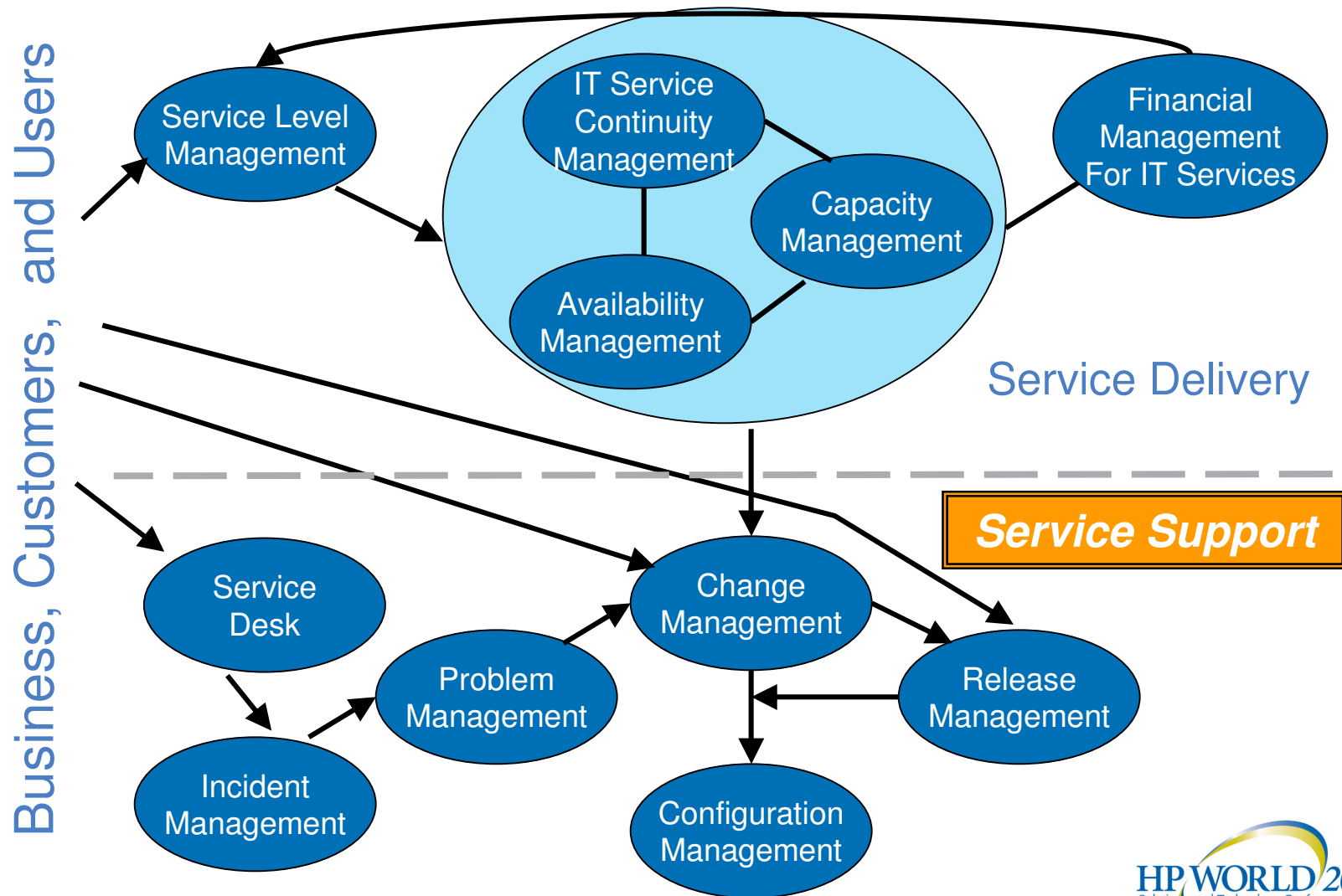
ITIL Publication Framework

Planning to Implement Service Management

The Business

The Business Perspective

Service Support

Service Delivery

ICT Infrastructure Management

The Technology

Security

Applications Management

Process Improvement Model

```
┌──────────────────────┐
│  Where do we          │----------------  ┌──────────────────────┐
│  want to be?          │                  │  Vision and           │
└──────────────────────┘                  │  business objective   │
         │                                 └──────────────────────┘
         ▼
┌──────────────────────┐
│  Where are            │----------------  ┌──────────────────────┐
│  we now?              │                  │  Assessments          │
└──────────────────────┘                  └──────────────────────┘
         │
         ▼
┌──────────────────────┐
│  How do we get        │                  ┌──────────────────────┐
│  where we want        │----------------  │  Process improvement  │
│  to be?               │                  │  or re-engineering    │
└──────────────────────┘                  └──────────────────────┘
         │
         ▼
┌──────────────────────┐
│  How do we know       │----------------  ┌──────────────────────┐
│  we have arrived?     │                  │  Metrics &            │
└──────────────────────┘                  │  Measurements         │
                                           └──────────────────────┘
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Managing a Mission Critical Environment

FOCUS

COMMUNICATION

PLATFORM

DATABASE

NETWORK

APPLICATION

PEOPLE

PROCESS

TRAINING
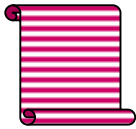
DISCIPLINE
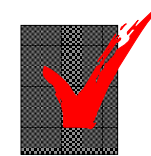
ITIL Process Interrelationships

Service Desk

Activities:
- Receive and record all calls from Users
- Initial assessment of incidents
- Monitor and escalate incidents
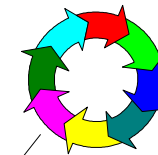- Communicate status and progress of incidents

Benefits:
- Improved user service
- Increased user accessibility
- Improved quality and response to user requests

Reporting:
- Service levels: responsiveness, customer satisfaction
- Incidents: impact, categories, duration, distributions
- Time/cost to fix

Central point of contact between User and IT Service Management

Terminology:
- Incident
  * Impact code
  * control
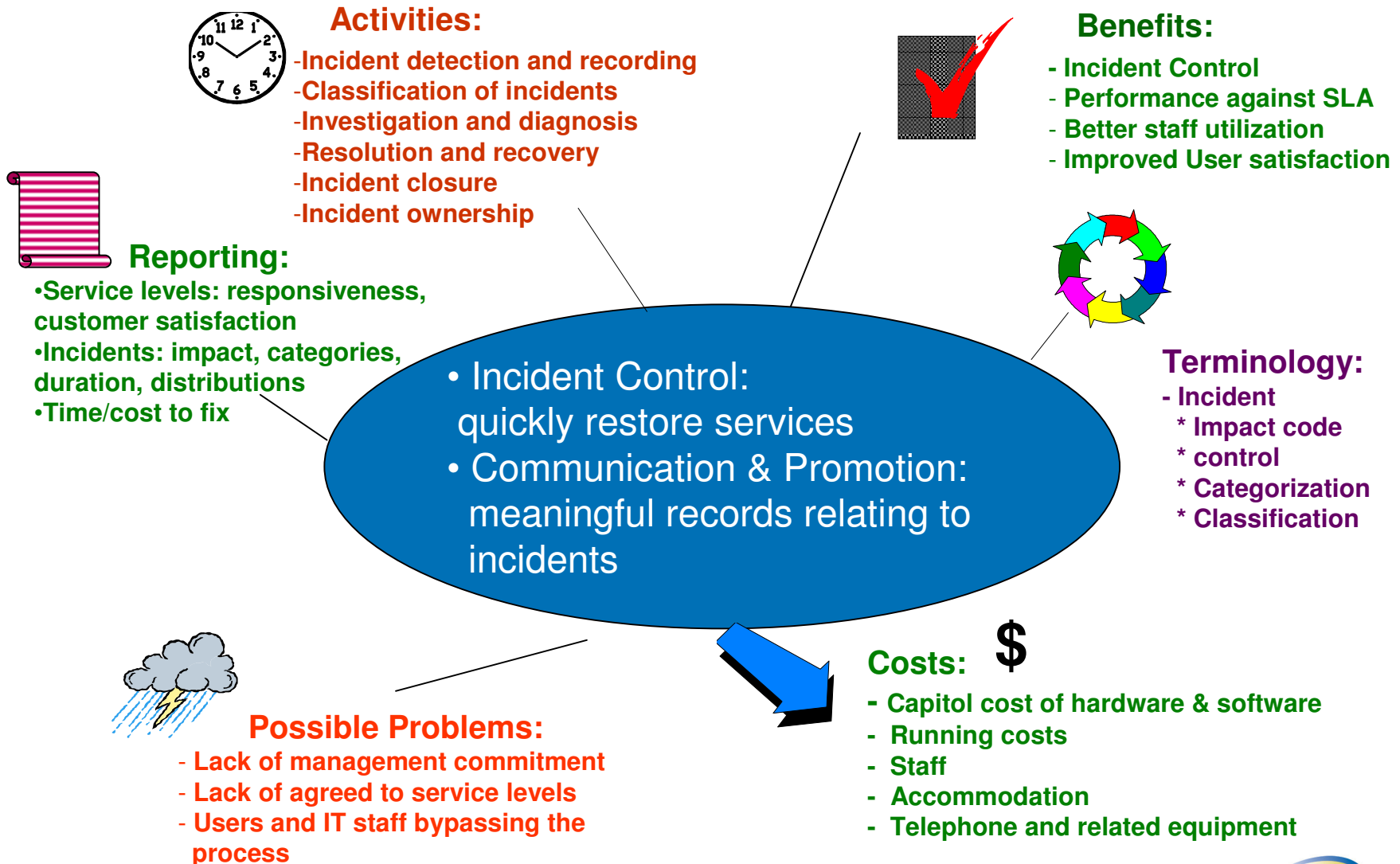 * Categorization
  * Classification

Possible Problems:
- User service not considered a priority
- Lack management commitment
- Over reliance on technology
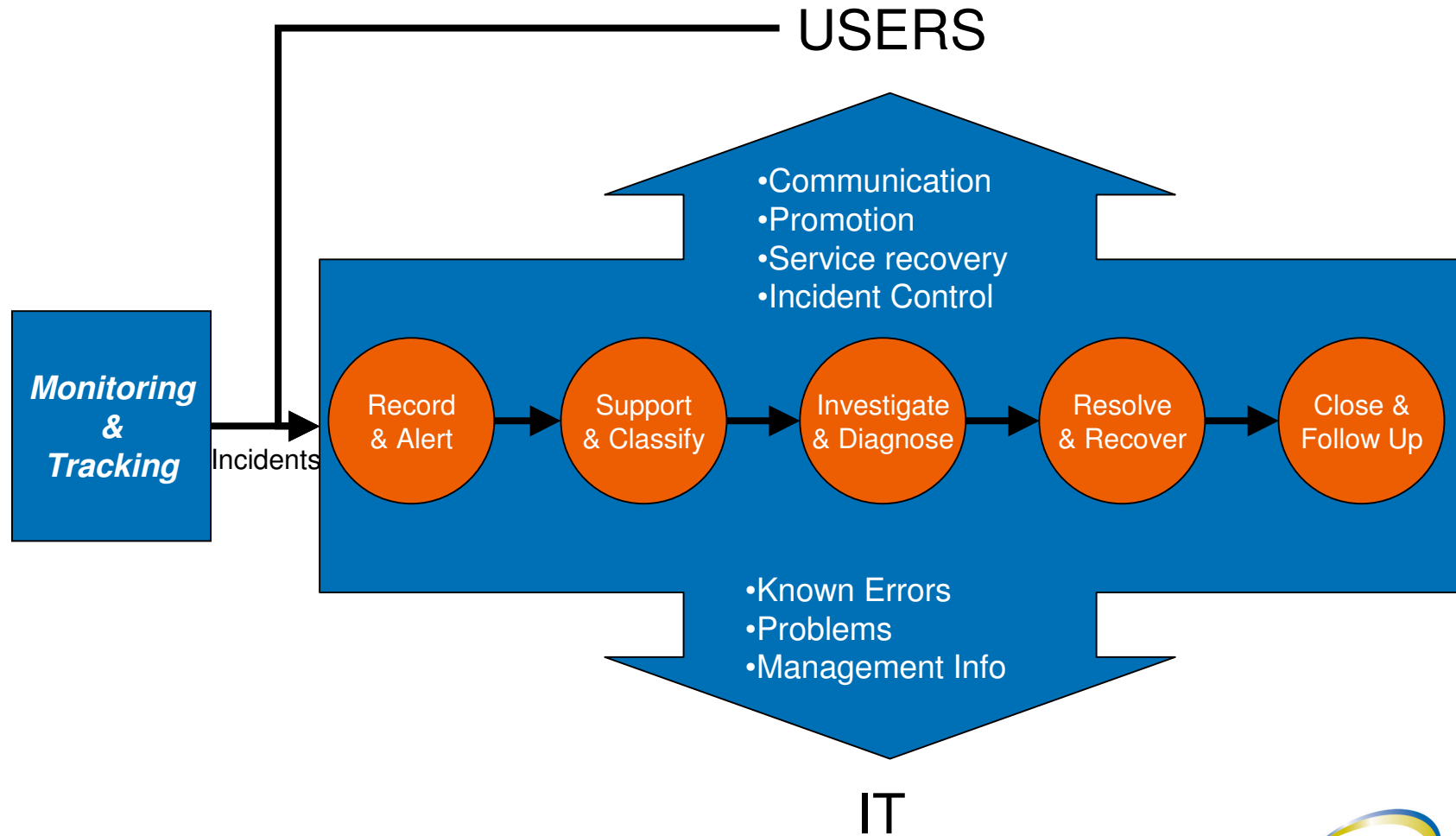- Resistance to changed work practices

Costs: $
- Capitol cost of hardware & software
- Running costs
- Staff
- Accommodation
- Telephone and related equipment

Incident Management

Activities:
- Incident detection and recording
- Classification of incidents
- Investigation and diagnosis
- Resolution and recovery
- Incident closure
- Incident ownership

Benefits:
- Incident Control
- Performance against SLA
- Better staff utilization
- Improved User satisfaction

Reporting:
- Service levels: responsiveness, customer satisfaction
- Incidents: impact, categories, duration, distributions
- Time/cost to fix

Terminology:
- Incident
  * Impact code
  * control
  * Categorization
  * Classification

- Incident Control: quickly restore services
- Communication & Promotion: meaningful records relating to incidents

Possible Problems:
- Lack of management commitment
- Lack of agreed to service levels
- Users and IT staff bypassing the process

Costs: $
- Capitol cost of hardware & software
- Running costs
- Staff
- Accommodation
- Telephone and related equipment

Incident Life-cycle

USERS

•Communication
•Promotion
•Service recovery
•Incident Control

Monitoring & Tracking

Incidents

Record & Alert → Support & Classify → Investigate & Diagnose → Resolve & Recover → Close & Follow Up

•Known Errors
•Problems
•Management Info

IT

Problem Management

Activities:

- Problem control
- Error control
- Proactive problem management
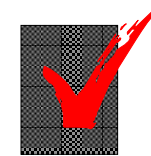
Benefits:

- Increased user productivity
- Better management of IT service
- Improved reputation of IT
- Learning from past experience
- Increased productivity of support staff
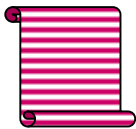
Reporting:

- •Impact on Infrastructure & service levels
- •Problem classifications, diagnosis, & resolution
- •Time/cost to fix
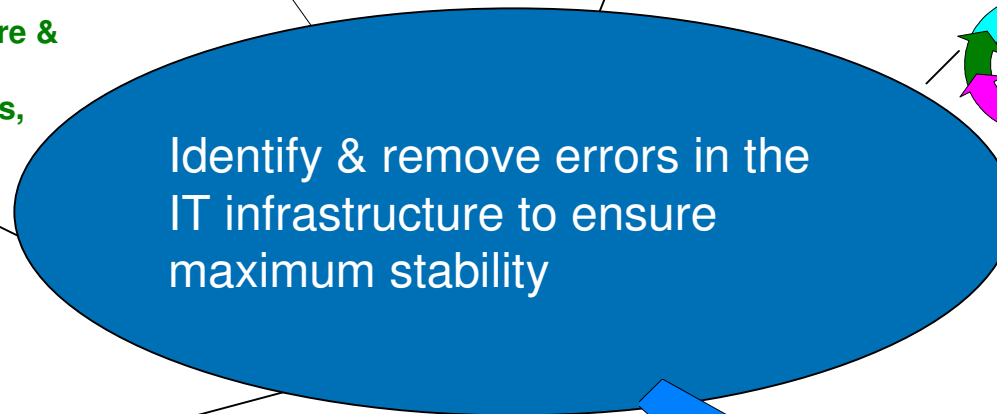
Identify & remove errors in the IT infrastructure to ensure maximum stability
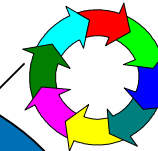
Terminology:

- Problem
- Known Error
- Request for Change

Possible Problems:

- Users contact problem management
- Link between Incident, Problem, & Known Error
- Insufficient time and resources
- Lack of business impact assessment

Costs: **$**

- Running costs
- Staff
- Accommodation

Incidents, Problems, & Known Errors
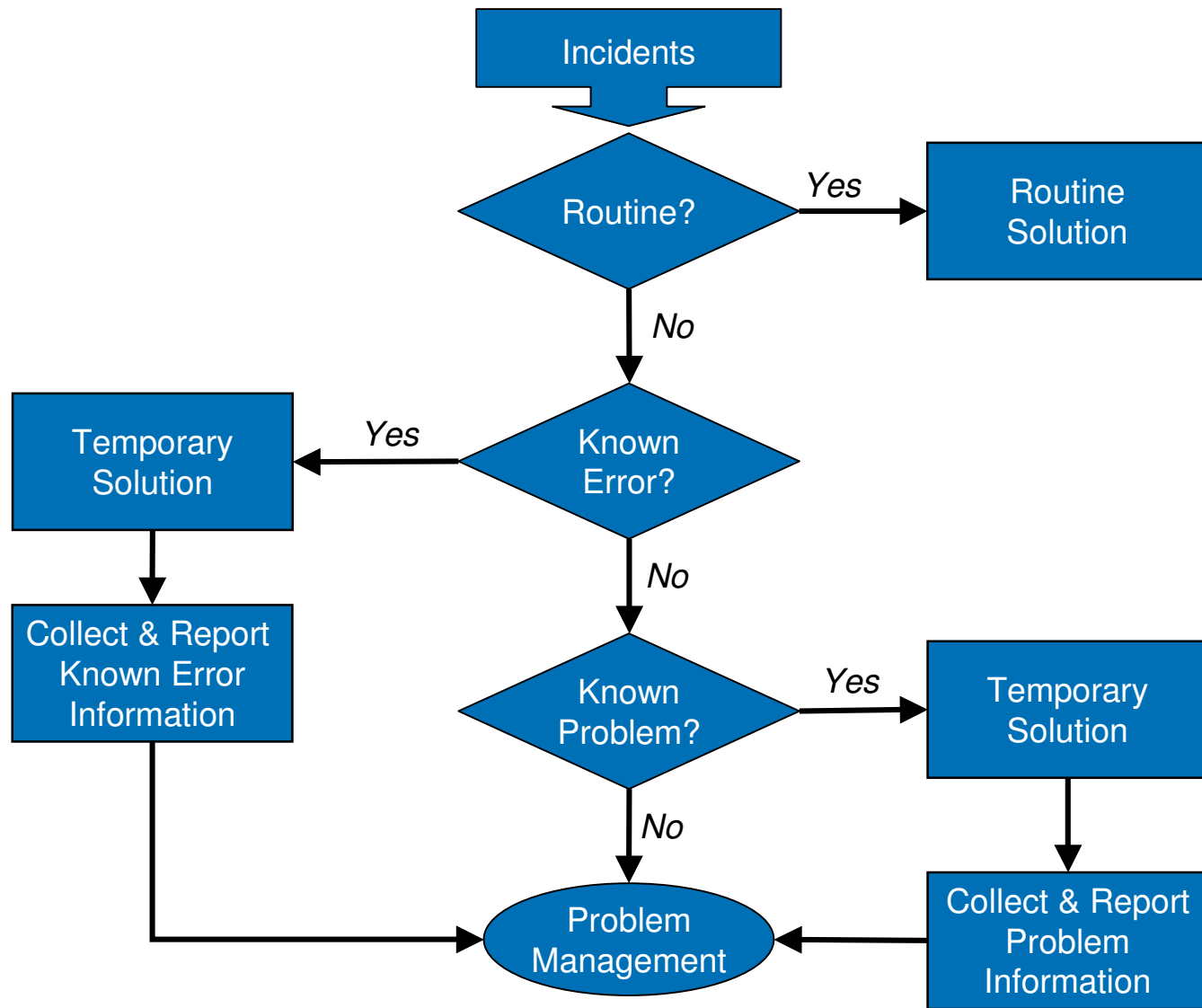
Configuration Management

Activities:

- Planning
- Identification
- Control
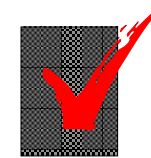- Status accounting
- Verification

Benefits:

- Management of IT resources
- High quality IT services
- Deal quickly with changes
- Efficient/effective problem solving
- Better software management
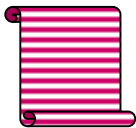
Reporting:

- State of Infrastructure
- Growth of Infrastructure
- Change effects
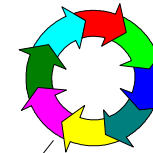- Infrastructure Variations
- Infrastructure Trends

Manage Infrastructure: record & audit all configuration items

Terminology

- Configuration Item (CI)
- Configuration Mgt DB (CMDB)
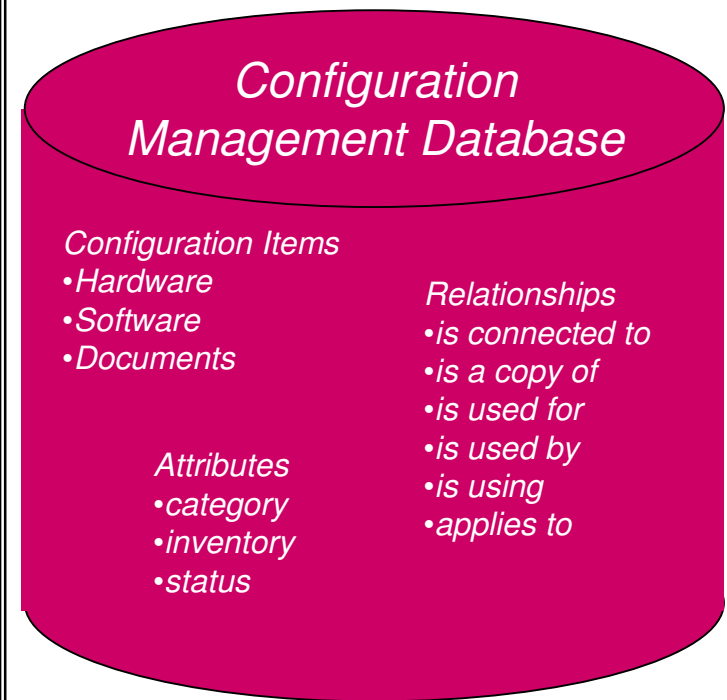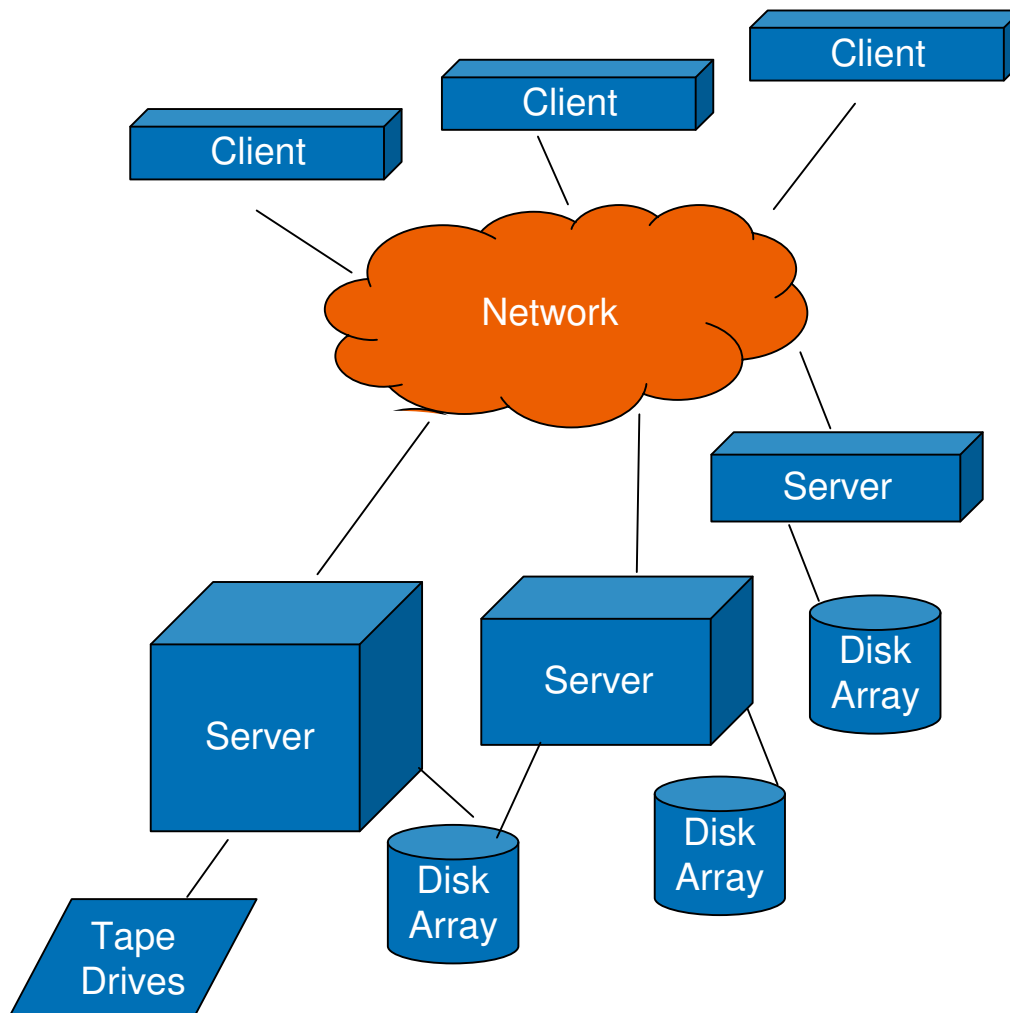- Scope
- CI Level
- Attributes
- Relationships

Costs: $

- Hardware (if necessary)
- Software product
- Customization costs for software
- Additional staff cost should be offset by increased efficiency in Change Mgt

Possible Problems:

- Wrong Configuration Item level
- Manual systems
- Urgent changes
- Over-ambitious planning
- Acceptance by Management

Configuration Management

Example Configuration Items
Appropriate Scope is Essential

Client

Client

Client

Network

Server

Server

Server

Disk Array

Disk Array

Disk Array

Tape Drives

Configuration Management Database

Configuration Items
- Hardware
- Software
- Documents

Relationships
- is connected to
- is a copy of
- is used for
- is used by
- is using
- applies to

Attributes
- category
- inventory
- status

Change Management

Activities:

- Acceptance
- Classification
- Assessment and planning
- Coordination
- Evaluation
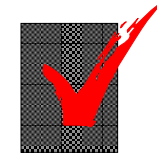
Benefits:

- Fewer change-related problems
- Better understanding of costs
- Improved ability to back-out
- Ability to absorb high levels of change
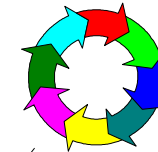
Reporting:

• Changes by category and status
• Problems resulting from change
• Time/cost to implement
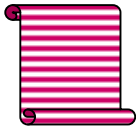
Ensure standard methods are used for efficient & immediate handling of changes to prevent change-related problems

Terminology:

- Change
- Request for Change
- Priority
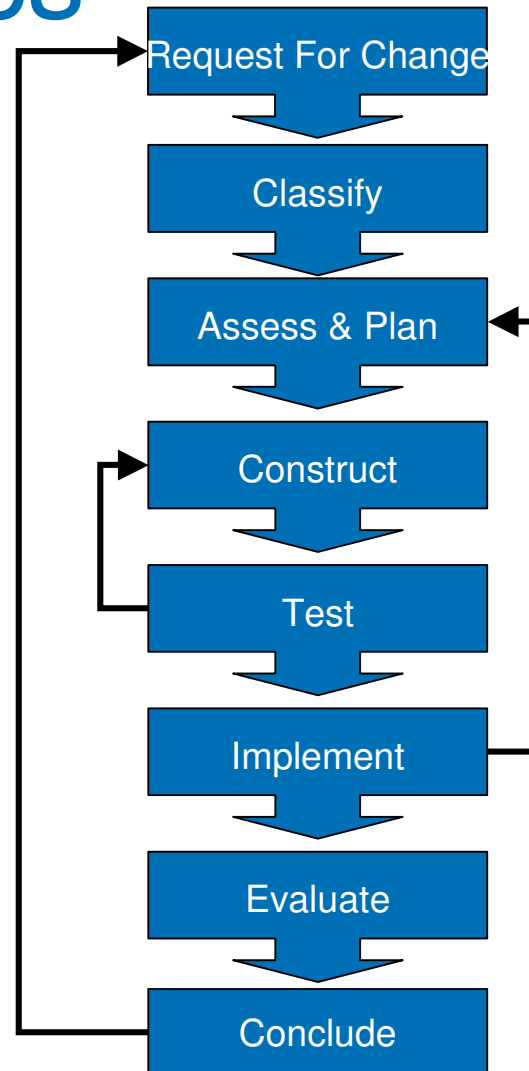- Category
- Change Advisory Board
- Change Manager

Possible Problems:

- Tools
- Culture
- Discipline
- Suppliers
- By passing
- Delegation without commitment
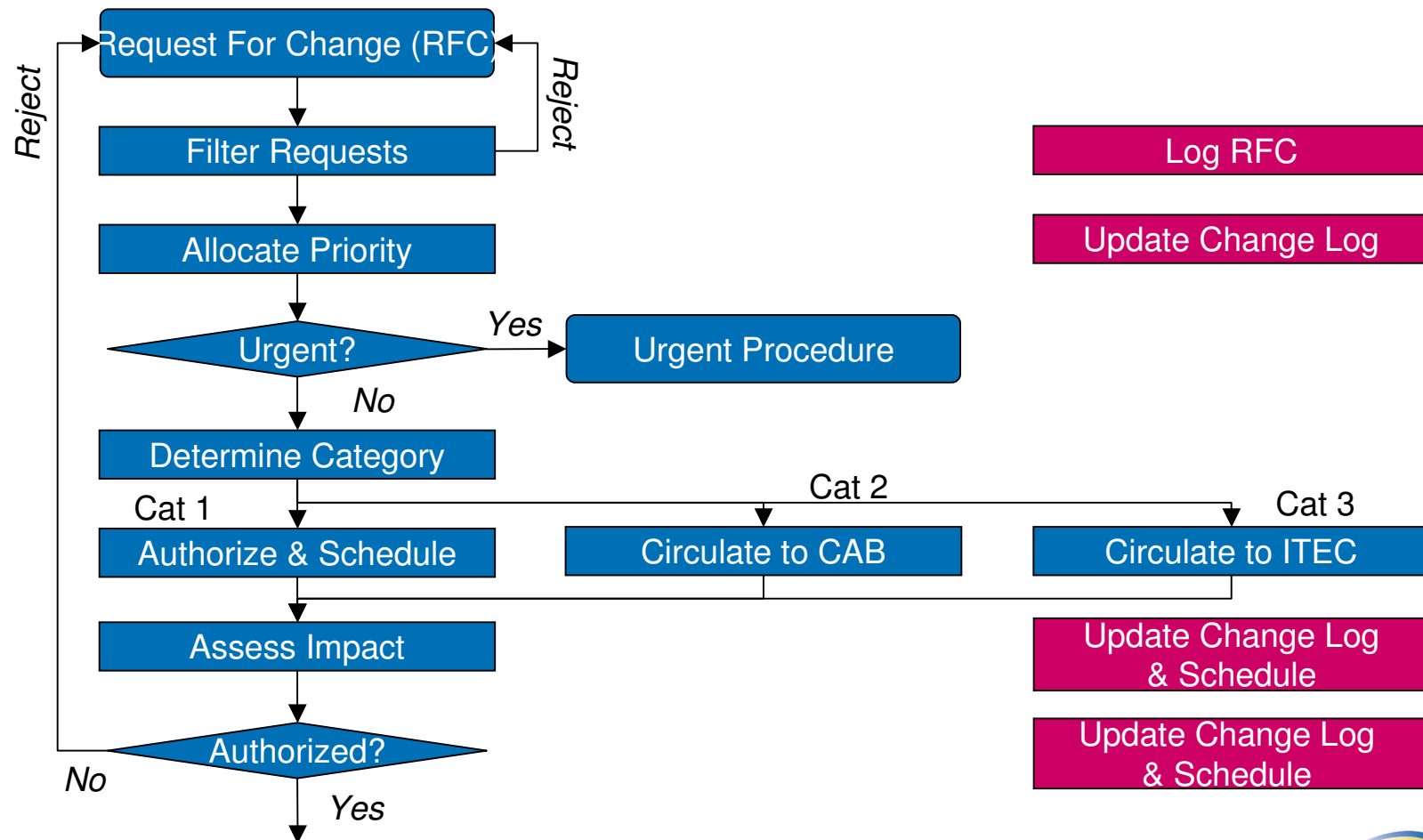- When is it really a change?

Costs: $

- Hardware and software
- staff
- accommodation
- telephones

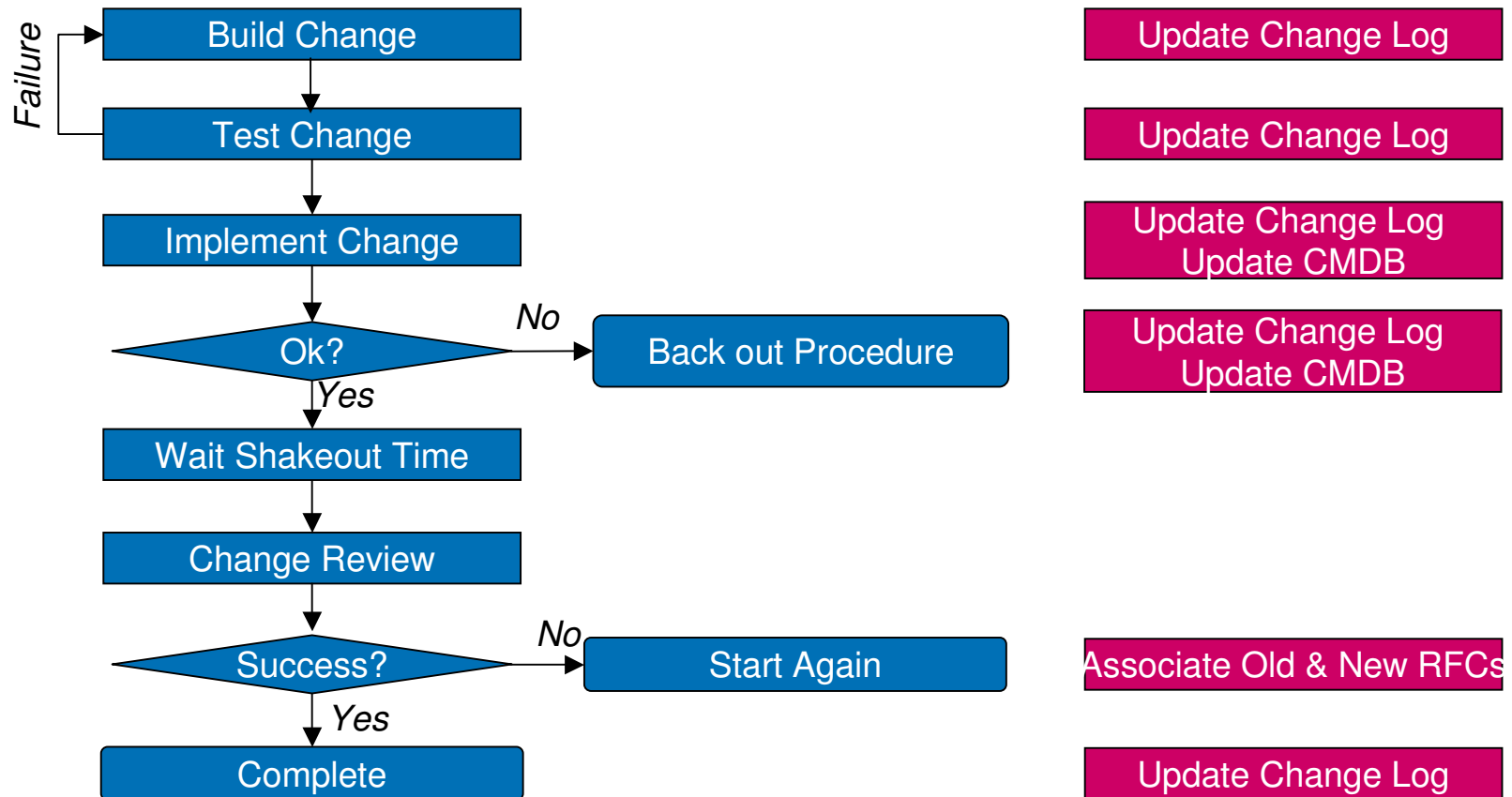# Change Management - The Basics

Request For Change

Classify

Assess & Plan

Construct

Test

Implement

Evaluate

Conclude

Example Non-Urgent Change Procedure (p1 of 2)

Request For Change (RFC)

Reject

Filter Requests

Reject

Log RFC

Allocate Priority

Update Change Log

Urgent? — Yes → Urgent Procedure

No

Determine Category

Cat 1 — Authorize & Schedule

Cat 2 — Circulate to CAB

Cat 3 — Circulate to ITEC

Assess Impact

Update Change Log & Schedule

Authorized?

Update Change Log & Schedule

No

Yes

Key: Change Mgmt   Config Mgmt

Example Non-Urgent
Change Procedure (p2 of 2)

Failure

Build Change	Update Change Log
Test Change	Update Change Log
Implement Change	Update Change Log Update CMDB

Ok? → **No** → Back out Procedure | Update Change Log
Update CMDB

Yes

Wait Shakeout Time
Change Review

Success? → **No** → Start Again | Associate Old & New RFCs

Yes

Complete	Update Change Log

Key: Change Mgmt   Config Mgmt

Example Urgent Change Procedure (p2 of 2)

Implement Change		Update Change Log Update CMDB
Ok?	—No→ Back out Procedure	Update Change Log Update CMDB
Yes		Update Change Log Update CMDB
Formal Testing		
Wait Shakeout Time		
Change Review		
Success?	—No→ Start Again	Associate Old & New RFCs
Yes		
Complete		Update Change Log
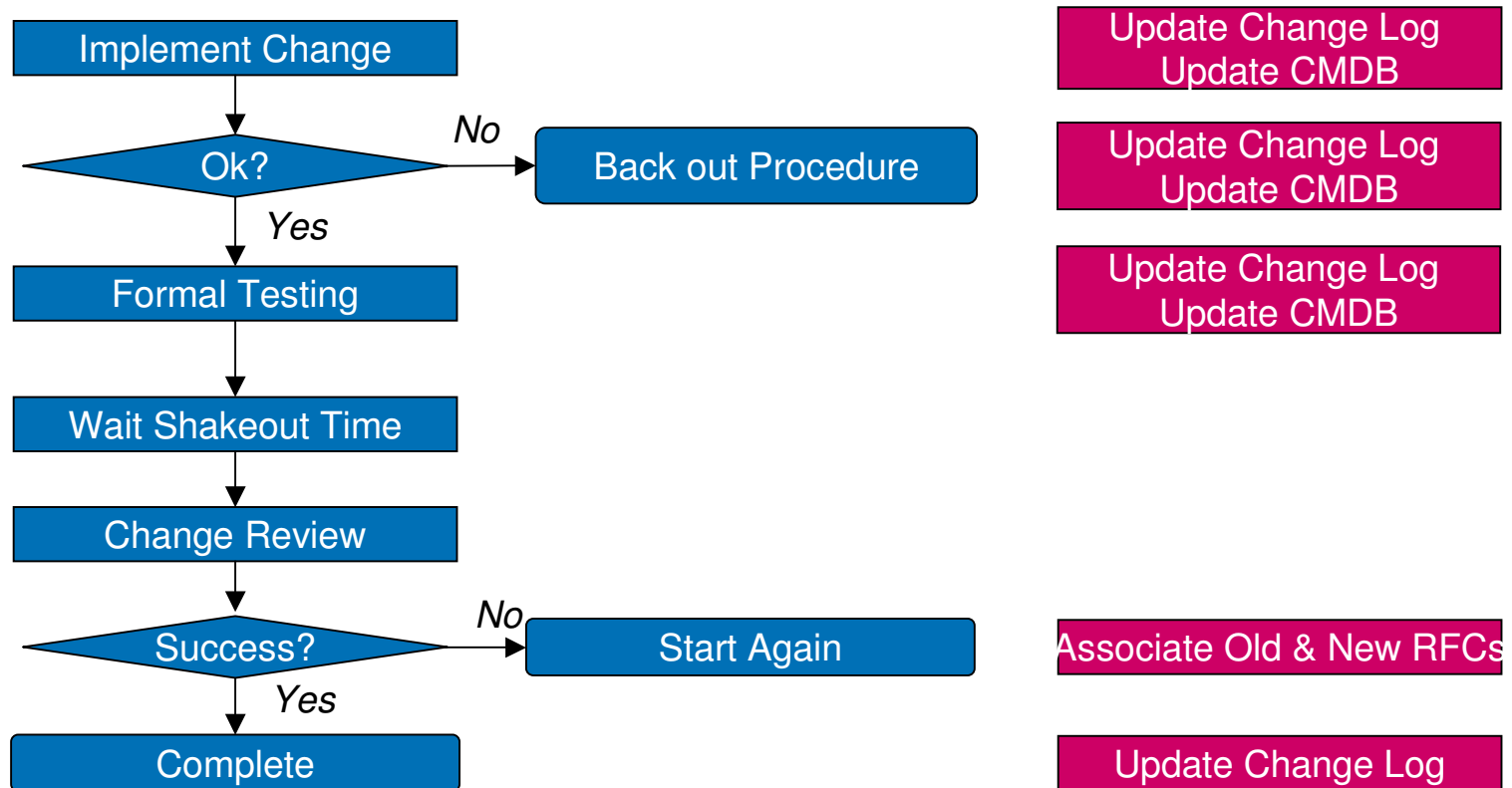
Key: Change Mgmt   Config Mgmt

Release Management

Activities:
- Planning and overseeing roll-out
- Liaison with Change Management
- Ensure CMDB is up to date
- Manage customer & user expectations

Benefits:
- Good quality software
- Less chance of incorrect versions
- Secure software items
- Process large numbers of changes
- Environment-wide versions
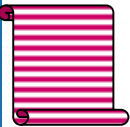
Reporting:
- CIs accepted, rejected,LTUs
- Development expectations
- Documentation
- Time/cost to build/use

Holistic view of a change to an IT service, ensuring all aspects of a Release are considered together
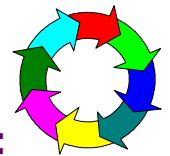
Terminology:
- Definitive Software Library
- Software Configuration Item
- Release
  * Delta
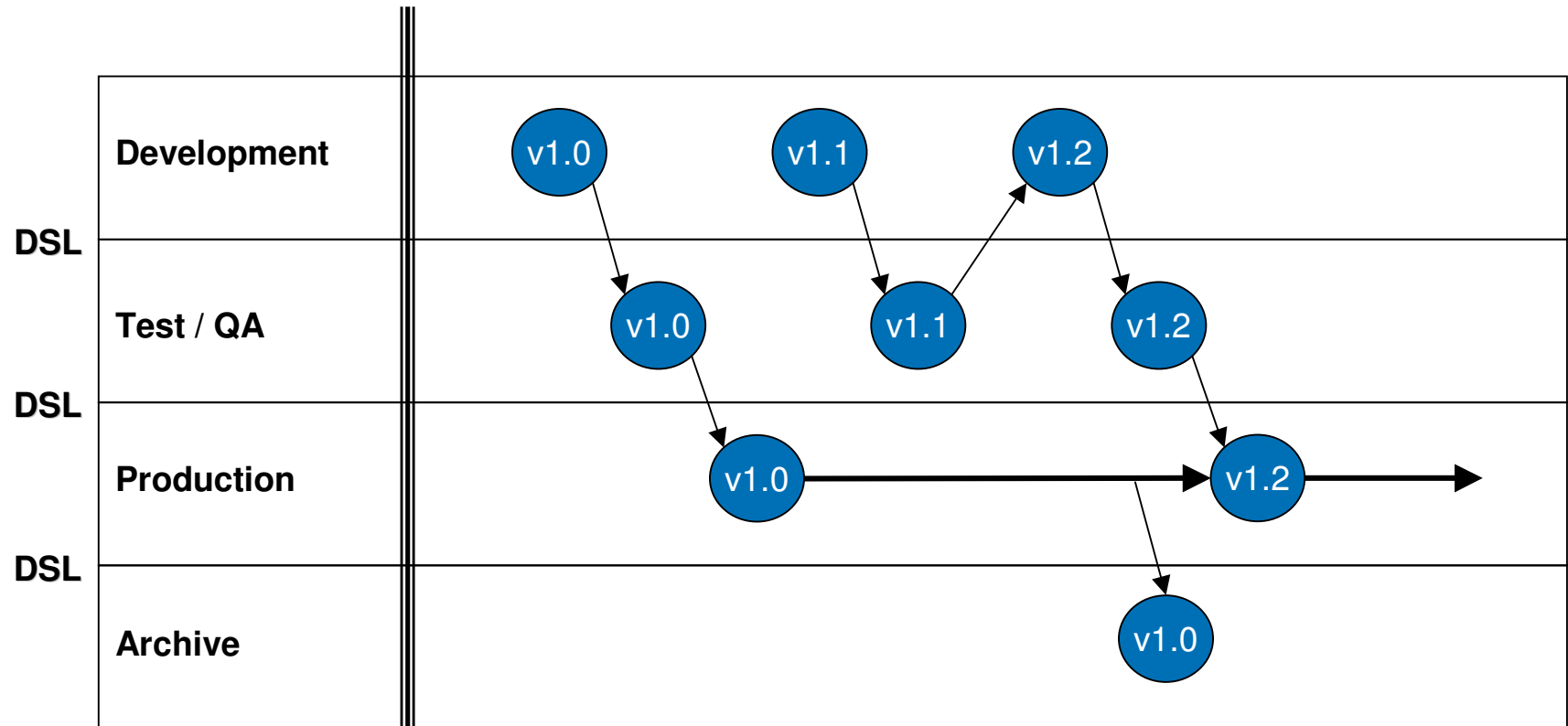 * Full
  * Package
  * Emergency

Possible Problems:
- Resistance to change
- By-passing Release Policy
- Urgent changes
- Unclear ownership & role acceptance
- Inadequate building and testing
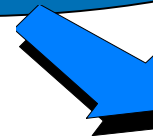
Costs: $
- Staff
- File storage
- Computer and network resources
- Software support tools
- Training of staff

Version Control & Separate Environments

**DSL = Definitive Software Library**

ITIL Process Interrelationships


Business, Customers, and Users

Service Level Management

IT Service Continuity Management

Capacity Management

Availability Management

Financial Management For IT Services

Service Delivery

Service Support

Service Desk

Incident Management

Problem Management

Change Management

Release Management

Configuration Management

Service Level Management

Activities:

- Identify & verify client requirements
- Define, negotiate & establish agreements
- Monitor & review service delivery
- Continuously improving service levels
- Produce & maintain a Service Catalog
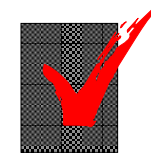
Benefits:

- Achieving a specific, consistent measurable level of service
- Balancing required service levels against costs
- Defined relationships with customers
- Less chance of unpredictable demands
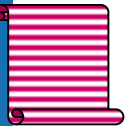
Reporting:

- Services: delivery to agreement
- Operations: delivery to agreement
- Service catalog
- Time/cost to deliver particular service levels

Ensuring agreement to & monitoring of an optimal level of IT Service

Terminology:

- Customer
- Service Level Manager
- Service Catalog
- Service Level Requirement (SLR)
- Operational Level Agreement (OLA)
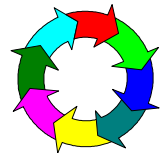
Possible Problems:

- Establishing Service Level Requirements (SLR)
- Determining cost per SLR
- Recording agreements
- Single Action (customer management)

Costs: $

- Administration
- Tools
- Ongoing improvement expenditures

Service Level Agreements Include:

- Service Description
- Operating hours
- Availability
- Support Levels
- Performance
- Functionality
- Changes

- Charges
- Contingency
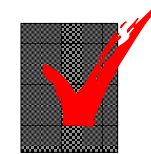- Growth
- Distribution
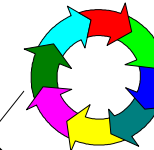- Training
- Evaluations

Financial Management

Activities:

- Determine total costs
- Specifying cost per Service
- Monitor costs
- Determine charging policy
- Define chargeable units
- Invoice charges

Benefits:

- Management information
- Balance between quality and cost
- Business decisions on IT Services and investments
- Maximizing value for money
- Planning and budgeting

Reporting:

•Costs of each service
•Total IT costs
•Future investments
•Time/cost to deliver particular service levels

Monitor, measure, and perhaps recover costs of IT services

Terminology:

- Cost method
- Pricing
- Charging policy
- Chargeable unit
- Direct costing
- Indirect costing
- Fixed cost

Possible Problems:

- Introducing a new discipline
- IT/Accounting knowledge
- Absence of commitment
- Unclear policy or objective
- Cost of the system

Costs: $

- Hardware (if necessary)
- Software product
- Customization costs for software
- Additional staff cost should be offset by increased efficiency in Change Mgt
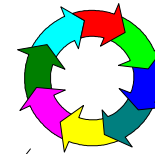
Capacity Management

Activities:

- Create capacity management database (CDB)
- Produce Capacity Plans
- Monitor performance and capacity
- Manage resources and demand
- Model business with resource use
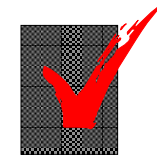
Benefits:

- Maximize existing capacity
- Control over capacity costs
- Reduce risk of capacity related problems
- Better relationship with users
- Improved anticipation of performance and capacity problems

Reporting:

- Resource utilization
- Utilization, workload, & demand Trends
- Capacity predictions versus actual

Ensure optimal & cost-effective use of IT services by matching resources to service commitments

Terminology:

- Performance Management
- Workload Management
- Application Sizing
- Resource Management
- Demand Management
- Modeling
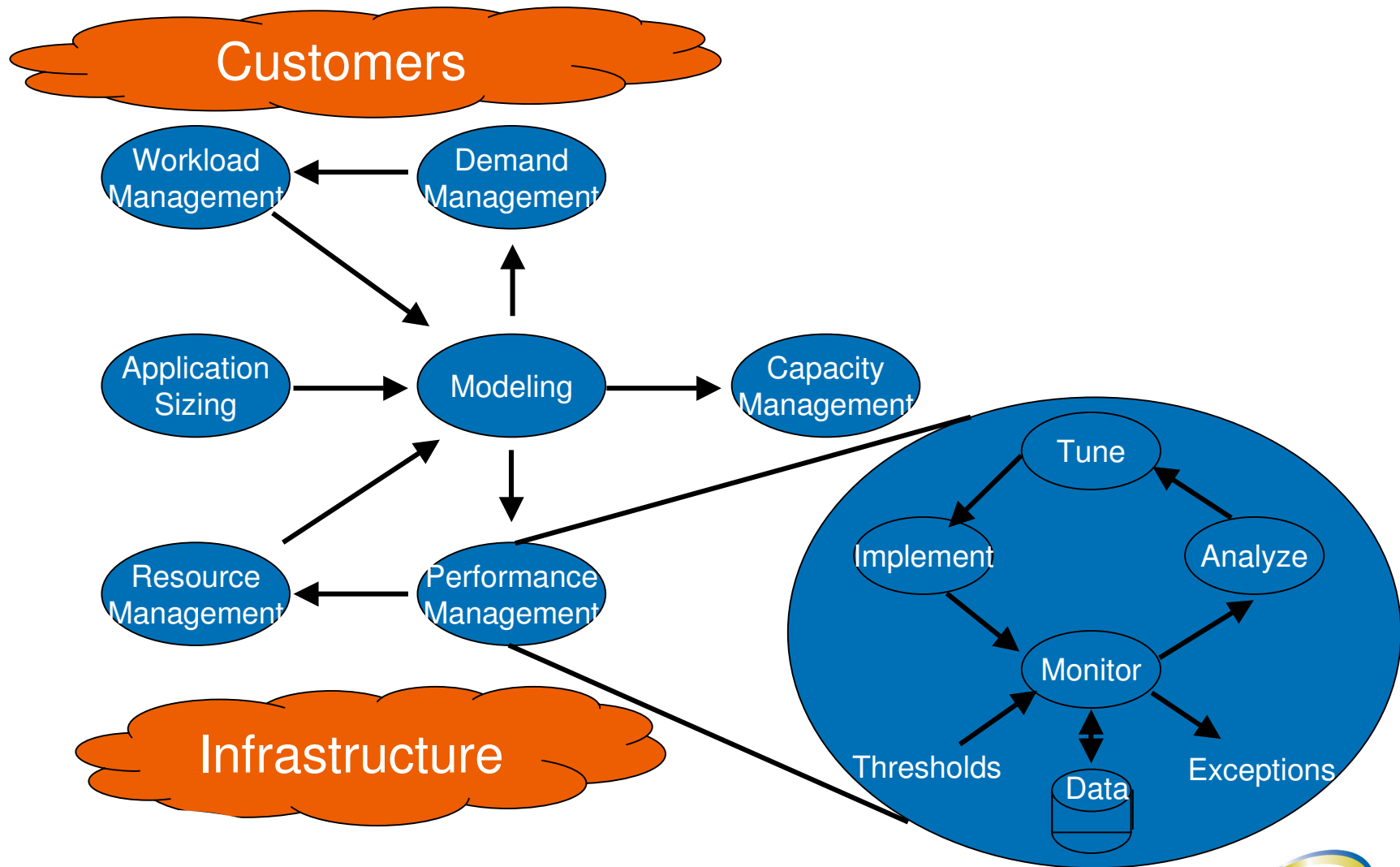- Capacity Planning

Possible Problems:

- Tuning expectations too high
- User expectations exceed technical realities
- Influence of suppliers
- Unreliable information from users about future workload

Costs: $

- Staffing
- Training
- Additional software and hardware
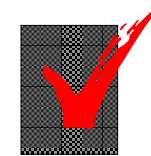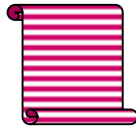
Capacity Management

Availability Management

Activities:

- Determine availability requirements
- Creating Availability Plan
- Collecting data
- Maintain the Availability database
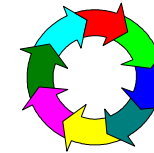- Monitoring
- Management Reporting

Benefits:

- Quality of service
- Cost effectiveness
- Insight into IT infrastructure
- Systematic instead of ad-hoc
- Security

Reporting:
- Availability - overall
- Deviations from SLAs
- Trends
- Recommendations
- Cost to deliver

Sustain IT service availability to meet business needs at a justifiable cost

Terminology:
- Availability
- Reliability
- Maintainability
- Serviceability
- Resilience
- Security

Possible Problems:
- Justification of costs
- Commitment
- Tools
- Dependence of suppliers
- Determination of needs
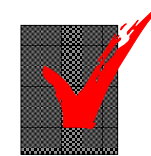- Knowledge of IT infrastructure

Costs: $

- Start-up costs, I.e., staffing, training, and tools
- Hardware and software
- Investment to improve current levels of availability
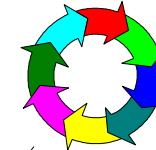
IT Service Continuity

Activities:
- Risk analysis
- Risk control
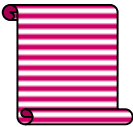- Contingency Plan Management
- Testing of Contingency Plan

Benefits:
- Reduce number and impact of interruptions
- Quick recovery after crisis
- Greater continuity of IT service
- Minimum interruption of business

Reporting:
- "Disaster" scenarios
- Changes that impact CP
- List of safeguards
- Contracts
- Test results
- Cost of countermeasures

To cope with & recover from an IT crisis that moves work to an alternative system in a non-routine way

Terminology:
- Threat
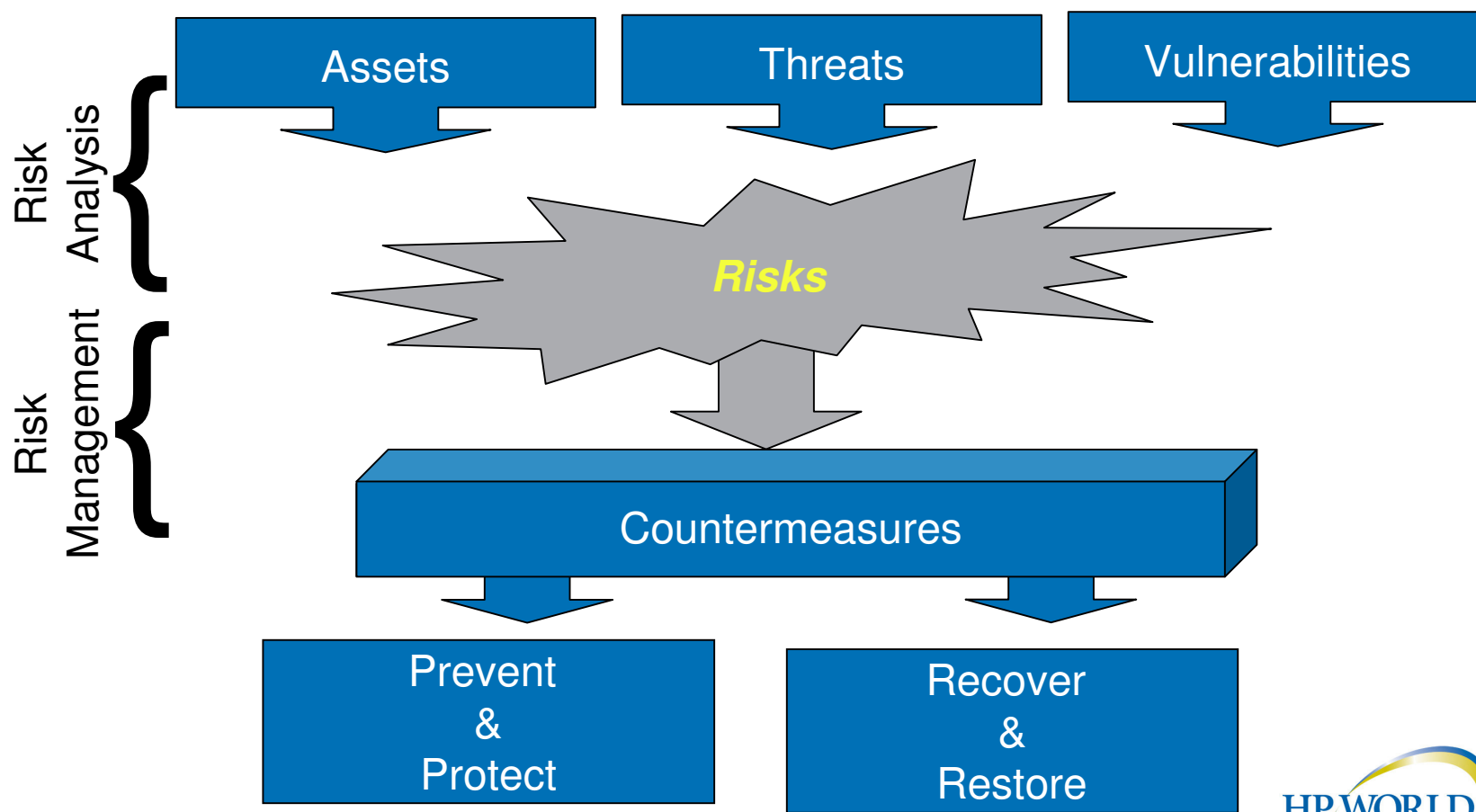- Vulnerability
- Risk
- Disaster
- Fall-back

Possible Problems:
- Gaining management commitment
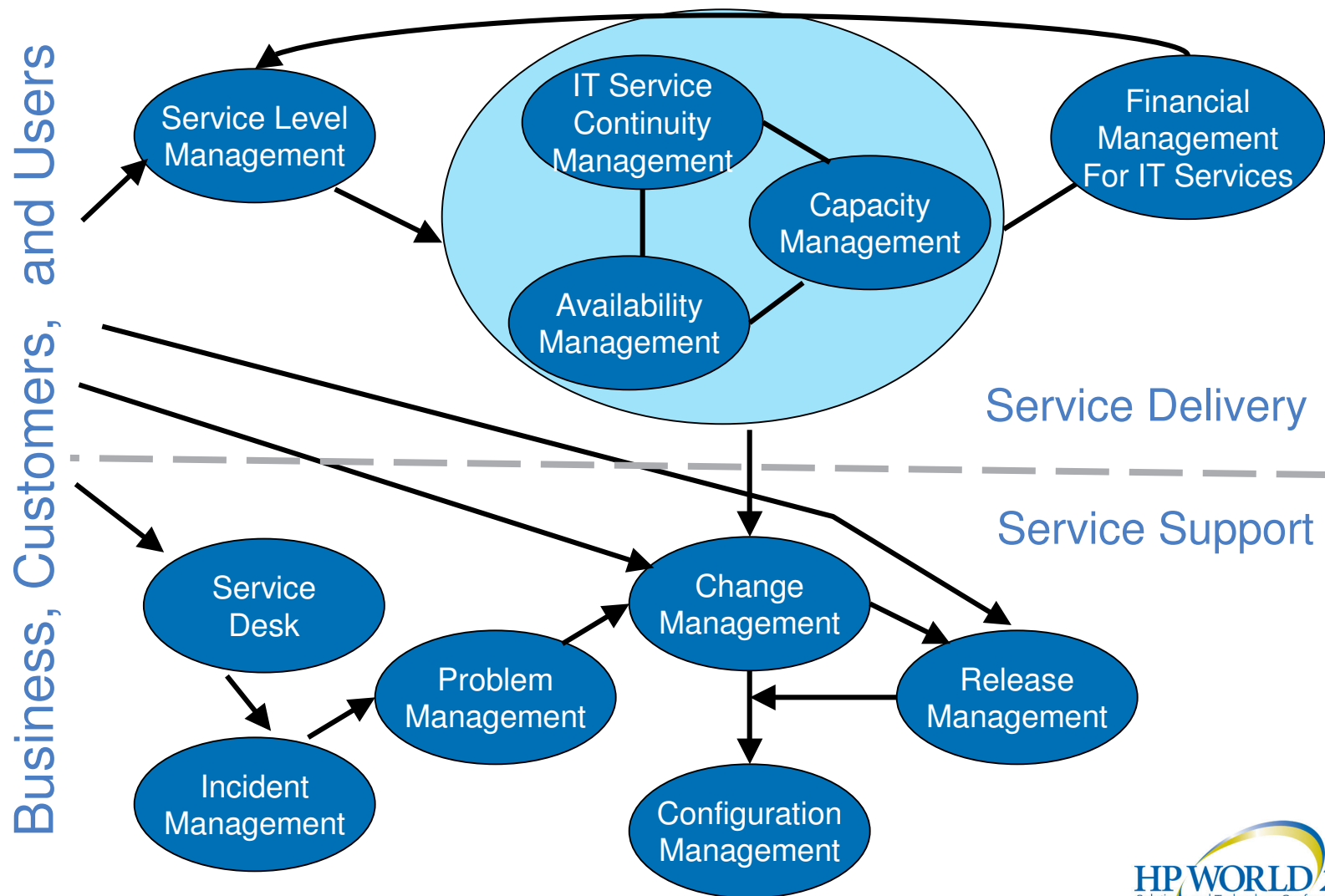- Obtaining the required resources
- Testing a plan on live systems

Costs: $
- Resources to produce the plan perform risk analysis, and test
- Hardware or other contingency site costs

Contingency Planning: Risk Analysis &Management

ITIL Process Interrelationships

Business, Customers, and Users

Service Level Management

IT Service Continuity Management

Capacity Management

Availability Management

Financial Management For IT Services

Service Delivery

Service Support

Service Desk

Problem Management

Change Management

Release Management

Incident Management

Configuration Management

ITIL Certifications

ITIL Essentials

- 3 day class total
- 1.5 hour multiple choice exam
- covers the 10 processes
- read the pocket guide
- participate, ask questions, stay in the class
- study approximately 1 hour a night
- should be successful

IT Service Manager

- 2 one week courses
  - 1 - Service Support
  - 1 - Service Delivery
- 3 day review/exam
  - using a case study, 2 - 4 hour essay type exams; 5 questions each exam
- 360+ hours of study and class participation

ITIL Certifications (concluded)

- **ITIL Practitioners**
  - Service Desk
  - Incident Management
  - Problem Management
  - Configuration Management
  - Change Management
  - Availability Management
  - Capacity Management
  - Service Level Management
  - Financial Management for IT Services
  - IT Service Continuity Management

- Where?
  - HP Education Center
  - Pink Elephant
  - IT Service Management Foundation (ITSMF)

ITIL can help you align IT with your business needs and begin the journey from a Technology-driven to a Service-driven *Adaptive Enterprise.*